Entergy

Entergy Nuclear Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213
Tel 601-368-5573

Mandy K. Halter
Director, Nuclear Licensing

10 CFR 50.90

PNP 2019-004

March 28, 2019

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

Subject: License Amendment Request Resubmittal to Adopt TSTF-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b*

Palisades Nuclear Plant
NRC Docket 50-255
Renewed Facility Operating License No. DPR-20

In accordance with Title 10 of the Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), *Application for amendment of license, construction permit, or early site permit*, Entergy Nuclear Operations, Inc. (Entergy) hereby requests Nuclear Regulatory Commission (NRC) review and approval of a proposed amendment to revise the Renewed Facility Operating License (RFOL) DPR-20 for the Palisades Nuclear Plant (PNP).

Entergy proposes to revise PNP RFOL Appendix A, Technical Specifications (TS), by relocating specific surveillance frequencies to a licensee controlled program with the implementation of Nuclear Energy Institute (NEI) 04-10, *Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies"* (Reference 1). This request is consistent with Technical Specification Task Force (TSTF)-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b* (Reference 2). TSTF-425 was made available for all nuclear power plants by the Federal Register Notice of Availability published on July 6, 2009 (Reference 3). This request also incorporates the changes to traveler TSTF-425 recommended by NRC letter, *Notification of Issue with NRC-Approved Technical Specifications Task Force (TSTF) Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5"* (Reference 4).

Entergy submitted to the NRC a license amendment request (LAR) for PNP to adopt TSTF-425 in Reference 5. The NRC staff performed an acceptance review of the application per LIC-109, *Acceptance Review Procedures*, and concluded that additional technical information was required in order for the staff to accept the application (Reference 6). Entergy provided additional information to the NRC staff in Reference 7. Subsequently, Entergy elected to withdraw the PNP LAR (Reference 8). In Reference 9, the NRC acknowledged Entergy's

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withdrawal of the PNP LAR and described the additional information that Entergy would have to provide upon resubmittal. To address this additional information, the PNP Probabilistic Risk Assessment Technical Adequacy report submitted in Reference 5 has been revised to reflect a recently approved internal events model which included a focused peer review, and a facts and observations closure review. The updated report is provided in the Enclosure Attachment 1 to this LAR.

The Enclosure to this letter provides a description and evaluation of the proposed changes to PNP TS, the confirmation of TSTF-425 applicability, and plant-specific variations. The Enclosure attachments are listed below.

Attachment 1	Provides documentation of PNP's probabilistic risk assessment (PRA) technical adequacy.
Attachment 2	Provides the existing TS pages marked up to show the proposed changes.
Attachment 3	Provides revised (clean) TS pages.
Attachment 4	Provides, for information only, existing TS Bases pages marked to show the proposed changes.
Attachment 5	Provides the no significant hazards consideration analysis.
Attachment 6	Provides a TSTF-425 traveler surveillance requirement (SR) versus PNP RFOL TS SR applicability cross reference table.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a), *Notice for public comment*, subparagraph (1), using the standards in 10 CFR 50.92, *Issuance of amendment*, paragraph (c), and it has been determined that the changes involve no significant hazards consideration. The basis for this determination is included in Enclosure Attachment 5.

Entergy requests NRC approval of the proposed license amendment by December 31, 2019, and an implementation period of 90 days after the effective date of the amendment, to support preparations for a planned summer 2020 refueling outage.

In accordance with 10 CFR 50.91(b), *State consultation*, Entergy is notifying the State of Michigan of this proposed license amendment by transmitting a copy of this letter, with the enclosure, to the designated State of Michigan official.

This letter identifies no new regulatory commitments.

Should you have any questions or require additional information, please contact Jim Miksa, regulatory assurance engineer at (269) 764-2945

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 28, 2019.

Respectfully,

Mandy K. Halter

Mandy K. Halter

MKH/jpm

Enclosure: Description and Evaluation of Proposed Changes

Attachments to Enclosure:

1. Palisades Nuclear Plant Probabilistic Risk Assessment Technical Adequacy
2. Proposed Changes to Palisades Plant Renewed Facility Operating License DPR-20 and Appendix A Technical Specifications Pages
3. Page Change Instructions and Revised Pages for the Palisades Plant Renewed Facility Operating License DPR-20 and Appendix A Technical Specifications
4. Proposed Technical Specification Bases Changes (for information only)
5. No Significant Hazards Consideration
6. Traveler TSTF-425 Versus Palisades Nuclear Plant (PNP) Renewed Facility Operating License (RFOL) Surveillance Requirement (SR) Applicability Cross Reference Table

References:

1) Nuclear Energy Institute (NEI) 04-10, Revision 1, *Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies,* dated April 2007 (NRC ADAMS Accession Number ML071360456)

2) Technical Specifications Task Force letter to the NRC, *Transmittal of TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b,"* dated March 18, 2009 (NRC ADAMS Package Accession Number ML090850642)

3) Federal Register Notice of Availability, 74 FR 31996, *Notice of Availability of Technical Specification Improvement to Relocate Surveillance Frequencies to Licensee Control – Risk-Informed Technical Specification Task Force (RITSTF) Initiative 5b, Technical Specification Task Force-425, Revision 3,* dated July 6, 2009

4) NRC letter to Technical Specifications Task Force, *Notification of Issue with NRC-Approved Technical Specifications Task Force (TSTF) Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b,"* dated April 14, 2010 (NRC ADAMS Accession Number ML100990099)

5) Entergy Nuclear Operations, Inc., PNP 2018-025, "License Amendment Request – Application to Revise Technical Specifications to Adopt TSTF-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b,*" dated September 27, 2018 (NRC ADAMS Package Accession Number ML18270A320)

6) NRC letter, "Palisades Nuclear Plant – Supplemental Information Needed for Acceptance of Requested Licensing Action Re: Amendment Request to Revise Technical Specifications to Adopt TSTF-425, Revision 3 (EPID L-2018-LLA-0258)," dated November 8, 2018 (NRC ADAMS Accession Number ML18309A134)

7) Entergy Nuclear Operations, Inc. letter, PNP 2018-052, "Supplement to License Amendment Request – Application to Revise Technical Specifications to Adopt TSTF-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b,*" dated November 16, 2018 (NRC ADAMS Accession Number ML18320A002)

8) Entergy Nuclear Operations, Inc. letter, PNP 2018-062, "Withdrawal - License Amendment Request – Application to Revise Technical Specifications to Adopt TSTF-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b,*" dated December 14, 2018 (NRC ADAMS Accession Number ML18348A421)

9) NRC letter, "Palisades Nuclear Plant – Withdrawal of Requested Licensing Action to Adopt Technical Specifications Task Force TSTF-425, *Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b*, Revision 3 (EPID L-2018-LLA-0258)," dated December 14, 2018 (NRC ADAMS Accession Number ML18348A617)

cc: Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
Resident Inspector, Palisades, USNRC
State of Michigan

Enclosure to

PNP 2019-004

Description and Evaluation of Proposed Changes

497 Pages Follow

Description and Evaluation of Proposed Changes

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1.0 DESCRIPTION

The proposed amendment would modify the Palisades Nuclear Plant (PNP) Renewed Facility Operating License (RFOL) Technical Specifications (TS) by relocating specific surveillance frequencies to a licensee controlled program with the adoption of Technical Specification Task Force (TSTF)-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b* (Reference 2). Additionally, the change would add a new program, the Surveillance Frequency Control Program (SFCP), to TS Section 5, *Administrative Controls.*

The changes are consistent with United States Nuclear Regulatory Commission (NRC) approved TSTF Standard TS change TSTF-425, Revision 3. The Federal Register notice published on July 6, 2009 (Reference 3) announced the availability of the TS improvement. This request also incorporates the changes to TSTF-425 Traveler recommended by NRC letter, *Notification of Issue with NRC-Approved Technical Specifications Task Force (TSTF) Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5,"* issued on April 14, 2010 (Reference 4).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Entergy Nuclear Operations, Inc. (Entergy) has reviewed the *Notice of Availability of Technical Specification Improvement To Relocate Surveillance Frequencies to Licensee Control-Risk-Informed Technical Specification Task Force (RITSTF) Initiative 5b, Technical Specification Task Force-425, Revision 3*, dated July 6, 2009 (Reference 3). This review included a review of the *Applicability* and the *Proposed Safety Evaluation* (SE) within the notice and the requirements specified in NEI 04-10, Revision 1, *Risk-Informed Technical Specification Initiative 5B, "Risk-Informed Method for Control of Surveillance Frequencies"* (Reference 1). Additionally, Entergy reviewed the directed augmented SE clarification language documented in Non-Concurrence Process, NCP-2015-012, *Amendment No. 171 to Facility Operating License No. NPF-58 for Perry Nuclear Power Plant*, dated January 22, 2016 (Reference 5).

Attachment 1 includes Entergy documentation with regard to PNP probabilistic risk assessment (PRA) technical adequacy, consistent with the requirements of Regulatory Guide 1.200, *An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities*, Revision 2 (Reference 6), Section 4.2, and describes any PRA models without NRC-endorsed standards, including documentation of the quality characteristics of those models in accordance with Regulatory Guide 1.200.

Entergy has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff as augmented by NCP-2015-012 are applicable to PNP and justify this amendment to incorporate the changes into the PNP TS.

2.2 Variations

The proposed amendment is consistent with the standard technical specifications (STS) changes described in TSTF-425, Revision 3; however, for some PNP TS, Entergy is proposing variations from changes described in TSTF-425, NUREG-1432, *Standard Technical*

Specifications Combustion Engineering Plants (CEOG STS). The variations are necessary for the following reasons:

- PNP TS surveillance requirements (SR)s, in some cases, are worded differently than, or not included in, TSTF-425 listed SRs, however, they do meet the TSTF-425 relocation criteria for periodic frequencies (further justification provided below), and therefore will be relocated to the SFCP. They are listed in Table 1 on page 5 of this enclosure.

- PNP TS section numbering, in some cases, does not exactly match the TSTF-425 section numbering, however these are considered editorial changes and therefore they will be relocated to the SFCP. They are listed in Table 2 on page 58 of this enclosure.

- PNP's current TS SR, in some cases, do not include the TSTF-425 listed SRs and therefore these TSTF-425 changes are not applicable to PNP. They will not be adopted by PNP and are listed in Table 3 on page 64 of this enclosure.

- PNP's design, in some cases, varies from other CEOG STS plants and therefore not all STS sections are applicable to PNP. They will not be adopted by PNP and are listed in Table 4 on page 74 of this enclosure.

The definition of STAGGERED TEST BASIS is being retained in the PNP TS definition section 1.0 since the terminology is being maintained in the TS SR in Section 5.5.16, *Control Room Envelope Habitability Program*, which is not the subject of this amendment request and is not proposed to be changed. This is an administrative variation from TSTF-425 with no impact on the NRC staff's model SE within the notice dated July 6, 2009 (Reference 3).

The PNP TS include plant-specific SRs that are not included in TSTF-425. Entergy has determined that the relocation of the frequencies for these PNP-specific surveillances is consistent with TSTF-425, Revision 3, and with the NRC staff's model SE within the *Notice of Availability*, dated July 6, 2009 (Reference 3), including the scope exclusions identified in Section 1.0, *Introduction*, of the model SE, because the plant-specific surveillance frequencies involve fixed period frequencies. Changes to the frequencies for these plant-specific surveillances would be controlled under the SFCP. As noted above they are listed in Table 1 on page 4 of this enclosure.

2.2.1 PNP TS Nomenclature Differences from CEOG STS

PNP's current TS nomenclature in some cases differs from CEOG STS. The nomenclature conversion table below provides PNP TS equivalent terms to those used in TSTF-425 and CEOG STS.

NOMENCLATURE CONVERSION TABLE	
TSTF-425 (CEOG STS)	**PNP TS**
Control Element Assembly (CEA)	Control Rod
Reactor Coolant System (RCS)	Primary Coolant System (PCS)
Remote Shutdown System	Alternate Shutdown System

NOMENCLATURE CONVERSION TABLE	
TSTF-425 (CEOG STS)	**PNP TS**
Refueling Water Tank (RWT)	Safety Injection Refueling Water Tank (SIRWT)
Main Feedwater Isolation Valve (MFIV)	Main Feedwater Regulating Valve (MFRV)
Control Room Emergency Air Cleanup System (CREACS)	Control Room Ventilation (CRV) Filtration
Control Room Emergency Air Temperature Control System (CREATCS)	Control Room Ventilation (CRV) Cooling
Fuel Storage Pool	Spent Fuel Pool (SFP)

Some of the TSTF-425 SRs and PNP TS SRs contain notes. These notes are not repeated in the variation tables that follow because they have no significance regarding the relocation of SR frequencies from the PNP TS to a SFCP, which is the purpose of TSTF-425 and this license amendment request (LAR).

2.2.2 PNP Site Specific TS Surveillance Requirements

PNP TS SRs, in some cases, are worded differently than, or not included in, TSTF-425 listed SRs, however, they meet the TSTF-425 relocation criteria for periodic frequencies and therefore will be relocated to the SFCP. They are listed in Table 1 below.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.1.4.1 FREQUENCY *Within 1 hour following any CEA movement of > [7 inches]* *AND* *[12 hours* PNP TS FREQUENCY only includes the 12 hours statement	SR 3.1.4.1 FREQUENCY *12 hours* PNP proposes to adopt the TSTF-425, however, it will retain the PNP TS SR Frequency wording that excludes the following TSTF-425 words, *Within 1 hour following any CEA movement of > [7 inches]* *AND* This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and STS do not include a SR to perform a channel check on CEAs.	SR 3.1.4.2 *Perform a CHANNEL CHECK of the control rod position indication channels.* PNP proposes to apply TSTF-425 to this SR by replacing the frequency of *12 hours* with *In accordance with the surveillance frequency control program*. This is acceptable because a channel check is another method to ensure control rod position indication remains operable similar to other SRs contained in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.1.4.3 *Verify the CEA deviation circuit is OPERABLE.*	SR 3.1.4.4 *Verify the rod position deviation alarm is OPERABLE.* PNP proposes to adopt the TSTF-425 change however it will retain the current TSs wording and relocate the current frequency to a SFCP because this SR is a plant specific previously approved variance. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.1.4.5 *Perform a CHANNEL FUNCTIONAL TEST of the reed switch position transmitter channel.*	SR 3.1.4.5 *Perform a CHANNEL CALIBRATION of the control rod position indication channels.* PNP performs a channel calibration in lieu of a channel functional test for both primary control rod position indication (syncros outputs) and secondary indication (reed stack switches). This is considered an equivalent test to verify control rod position indication operability. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.1.6.1 *Verify each regulating CEA group position is within its insertion limits.* The CEOG STS requirement is specific to insertion limits only.	SR 3.1.6.1 *Verify each regulating rod group is within its withdrawal sequence, overlap, and insertion limits.* PNP's TS SR further defines the CEOG STS requirement as it applies to PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 and CEOG STS do not include a SR to verity that the Control Rod Out of Sequence (CROOS) circuit is operable.	3.1.6.3 *Verify CROOS alarm circuit is OPERABLE.* Verification of the CROOS alarm circuit is an acceptable deviation from TSTF-425 because it provides added assurance that control rod sequencing is maintained when more than one group of controls are being moved, thus ensuring proper control rod group overlap by alerting the operators that a group of control rods are not moving as expected. This is acceptable because verification of control rod group sequencing alarm circuit operability is similar to other control rod position verification SRs contained in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.1.8.1 *Verify THERMAL POWER is equal to or less than the test power plateau.*	SR 3.1.7.1 *Verify THERMAL POWER is ≤ 2% RTP.* PNP TS SR verifies that RTP is within a numerical limit versus verification of the test power plateau. These terms provide an equivalent limit and therefore this deviation is acceptable. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 and CEOG STS do not include a SR to verify T_{ave} is $\geq$ 500°F.	SR 3.1.7.2 *Verify T_{ave} is $\geq$ 500°F.* PNP TS SR provides a numerical limit of reactor coolant average temperature during low power physics testing. This limit ensures that T_{ave} remains in an analyzed range during physics tests. The TS basis frequency justification has a similar basis to the RTP SR frequency basis which is included in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR to verify $\geq$ 1% shutdown reactivity is available for trip insertion.	SR 3.1.7.3 *Verify $\geq$ 1% shutdown reactivity is available for trip insertion.* PNP TS SR provides a numerical limit for shutdown reactivity during low power physics testing. This limit ensures that sufficient shutdown reactivity is available for trip insertion during physics tests. The TS basis frequency justification has a similar basis to the RTP SR frequency basis which is included in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 and CEOG STS do not include a SR to verify linear heat rate (LHR) is within the limits specified in the COLR.	SR 3.2.1.1 *Verify LHR is within the limits specified in the COLR.* PNP TS SR provides an option to use incores for monitoring LHR when excore detectors are not available. This surveillance is similar to incore detector surveillances. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.2.1.2 *Verify incore detector local power density alarms satisfy the requirements of the core power distribution map, which shall be updated at least once per 31 days of accumulated operation in MODE 1.*	SR 3.2.1.2 *Adjust incore alarm setpoints based on a measured power distribution.* PNP TS SR frequency applicability is "Prior to operation > 50% RTP after each fuel loading" which is similar to the CEOG STS note 2 and is retained. Adjusting incore alarm setpoints based on measured power distribution is equivalent to satisfying the requirements of the core power distribution map. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR to verify THERMAL POWER is less than the allowed power limit (APL) when using excores for monitoring linear heat rate.	SR 3.2.1.4 *Verify THERMAL POWER is less than the APL.* PNP's TS SR verification that thermal power is less that the allowed power limit (APL) is similar to TSTF-425 and CEOG STS SRs that impose SRs when using excores to monitor LHR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 and CEOG STS do not include a SR to verify axial shape index (ASI) is within the target ASI when using excores for monitoring linear heat rate.	SR 3.2.1.5 *Verify measured ASI is within 0.05 of target ASI.* PNP's TS SR verification that ASI is within the target ASI to ensure Excores are acceptable for monitoring LHR is similar to TSTF-425 and CEOG STS SRs that that impose SRs when using Excores to monitor LHR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR to verify QUADRANT POWER TILT (T_q) is within limits when using excores for monitoring linear heat rate.	SR 3.2.1.6 *Verify $T_q \leq 0.03$.* PNP's TS SR verification that T_q is within limits to ensure Excores are acceptable for monitoring LHR is similar to TSTF-425 and CEOG STS SRs that impose SRs when using Excores to monitor LHR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.2.3.1 (Analog) Verify the value of F_r^T.	SR 3.2.2.1 *Verify F_R^T is within limits specified in the COLR.* PNP TS SR frequency requires the SR be performed prior to > 50% RTP versus the CEOG STS requirement of > 70% and uses the term effective full power days (EFPD) versus 31 days of accumulated operation in MODE 1. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.2.4.1 (Analog) *Verify T_q is within limits.*	SR 3.2.3.1 *Verify T_q is ≤ 0.05.* PNP TS SR is numbered differently and has the numerical value for T_q listed versus stating within limits. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.1.1 (Analog) *Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.*	SR 3.3.1.1 *Perform a CHANNEL CHECK.* PNP TS SR excludes a channel check for loss of load by not listing SR 3.3.1.1 in Table 3.3.1-1 in the SR column. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR that verifies control room temperature.	SR 3.3.1.2 *Verify control room temperature is $\leq 90°F$.* PNP TS SR includes a control room, temperature limit to support RPS instrumentation operability. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.1.4 (Analog) *Perform a CHANNEL FUNCTIONAL TEST of each RPS channel except Loss of Load and Power Rate of Change.*	SR 3.3.1.5 *Perform a CHANNEL FUNCTIONAL TEST and verify the Thermal Margin Monitor Constants.* PNP TS SR excludes loss of load channel functional check by not listing the SR 3.3.1.5 in Table 3.3.1-1 for Loss of Load and High Startup Rate Trip (Power Rate of Change). Additionally, PNP adds a requirement to verify the thermal margin monitor constants for each RPS channel which is similar to other RPS functional tests. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.1.5 (Analog) *Perform a CHANNEL CALIBRATION on excore power range channels.*	SR 3.3.1.6 SURVEILLANCE *Perform a calibration check of the power range excore channels with a test signal.* PNP TS SR performs a calibration check using an internal test circuit to verify that neither the zero point nor the amplifier gain adjustment have undergone excessive drift. This is performed at the listed frequency in lieu of the TSTF-425 channel calibration. This calibration check is similar to a channel calibration and to other TSTF-425 RPS SRs. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.1.8 (Analog) *Perform a CHANNEL CALIBRATION of each RPS instrument channel, including bypass removal functions.*	SR 3.3.1.8 *Perform a CHANNEL CALIBRATION.* PNP TS SR includes the bypass removal functions by listing the SR 3.3.1.8 in Table 3.3.1-1 for those RPS instrument channels that have a function that includes bypass removal. The PNP TS SR wording is equivalent to TSTF-425 SR 3.3.1.8. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.3.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.*	SR 3.3.2.1 *Perform a CHANNEL FUNCTIONAL TEST on each RPS Matrix Logic channel and each RPS Trip Initiation Logic channel.* PNP TS SR combine the TSTF-425 STS RPS Logic (SR 3.3.3.2) and the RTCB (SR 3.3.3.2) channel functional tests into one PNP TS SR 3.3.2.1 which tests both the RPS Logic (RPS Matrix Logic) and the RTCB (RPS Trip Initiation Logic) channels at a frequency of 92 days. This previously approved SR wording is similar to TSTF-425 CEOG STS SR wording for SR 3.3.3.1 and SR 3.3.3.2. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.4.1 (Analog) *Perform a CHANNEL CHECK of each ESFAS instrument channel.* Engineered Safety Features Actuation System (ESFAS)	SR 3.3.3.1 *Perform a CHANNEL CHECK.* PNP TS SR does not include the TSTF-425 CEOG STS wording "of each ESFAS instrument channel." This is an editorial change and therefore this deviation is acceptable. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.4.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST of each ESFAS instrument channel.*	SR 3.3.3.2 *Perform a CHANNEL FUNCTIONAL TEST.* PNP TS SR list each ESFAS instrument channel in Table 3.3.3-1 that SR 3.3.3.2 applies to as stated in the note prior to the SRs. The PNP SR does not include the TSTF-425 CEOG STS wording "of each ESFAS instrument channel." PNP's TS SR wording is equivalent with TSTF-425 wording. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.4.4 (Analog) *Perform a CHANNEL CALIBRATION of each ESFAS instrument channel, including bypass removal functions.*	SR 3.3.3.3 *Perform a CHANNEL CALIBRATION.* PNP TS SR lists each ESFAS instrument channel in Table 3.3.3-1 that SR 3.3.3.3 applies to as stated in the note prior to the SRs and includes each automatic bypass removal function. PNP SR 3.3.3.3 does not include the TSTF-425 CEOG STS wording "of each ESFAS instrument channel, including bypass removal functions." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.5.1 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.*	SR 3.3.4.1 *Perform functional test of each SIS actuation channel normal and standby functions.* SR 3.3.4.2 *Perform a CHANNEL FUNCTIONAL TEST of each AFAS actuation logic channel.* SR 3.3.4.3 *Perform a CHANNEL FUNCTIONAL TEST.* PNP TS SRs 3.3.4.1, 3.3.4.2, and 3.3.4.3 all require channel functional testing of both the ESF actuation logic and manual initiation functions that are listed in Table 3.3.4-1. When combined, these PNP TS SRs are equivalent to the TSTF-425 CEOG STS SRs 3.3.5.1 and 3.3.5.2, which separate logic testing and manual trip testing, respectively. SR 3.3.4.1, SIS actuation functional testing, was listed as a separate PNP TS SR because the actuation logic is unique when compared to other actuation systems in that it has a normal power supply function and a standby power supply function. SR 3.3.4.2, auxiliary feedwater actuation signal (AFAS) actuation logic functional testing, was listed as a separate PNP TS SR because the AFAS actuation system has installed test circuits for functional testing which is unique to this system. SR 3.3.4.3, channel functional testing, applies to the remaining PNP ESF logic and manual initiation functions listed in Table 3.3.4-1. Therefore PNP TS SRs 3.3.4.1, 3.3.4.2, and 3.3.4.3 combined wording is equivalent to TSTF-425 CEOG STS SR 3.3.5.1 and 3.3.5.2 wording. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.5.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.*	SR 3.3.4.1 *Perform functional test of each SIS actuation channel normal and standby functions.* SR 3.3.4.2 *Perform a CHANNEL FUNCTIONAL TEST of each AFAS actuation logic channel.* SR 3.3.4.3 *Perform a CHANNEL FUNCTIONAL TEST.* *Perform functional test of each SIS actuation channel normal and standby functions.* PNP TS SRs 3.3.4.1, 3.3.4.2, and 3.3.4.3 all require channel functional testing of both the ESF actuation logic and manual initiation functions that are listed in Table 3.3.4-1. When combined, these PNP TS SRs are equivalent to the TSTF-425 CEOG STS SRs 3.3.5.1 and 3.3.5.2, which separate logic testing and manual trip testing, respectively. SR 3.3.4.1, SIS actuation functional testing, was listed as a separate PNP TS SR because the actuation logic is unique when compared to other actuation systems in that it has a normal power supply function and a standby power supply function. SR 3.3.4.2, auxiliary feedwater actuation signal AFAS, was listed as a separate PNP TS SR because the AFAS actuation system has installed test circuits for functional testing which is.unique to this system. SR 3.3.4.3, channel functional testing, applies to the remaining PNP ESF logic and manual initiation functions listed in Table 3.3.4-1. Therefore PNP TS SRs 3.3.4.1, 3.3.4.2, and 3.3.4.3 combined wording is equivalent to TSTF-425 CEOG STS SR 3.3.5.1 and 3.3.5.2 wording. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.6.2 (Analog) *Perform CHANNEL FUNCTIONAL TEST.*	SR 3.3.5.1 *Perform a CHANNEL FUNCTIONAL TEST on each DG-UV start logic channel.* PNP TS SR includes the additional clarifying wording, "on each DG-UV start logic channel." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.6.3 (Analog) *Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows:* *a. Degraded Voltage Function ≥ [3180] V and ≤ [3220] V* *Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V and* *b. Loss of Voltage Function ≥ [3180] V and ≤ [3220] V* *Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V.*	SR 3.3.5.2 *Perform CHANNEL CALIBRATION on each Loss of Voltage and Degraded Voltage channel with setpoints as follows:* *a. Degraded Voltage Function ≥ 2187 V and ≤ 2264 V* *Time delay: ≥ 0.5 seconds and ≤ 0.8 seconds; and* *b. Loss of Voltage Function ≥ 1780 V and ≤ 1940 V* *Time delay: ≥ 5.45 seconds and ≤ 8.15 seconds at 1400 V.* PNP TS SR includes the additional clarifying wording, "on each Loss of Voltage and Degraded Voltage channel," and excludes TSTF-425 CEOG STS wording "Allowable Values." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.8.1 (Analog) *Perform a CHANNEL CHECK on the required control room radiation monitor channel.*	SR 3.3.6.1 *Perform a CHANNEL CHECK of each refueling CHR monitor channel.* PNP TS SR is specific to refueling containment high radiation monitor channels that automatically place control room HVAC in emergency mode, close containment isolation valves should a high radiation setpoint be reached on the monitors located in containment during movement of irradiated fuel assemblies. The CHR monitor channel is similar to the TSTF-425 CEOG STS "control room radiation monitor channel." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.8.3 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Actuation Logic channel.*	SR 3.3.6.2 *Perform a CHANNEL FUNCTIONAL TEST of each refueling CHR monitor channel.* PNP TS SR is specific to refueling containment high radiation monitor channels that automatically place control room HVAC in emergency mode, close containment isolation valves should a high radiation setpoint be reached on the monitors located in containment during movement of irradiated fuel assemblies. The CHR monitor channel is similar to the TSTF-425 CEOG STS wording "CRIS Actuation Logic channel." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.3.8.4 (Analog) *Perform a CHANNEL CALIBRATION on the required CRIS radiation monitor channel.*	SR 3.3.6.4 *Perform a CHANNEL CALIBRATION of each refueling CHR monitor channel.* PNP TS SR is specific to refueling containment high radiation monitor channels that automatically place control room HVAC in emergency mode, close containment isolation valves should a high radiation setpoint be reached on the monitors located in containment during movement of irradiated fuel assemblies. The CHR monitor channel wording is similar to the TSTF-425 CEOG STS "CRIS radiation monitor channel." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.3.8.5 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on the required CRIS Manual Trip channel.*	SR 3.3.6.3 *Perform a CHANNEL FUNCTIONAL TEST of each CHR Manual Initiation channel.* PNP TS SR is specific to refueling containment high radiation monitor channels that automatically place control room HVAC in emergency mode, close containment isolation valves should a high radiation setpoint be reached on the monitors located in containment during movement of irradiated fuel assemblies. The CHR manual initiation channel is similar to the TSTF-425 CEOG STS wording "CRIS Manual Trip channel." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 and CEOG STS do not include a SR associated with Engineered Safeguards Room Ventilation (ESRV).	SR 3.3.10.1 *Perform a CHANNEL CHECK.* PNP TS includes SRs associated with ESRV instrumentation which isolates room ventilation upon reaching a high radiation setpoint on an ESRV radiation monitor. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR associated with Engineered Safeguards Room Ventilation (ESRV).	SR 3.3.10.2 *Perform a CHANNEL FUNCTIONAL TEST.* PNP TS includes SRs associated with ESRV instrumentation which isolates room ventilation upon reaching a high radiation setpoint on an ESRV radiation monitor. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR associated with Engineered Safeguards Room Ventilation (ESRV).	SR 3.3.10.3 *Perform a CHANNEL CALIBRATION.* *Very high radiation setpoint on each ESRV instrumentation radiation monitoring channel is ≤ 2.2E+5 cpm.* PNP TS includes SRs associated with ESRV instrumentation which isolates room ventilation upon reaching a high radiation setpoint on an ESRV radiation monitor. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.1.1 *Verify pressurizer pressure ≥ [2025] psia and ≤ [2275] psia.*	SR 3.4.1.1 *Verify pressurizer pressure within the limits specified in the COLR.* PNP TS SR does not list pressurizer limits. Instead it references the COLR where PNP pressurizer limits are now listed. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.1.2 *Verify RCS cold leg temperature ≥ [535]°F and ≤ [558]°F for < [70]% RTP or ≥ [544]°F* and *≤ [558]°F for ≥ [70]% RTP.*	SR 3.4.1.2 *Verify PCS cold leg temperature within the limit specified in the COLR.* PNP TS SR does not list PCS cold leg temperature limits. Instead it references the COLR where PNP cold leg temperature limits are now listed. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.1.4 *Verify by precision heat balance that RCS total flow rate within limits specified in the COLR.*	SR 3.4.1.3 *Verify PCS total flow rate within the limit specified in the COLR.* PNP TS SR does not include the TSTF-425 CEOG STS wording "by precision heat balance." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.3.1 *Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates within limits specified in the PTLR.*	SR 3.4.3.1 *Verify PCS pressure, PCS temperature, and PCS heatup and cooldown rates are within the limits of Figure 3.4.3-1 and Figure 3.4.3-2.* PNP TS SR does not include a pressure and temperature limits report (PTLR), instead the limits are on figures included in the TS section. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.5.1 *Verify one RCS loop is in operation.*	SR 3.4.5.1 *Verify required PCS loop is in operation.* PNP TS SR uses the word "required" PCS loop versus "one" RCS loop as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.5.3 *Verify correct breaker alignment and indicated power available to each required pump.*	SR 3.4.5.3 *Verify correct breaker alignment and indicated power available to the required primary coolant pump that is not in operation.* PNP TS SR uses the words "each required primary coolant pump that is not in operation," versus "each required pump," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.6.1 *Verify required RCS loop or SDC train is in operation.*	SR 3.4.6.1 *Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core, or one PCS loop is in operation.* The PNP TS SR clarifies the requirements for a shutdown cooling (SDC) train in operation by adding the words "with ≥ 2810 gpm flow through the reactor core." This minimum flow requirement ensures operators have sufficient time to terminate a boron dilution under asymmetric flow conditions. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.6.3 *Verify correct breaker alignment and indicated power available to each required pump.*	SR 3.4.6.3 *Verify correct breaker alignment and indicated power available to the required pump that is not in operation.* PNP TS SR uses the words "the required pump that is not in operation," versus "each required pump," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.7.1 *Verify required SDC train is in operation.*	SR 3.4.7.1 *Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core.* The PNP TS SR clarifies the requirements for a SDC train in operation by adding the words "with ≥ 2810 gpm flow through the reactor core." This minimum flow requirement ensures operators have sufficient time to terminate a boron dilution under asymmetric flow conditions. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.7.3 *Verify correct breaker alignment and indicated power available to each required SDC pump.*	SR 3.4.7.3 *Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.* PNP TS SR uses the words "the required pump that is not in operation," versus "each required pump," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.8.1 *Verify required SDC train is in operation.*	SR 3.4.8.1 *Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core.* The PNP TS SR clarifies the requirements for a SDC train in operation by adding the words "with ≥ 2810 gpm flow through the reactor core." This minimum flow requirement ensures operators have sufficient time to terminate a boron dilution under asymmetric flow conditions. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 CEOG STS do not include a SR that clarifies required RCS flow when SDC is in operation.	SR 3.4.8.2 *Verify one SDC train is in operation with ≥ 650 gpm flow through the reactor core.* The PNP TS SR is a second clarification of the requirements for a SDC train in operation by adding the words "with ≥ 650 gpm flow through the reactor core." This lower (lower than 2810 gpm in SR 3.4.8.1) minimum flow requirement, is applicable when two of three charging pumps are incapable of reducing boron concentration, which still ensures operators have sufficient time to terminate a boron dilution under asymmetric flow conditions. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 CEOG STS do not include a SR that clarifies required RCS flow when SDC is in operation.	SR 3.4.8.3 *Verify two of three charging pumps are incapable of reducing the boron concentration in the PCS below the minimum value necessary to maintain the required SHUTDOWN MARGIN.* This PNP TS SR supports SR 3.4.8.2 above by ensuring two of three charging pumps are incapable of reducing boron concentration in the PCS when flows less than 2810 gpm and ≥ 650 gpm are allowed. This verification requirement during lower PCS flow periods ensures operators have sufficient time to terminate a boron dilution under asymmetric flow conditions. This is an additional clarification that does not change the intent of the CEOG STS SR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.8.2 *Verify correct breaker alignment and indicated power available to each required SDC pump.*	SR 3.4.8.4 *Verify correct breaker alignment and indicated power available to the SDC pump that is not in operation.* PNP TS SR uses the words "to the SDC pump that is not in operation," versus "each required SDC pump," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.9.2 *Verify capacity of each required group of pressurizer heaters ≥ [150] kW.*	SR 3.4.9.2 *Verify the capacity of pressurizer heaters from electrical bus 1D, and electrical bus 1E is ≥ 375 kW.* PNP TS SR clarifies the required pressurizer heaters by using the words "pressurizer heaters from electrical bus 1D, and electrical bus 1E is ≥ 375 kW," versus "each required group of pressurizer heaters ≥ *[150] kW*," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.9.3 *Verify required pressurizer heaters are capable of being powered from an emergency power supply.*	SR 3.4.9.3 *Verify the required pressurizer heater capacity from electrical bus 1E is capable of being powered from an emergency power supply.* PNP TS SR clarifies the required pressurizer heaters by using the words "capacity from electrical bus 1E," versus "required pressurizer heaters," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.11.2 *Perform a complete cycle of each PORV.*	SR 3.4.11.2 *Perform a complete cycle of each PORV with PCS average temperature > 200°F.* PNP TS SR clarifies the required temperature when a complete cycle of each PORV is required which is an addition to the requirements stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.12.1 *Verify a maximum of one HPSI pump is capable of injecting into the RCS.*	SR 3.4.12.1 *Verify both HPSI pumps are incapable of injecting into the PCS.* PNP TS SR is modified from CEOG STS by requiring both high pressure safety injection (HPSI) pumps to be verified incapable of injecting into the PCS and by a note stating that it is only required to be met when LTOP LCO 3.4.12.a is required to be met. This is in addition to the requirements stated in TSTF-425 and required at PNP to ensure that mass injection transients beyond the capability of the low temperature over pressure (LTOP) overpressure protection system do not occur. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.12.4 *Verify required RCS vent ≥ [1.3] square inches is open.*	SR 3.4.12.2 *Verify required PCS vent, capable of relieving ≥ 167 gpm at a PCS pressure of 315 psia, is open.* PNP TS SR is modified from CEOG STS by requiring a minimum relief capacity in gallons per minute as a specific pressure versus a vent opening minimum area. This is a clarification to the area requirements in TSTF-425 because opening area by itself may not provide the required vent capacity due to piping configuration. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.14.1 SURVEILLANCE *Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ [2215] psia and ≤ [2255] psia.*	SR 3.4.14.1 SURVEILLANCE *Verify leakage from each PCS PIV is equivalent to ≤ 5 gpm at a PCS pressure of 2060 psia.* PNP TS SR is modified from CEOG STS by specifying PCS pressure at which < 5 gpm leakage is required and the notes further clarify an acceptable leak rate for the PIVs under test conditions. PNP's frequency is also slightly modified by omitting, "in accordance with the Inservice Testing Program," because the test frequency is stated in the SR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.14.2 *Verify SDC System autoclosure interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ [425] psig.*	SR 3.4.14.2 *Verify each SDC suction valve interlock prevents its associated valve from being opened with a simulated or actual PCS pressure signal ≥ 280 psia.* PNP TS SR uses the words "SDC suction valve interlock" versus "SDC System autoclosure interlock," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 CEOG STS do not include a SR to perform a channel check of the required containment sump level indicator.	SR 3.4.15.1 *Perform CHANNEL CHECK of the required containment sump level indicator.* PNP TS SR includes a channel check of the required containment sump level indicators use to monitor for PCS leakage. While not listed in TSTF-425, its frequency requirement of once per 12 hours is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.15.1 *Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.*	SR 3.4.15.2 *Perform CHANNEL CHECK of the required containment atmosphere gaseous activity monitor.* PNP TS SR uses the words "containment atmosphere gaseous activity monitor," versus "containment atmosphere radioactivity monitor," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 and CEOG STS do not include a SR to perform a channel check of the required containment atmosphere humidity monitor.	SR 3.4.15.3 *Perform CHANNEL CHECK of the required containment atmosphere humidity monitor.* PNP TS SR includes a channel check of the required containment atmosphere humidity monitor use to detect PCS leakage. While not listed in TSTF-425, its frequency requirement of once per 12 hours is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 and CEOG STS do not include a SR to perform a channel functional test of the required containment air cooler condensate flow rate monitor.	SR 3.4.15.4 *Perform CHANNEL FUNCTIONAL TEST of the required containment air cooler condensate level switch.* PNP TS SR includes a channel functional test of the required containment air cooler condensate level switch used to detect PCS leakage. While not listed in TSTF-425, its frequency requirement of once per 18 months is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.4.15.3 *Perform CHANNEL CALIBRATION of the required containment sump monitor.*	SR 3.4.15.5 *Perform CHANNEL CALIBRATION of the required containment sump level indicator.* PNP TS SR uses the words "sump level indicator," versus "sump monitor," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.4.15.4 *Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.*	SR 3.4.15.6 *Perform CHANNEL CALIBRTION of the required containment atmosphere gaseous activity monitor.* PNP TS SR uses the words "containment atmosphere gaseous activity monitor," versus "containment atmosphere radioactivity monitor," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 CEOG STS do not include a SR to perform a channel calibration of the required containment atmosphere humidity monitor.	SR 3.4.15.7 *Perform CHANNEL CALIBRATION of the required containment atmosphere humidity monitor.* PNP TS SR includes a channel check of the required containment atmosphere humidity monitor use to detect PCS leakage. While not listed in TSTF-425, its frequency requirement of once per 12 hours is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.5.1.3 *Verify nitrogen cover pressure in each SIT is ≥ [615] psig and ≤ [655] psig.*	SR 3.5.1.3 SURVEILLANCE *Verify nitrogen cover pressure in each SIT is ≥ 200 psig.* PNP TS SR only includes a lower nitrogen cover pressure value. PNP proposes to adopt the TSTF-425 frequency relocation, however, it will retain the PNP TS SR wording that excludes an upper limit on nitrogen cover pressure. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.5.1.5 *Verify power is removed from each SIT isolation valve operator when pressurizer pressure is ≥ [2000] psia.*	SR 3.5.1.5 *Verify power is removed from each SIT isolation valve operator.* PNP TS SR excludes the words "when pressurizer pressure is > [2000] psia" because the SR applicability is provided in the TS applicability section. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 CEOG STS do not include a SR associated with a SDC Flow Control Valve position.	SR 3.5.2.3 *Verify CV-3006, "SDC Flow Control Valve," is open and its air supply is isolated.* PNP TS includes a SR associated with shutdown cooling (SDC) flow control valve position because it is a dual function valve, supporting the SDC and the low pressure safety injection (LPSI) system, which is in the flow path of an emergency core cooling system (ECCS). While not listed in TSTF-425, its frequency of once per 31 days is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.5.2.10 *Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.*	SR 3.5.2.9 *Verify, by visual inspection, the containment sump passive strainer assemblies are not restricted by debris, and the containment sump passive strainer assemblies and other containment sump entrance pathways show no evidence of structural distress or abnormal corrosion.* PNP TS SR uses the words " the containment sump passive strainer assemblies are not restricted by debris, and the containment sump passive strainer assemblies and other containment sump entrance pathways," versus "each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks and screens," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.5.4.2 *Verify RWT borated water volume is ≥ [362,800 gallons, (88%)] [above the ECCS suction connection].*	SR 3.5.4.2 *Verify SIRWT borated water volume is ≥ 250,000 gallons.* PNP TS SR includes a note stating only required to be met in MODES 1,2,3 because PNP TS include an additional SR (3.5.4.3) which has a different SIRWT borated water volume criteria due to less water required if unit is in MODE 4. Combining PNP TS SRs 3.5.4.2 and SR 3.5.4.3 is equivalent to TSTF-425 SR 3.5.4.2. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 CEOG STS do not include a SR associated with MODE 4 RWT volume.	SR 3.5.4.3 *Verify SIRWT borated water volume is ≥ 200,000 gallons.* PNP TS SR includes a note stating only required to be met in MODE 4 because PNP TS include an additional SR (3.5.4.2) which has a different SIRWT borated water volume criteria due to more SIRWT water is required if unit is in MODE 1,2, and 3. Combining PNP TS SRs 3.5.4.2 and SR 3.5.4.3 is equivalent to TSTF-425 SR 3.5.4.2. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.5.4.3 *SR* *Verify RWT boron concentration is ≥ [1720] ppm and ≤ [2500] ppm.* FREQUENCY 7 days	SR 3.5.4.4 *SR* *Verify SIRWT boron concentration is ≥ 1720 ppm and ≤ 2500 ppm.* FREQUENCY 31 days PNP's TS SR frequency is currently 31 days versus TSTF-425's 7 days. However, this frequency difference is a plant specific previously approved variance and does not invalidate the TSTF-425 basis for relocating this frequency to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.5.5.1 *Verify the TSP baskets contain ≥ [291]ft^3 of trisodium phosphate.* Trisodium phosphate (TSP)	SR 3.5.5.1 *Verify the STB baskets contain ≥ 8,186 lbs and ≤10,553 lbs of equivalent weight sodium tetraborate decahydrate.* PNP TS SR uses the plant specific containment sump additive sodium tetraborate decahydrate (STB) versus the TSTF-425 TSP. PNP's SR also includes an upper limit on STB weight that results in a desired containment sump PH range that supports the accident analysis. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.5.5.2 *Verify that a sample from the TSP baskets provides adequate pH adjustment of RWT water.*	SR 3.5.5.2 *Verify that a sample from the STB baskets provides adequate pH adjustment of borated water.* PNP TS SR uses the words "STB baskets provides adequate pH adjustment of borated water" versus "TSP baskets provides adequate pH adjustment of RWT water," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.6.3.2 *Verify each [8] inch purge valve is closed except when the [8] inch purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, of for Surveillances that require the valves to be open.*	SR 3.6.3.1 *Verify each 8 inch purge valve and 12 inch air room supply valve is locked closed.* PNP TS SR includes an additional 12-inch air room supply valve and does not allow for the exception when the purge valves may be open listed in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.6.3.3 *Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured, and is required to be closed during accident conditions, is closed, except for containment isolation valves that are open under administrative controls.*	SR 3.6.3.2 *Verify each manual containment isolation valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured in position, and is required to be closed during accident conditions, is closed, except for containment isolation valves that are open under administrative controls.* PNP TS SR adds the words "in position," to the TSTF-425 wording. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.6.3.6 SR *Perform leakage rate testing for containment purge valves with resilient seals.* FREQUENCY *184 days <u>AND</u> Within 92 days after opening the valve*	SR 3.6.3.5 SR *Verify each containment 8 inch purge exhaust and 12 inch air room supply valve is closed by performance of a leakage rate test.* FREQUENCY *184 days* PNP TS SR provides plant specific valves, an 8-inch purge valve and a 12-inch air room supply valve. The PNP SR frequency excludes "Within 92 days after opening the valve" because the valves are locked closed and are not allowed to be opened. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.6.6A.2 *Operate each containment cooling train fan unit for ≥ 15 minutes.*	SR 3.6.6.2 *Operate each Containment Air Cooler Fan Unit for ≥ 15 minutes.* PNP TS SR uses the words "Containment Air Cooler Fan Unit" versus "containment cooling train," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.6.6A.3 *Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler.*	SR 3.6.6.4 *Verify total service water flow rate, when aligned for accident conditions, is ≥ 4800 gpm to Containment Air Coolers VHX-1, VHX-2, and VHX-3.* PNP TS SR uses the words *total service water flow rate, when aligned for accident conditions, is ≥ 4800 gpm to Containment Air Coolers VHX-1, VHX-2, and VHX-3* versus *each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler*, as stated in TSTF-425. The PNP TS SR is worded to better reflect PNP design. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.6.6A.8 *Verify each containment cooling train starts automatically on an actual or simulated actuation signal.*	SR 3.6.6.8 *Verify each containment cooling fan starts automatically on an actual or simulated actuation signal.* PNP TS SR uses the words "containment cooling fan" versus "containment cooling train," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.7.2.2 *Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.* Main Steam Isolation Valve (MSIV)	SR 3.7.2.1 *Verify closure time of each MSIV is ≤ 5 seconds on an actual or simulated actuation signal from each train under no flow conditions.* PNP TS SR uses the words "verify closure time," "≤ 5 seconds," and "from each train under no flow conditions." TSTF-425 uses the words, "actuates to the isolation position." The closed position is the MSIVs isolation position at PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.7.3.2 *Verify each MFIV [and [MFIV] bypass valve] actuates to the isolation position on an actual or simulated actuation signal.*	SR 3.7.3.1 *Verify the closure time of each MFRV and MFRV bypass valve is ≤ 22 seconds on an actual or simulated actuation signal.* PNP TS SR uses the words "verify closure time " and "≤ 22 seconds." TSTF-425 uses the words, "actuates to the isolation position." The closed position is the MFRVs isolation position at PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.7.5.1 *Verify each AFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.* Auxiliary Feedwater (AFW)	SR 3.7.5.1 *Verify each required AFW manual, power operated, and automatic valve in each water flow path and in the steam supply flow path to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.* PNP TS SR uses the words "required" and excludes "both" because PNP only has one steam supply to the steam driven AFW pump. TSTF-425 uses the words, "both steam supply flow paths." This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.7.5.4 *Verify each AFW pump starts automatically on an actual or simulated actuation signal when in MODE 1,2,or 3.*	SR 3.7.5.4 *Verify each required AFW pump starts automatically on an actual or simulated actuation signal.* PNP TS SR uses the words "required" and excludes "when in MODE 1, 2, or 3." PNP TS included the SR applicability in a note prior to the SR. TSTF-425 uses similar words contained in the notes preceding the SR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.7.6.1 *Verify CST level is ≥ [350,000] gal.* *Condensate Storage Tank (CST).*	SR 3.7.6.1 *Verify condensate usable volume is ≥ 100,000 gallons.* PNP TS SR uses the words "condensate usable volume" versus "CST level," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.7.7.3 *Verify each CCW pump starts automatically on an actual or simulated actuation signal.* Component Cooling Water (CCW)	SR 3.7.7.3 *Verify each CCW pump starts automatically on an actual or simulated actuation signal in the "with standby power available" mode.* PNP TS SR has the additional words *in the "with standby power available" mode* versus as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.7.8.3 *Verify each SWS pump starts automatically on an actual or simulated actuation signal.* Service Water System (SWS)	SR 3.7.8.3 *Verify each SWS pump starts automatically on an actual or simulated actuation signal in the "with standby power available" mode.* PNP TS SR has the additional words *in the "with standby power available" mode* versus as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 CEOG STS do not include a SR associated with Engineered Safeguards Room Ventilation (ESRV) dampers.	SR 3.7.13.1 *Verify each ESRV Damper train closes on an actual or simulated actuation signal.* PNP TS includes a SR associated with verification that ESRV dampers close when given an actuation signal. This is similar to the TSTF-425 (STS) SRs for ECCS pump room exhaust air cleanup system (PREACS). Because it is similar to TSTF-425 ECCS PREACS SR 3.7.13.3, its frequency requirement of once per 31 days is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 CEOG STS do not include a SR associated with Fuel Handling Area Ventilation System flow rates.	SR 3.7.12.2 *Verify the flow rate of the Fuel Handling Area Ventilation System, when aligned to the emergency filter bank, is ≥ 5840 cfm and ≤ 8760 cfm.* PNP TS includes a SR associated with Fuel Handling Area Ventilation which is similar to the TSTF-425 (STS) SRs for Fuel Building Air Cleanup Systems. Because it is similar to TSTF-425 FBACS SR 3.7.14.4, its frequency requirement of once per 18 months is consistent with TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.7.16.1 *Verify the fuel storage pool water level is ≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks.*	SR 3.7.14.1 *Verify the SFP water level is ≥ 647 ft elevation.* PNP TS SR uses the words "≥ 647 ft elevation," versus "≥ 23 ft above the top of irradiated fuel assemblies seated in the storage racks," as stated in TSTF-425. The PNP water level elevation ensures sufficient SFP water is available in the event of a fuel handling or fuel cask drop accident. This is a plant-specific value that incorporates the 23 ft of water between the top of the fuel assemblies and the fuel pool surface. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.1.1 *Verify correct breaker alignment and indicated power availability for each [required] offsite circuit.*	SR 3.8.1.1 *Verify correct breaker alignment and voltage for each offsite circuit.* PNP TS SR uses the word "voltage" versus "indicated power availability" in TSTF-425. Verification of voltage is considered equivalent to verification of indicated power availability. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.1.2 *Verify each DG starts from standby conditions and achieves steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.*	SR 3.8.1.2 *Verify each DG starts from standby conditions and achieves:* *a. In ≤ 10 seconds, ready-to-load status; and* *b. Steady state voltage ≥ 2280 V and ≤ 2520 V, and frequency ≥ 59.5 Hz and ≤ 61.2 Hz.* PNP TS SR does not include the notes and includes the start timing requirement "In ≤ 10 seconds, ready-to-load status," that TSTF-425 has in SR 3.8.1.7, as stated in note 2, at a frequency of 184 days. PNP does not use the modified DG start as stated in note 2 and therefore the requirements of TSTF-425 SR 3.8.1.7 apply to PNP TS SR 3.8.1.2. In other words, PNP SR 3.8.1.2 essentially combines TSTF-424 SRs 3.8.1.2 and 3.8.1.7. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.1.3 *Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load of ≥ [4500] kW and ≤ [5000] kW.*	SR 3.8.1.3 *Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes:* *a. For ≥ 15 minutes loaded to greater than or equal to peak accident load; and* *b. For the remainder of the test at a load ≥ 2300 kW and ≤ 2500 kW.* PNP TS SR does not include note 1 and has modified note 4 by removing "or SR 3.8.1.7," because "gradual loading" is not used at PNP. PNP TS SR also contains a peak loading verification requirement in addition to the requirements that are in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.1.10 *Verify each DG does not trip, and voltage is maintained ≤ [5000] V during and following a load rejection of ≥ [4500] kW and ≤ [5000] kW.*	SR 3.8.1.6 *Verify each DG, operating at a power factor ≤ 0.9, does not trip, and voltage is maintained ≤ 4000 V during and following a load rejection of ≥ 2300 kW and ≤ 2500 kW.* PNP TS SR includes the words, "operating at a power factor ≤0.9," that are not in TSTF-425. This adds additional clarification to the SR requirements to reflect that PNP performs the test with the DG synchronized with offsite power. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.1.14 *Verify each DG operates for ≥ 24 hours:* *a. For ≥ [2] hours loaded ≥ [5250] kW and < [5500] kW and* *b. For the remaining hours of the test loaded ≥ [4500] kW and ≤ [5000] kW.*	SR 3.8.1.8 *Verify each DG, operating at a power factor ≤ 0.9, operates for ≥ 24 hours:* *a. For ≥ 100 minutes loaded ≥ its peak accident loading; and* *b. For the remaining hours of the test loaded ≥ 2300 kW and ≤ 2500 kW.* PNP TS SR includes the words, "operating at a power factor ≤ 0.9," that are not in TSTF-425. This adds additional clarification to the SR requirements to reflect that PNP performs the test with the DG synchronized with offsite power. PNP also uses the words "peak accident loading" instead of providing specific kW values in the SR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.1.16 *Verify each DG:* *a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power,* *b. Transfers loads to offsite power source, and* *c. Returns to ready-to-load operation.*	SR 3.8.1.9 *Verify each DG:* *a. Synchronizes with offsite power source while supplying its associated 2400 V bus upon a simulated restoration of offsite power;* *b. Transfers loads to offsite power source; and* *c. Returns to ready-to-load operation.* PNP TS SR uses the words "supplying its associated 2400 V bus" versus "loaded with emergency loads" in TSTF-425. The PNP wording clarifies the DG loading. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.1.18 *Verify interval between each sequenced load block is within ± [10% of design interval] for each emergency [and shutdown] load sequencer.*	SR 3.8.1.10 *Verify the time of each sequenced load is within ± 0.3 seconds of design timing for each automatic load sequencer.* PNP TS SR uses the words "the time of each sequenced load is within ± 0.3 seconds" versus "interval between each sequenced load block is within ± [10%," as stated in TSTF-425. The PNP wording clarifies the verification of the sequenced load timing. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.3.1 *Verify each fuel oil storage tank contains ≥ [33,000] gal of fuel.*	SR 3.8.3.1 *Verify the fuel oil storage subsystem contains ≥ a 7 day supply of fuel.* PNP TS SR uses the words "the fuel oil storage subsystem contains ≥ a 7 day supply," versus "each fuel oil storage tank contains ≥ [33,000] gal," as stated in TSTF-425. The PNP TS wording more accurately reflects the fuel oil storage requirement. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.3.2 *Verify lubricating oil inventory is ≥ [500] gal.*	SR 3.8.3.2 *Verify stored lube oil inventory is ≥ a 7 day supply.* PNP TS SR uses the words "stored lube oil inventory is ≥ a 7 day supply," versus "lubricating oil inventory ≥ [500] gal," as stated in TSTF-425. The PNP TS wording more accurately reflects the lubricating oil inventory requirement. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.3.5 *Check for and remove accumulated water from each fuel oil storage tank.*	SR 3.8.3.5 *Check for and remove excess accumulated water from the fuel oil storage tank.* PNP TS SR uses the words "excess accumulated water from the fuel oil storage tank," versus "accumulated water from each fuel oil storage tank," as stated in TSTF-425. The PNP TS wording clarifies the requirement to remove accumulated water from PNP's fuel oil storage tank. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.4.1 *Verify battery terminal voltage is greater than or equal to the minimum established float voltage.*	SR 3.8.4.1 *Verify battery terminal voltage is ≥ 125 V on float charge.* PNP TS SR uses the words "≥ 125 V on float charge" versus "is greater than or equal to the minimum established float voltage," as stated in TSTF-425. The PNP TS wording clarifies the terminal voltage that is being verified. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 does not include a SR associated with verifying no visible corrosion at battery terminals and connectors or verifying battery connection resistance.	SR 3.8.4.2 *Verify no visible corrosion at battery terminals and connectors.* *OR* *Verify battery connection resistance is ≤ 50 μohm for inter-cell connections, ≤ 360 μohm for inter-rack connections, and ≤ 360 μohm for inter-tier connections.* PNP TS includes a SR associated with verification that verifying no visible corrosion at battery terminals and connectors or verifying battery connection resistance. The SR frequency of 92 days is consistent with other TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 does not include a SR associated with battery physical condition inspections.	SR 3.8.4.3 *Inspect battery cells, cell plates, and racks for visual indication of physical damage or abnormal deterioration that could degrade battery performance.* PNP TS includes a SR associated with inspecting the physical condition of the station batteries for physical damage or deterioration. The SR frequency of 12 months is consistent with other TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
TSTF-425 does not include a SR associated with removal of visible terminal corrosion and verification of anti-corrosion material.	SR 3.8.4.4 *Remove visible terminal corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.* PNP TS includes a SR associated with removal of visible terminal corrosion and verification of anti-corrosion material. The SR frequency of 12 months is consistent with other TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
TSTF-425 does not include a SR associated with verification of battery connection resistance.	SR 3.8.4.5 *Verify battery connection resistance is ≤ 50 µohm for inter-cell connections, ≤ 360 µohm for inter-rack connections, and ≤ 360 µohm for inter-tier connections.* PNP TS includes a SR associated verification of battery connection resistance The SR frequency of 12 months is consistent with other TSTF-425 listed frequencies that have moved to a SFCP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.4.2 *Verify each battery charger supplies ≥ [400] amps at greater than or equal to the minimum established float voltage for ≥ [8] hours.*	SR 3.8.4.6 *Verify each required battery charger supplies ≥ 180 amps at ≥ 125 V for ≥ 8 hours.* PNP TS SR uses the words "at ≥ 125 V" versus "at greater than or equal to the minimum established float voltage," as stated in TSTF-425. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.6.2 *Verify each battery pilot cell voltage is ≥ [2.07] V.*	SR 3.8.6.1 *Verify battery cell parameters meet Table 3.8.6-1 Category A limits.* PNP TS SR uses the words "battery cell parameters meet Table 3.8.6-1 Category A limits" versus "each battery pilot cell voltage is ≥ [2.07] V," as stated in TSTF-425. PNP Table 3.8.6-1 Category A is specific to pilot cells and list limits for electrolyte level, float voltage, and specific gravity. The PNP SR is equivalent to TSTF-425 SR 3.8.6.2 because PNP TS Table 3.8.6-1 includes pilot cell voltage limits. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.6.3 *Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.*	SR 3.8.6.3 *Verify battery cell parameters meet Table 3.8.6-1 Category B limits.* PNP TS SR uses the words "battery cell parameters meet Table 3.8.6-1 Category B limits" versus "each battery connected cell electrolyte level is greater than or equal to minimum established design limits," as stated in TSTF-425. PNP TS Table 3.8.6-1 Category B is specific to connected cells and list limits for electrolyte level, float voltage, and specific gravity. The PNP TS SR is equivalent to TSTF-425 SR 3.8.6.3 because PNP TS Table 3.8.6-1 includes connected cells electrolyte level limits. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.6.4 *Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.*	SR 3.8.6.2 *Verify average electrolyte temperature of representative cells is ≥ 70°F.* PNP TS SR uses the words "average electrolyte temperature of representative cells is ≥ 70°F" versus "each battery pilot cell temperature is greater than or equal to minimum established design limits." The PNP TS SR term "representative cell" is similar to "pilot cell," PNP lists a specific temperature limit, and clarifies cell temperature as "average electrolyte temperature." The terms in PNP TS SR are similar to TSTF-425 and therefore the SRs are equivalent. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.6.5 *Verify each battery connected cell voltage is ≥ [2.07] V.*	SR 3.8.6.3 *Verify battery cell parameters meet Table 3.8.6-1 Category B limits.* PNP TS SR uses the words "battery cell parameters meet Table 3.8.6-1 Category B limits" versus "each battery connected cell voltage is ≥ [2.07] V," as stated in TSTF-425. PNP TS Table 3.8.6-1 Category B is specific to connected cells and list limits for electrolyte level, float voltage, and specific gravity. The PNP TS SR is equivalent to TSTF-425 SR 3.8.6.3 because PNP TS Table 3.8.6-1 includes connected cells float voltage limits. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.7.1 *Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.*	SR 3.8.7.1 *Verify correct inverter voltage, frequency, and alignment to Preferred AC buses.* PNP TS SR uses the words "Preferred AC buses" versus "required AC vital buses," as stated in TSTF-425. The PNP wording clarifies the terms used to describe the required AC vital buses at PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.8.1 *Verify correct inverter voltage, [frequency,] and alignment to required AC vital buses.*	SR 3.8.8.1 *Verify correct inverter voltage, frequency, and alignment to Preferred AC buses.* PNP TS SR uses the words "Preferred AC buses" versus "required AC vital buses," as stated in TSTF-425. The PNP wording clarifies the terms used to describe the required AC vital buses at PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.8.9.1 *Verify correct breaker alignments and voltage to [required] AC, DC, and AC vital bus electrical power distribution subsystems.*	SR 3.8.9.1 *Verify correct breaker alignments and voltage to required AC, DC, and Preferred AC bus electrical power distribution subsystems.* PNP TS SR uses the words "Preferred AC bus" versus "AC vital bus," as stated in TSTF-425. The PNP TS wording clarifies the terms used to describe the required AC vital buses at PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.8.10.1 *Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.*	SR 3.8.10.1 *Verify correct breaker alignments and voltage to required AC, DC, and Preferred AC bus electrical power distribution subsystems.* PNP TS SR uses the words "Preferred AC bus" versus "AC vital bus," as stated in TSTF-425. The PNP TS wording clarifies the terms used to describe the required AC vital buses at PNP. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.9.1.1 *Verify boron concentration is within the limit specified in the COLR.* Core Operating Limits Report (COLR)	SR 3.9.1.1 *Verify boron concentration is at the REFUELING BORON CONCENTRATION.* PNP TS SR uses the words "at the REFUELING BORON CONCENTRATION" versus "within the limit specified in the COLR," as stated in TSTF-425. The PNP TS wording specifically states the boron concentration limit versus referring to the COLR. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.9.3.1 *Verify each required containment penetration is in the required status.*	SR 3.9.3.1 *Verify each required to be met containment penetration is in the required status.* PNP TS SR includes the words "to be met" in addition to what is stated in TSTF-425. The PNP TS wording clarifies the required containment penetrations. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.9.3.2 *Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal.*	SR 3.9.3.2 *Verify each required automatic isolation valve closes on an actual or simulated Refueling Containment High Radiation signal.* PNP TS SR includes the words "automatic isolation valve closes on an actual or simulated Refueling Containment High Radiation signal" versus "containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal," that is stated in TSTF-425. The PNP TS wording is more specific to PNP, which clarifies the required automatic isolation valves and the signal that actuates them. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.9.4.1 *Verify one SDC loop is in operation and circulating reactor coolant at a flow rate of ≥ [2200] gpm.* *Shutdown Cooling (SDC)*	SR 3.9.4.1 *Verify one SDC train is in operation and circulating primary coolant at a flow rate of ≥ 1000 gpm.* PNP TS SR uses the words "SDC train and primary coolant" versus "SDC loop and reactor coolant" used in TSTF-425. The PNP TS wording is a better description of PNP's SDC system and is considered a clarification. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

TABLE 1 PNP SITE SPECIFIC TS SURVEILLANCE REQUIREMENTS	
TSTF-425 (CEOG STS)	**PNP TS**
SR 3.9.5.1 *Verify required SDC loops are OPERABLE and one SDC loop is in operation.*	SR 3.9.5.1 *Verify one SDC train is in operation and circulating primary coolant at a flow rate of ≥ 1000 gpm.* PNP TS SR verifies the required number of SDC trains is in operation and circulating primary coolant at the required flow rate. PNP TS SR uses the words "SDC train and primary coolant" versus "SDC loop and reactor coolant" used in TSTF-425 and because PNP uses SDC trains operability is verified by TS 3.9.5 condition A and B verifies SDC operability. The PNP wording is a better description of PNP's SDC system and is considered a clarification. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.
SR 3.9.6.1 *Verify refueling water level is ≥ 23 ft above the top of reactor vessel flange.*	SR 3.9.6.1 *Verify refueling cavity water level is ≥ 647 ft elevation.* PNP TS SR uses the words "refueling cavity water level is ≥ 647 ft elevation" versus "refueling water level is ≥ 23 ft above the top of reactor vessel flange" used in TSTF-425. The PNP TS SR verifies, by water level elevation, that the minimum water level which ensures the design basis for the postulated fuel handling accident analysis during refueling operations is met, which is the same basis for CEOG STS SR use of ≥ 23 ft above the top of reactor vessel flange. PNP's TS wording is hence considered equivalent to TSTF-425 and CEIOG STS. This variation is acceptable because it meets the TSTF-425 relocation criteria for periodic frequencies.

2.2.3 PNP TS Section Number Differences

PNP TS section numbering, in some cases, does not exactly match the TSTF-425 section numbering, however these are considered editorial changes and therefore they will be relocated to the SFCP. They are listed in Table 2 below.

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.1.4.4 *Verify CEA freedom of movement (trippability) by moving each individual CEA that is not fully inserted into the reactor core [5 inches] in either direction.*	SR 3.1.4.3 *Verify control rod freedom of movement by moving each individual full-length control rod that is not fully inserted into the reactor core ≥ 6 inches in either direction.*
SR 3.1.6.3 *Verify PDIL alarm circuit is OPERABLE.*	SR 3.1.6.2 *Verify PDIL alarm circuit is OPERABLE.*
SR 3.2.5.1 (Analog) *Verify ASI is within limits specified in the COLR.*	SR 3.2.4.1 (Analog) *Verify ASI is within limits specified in the COLR.*
SR 3.3.1.2 (Analog) *Perform calibration (heat balance only) and adjust the excore power range and ΔT power channels to agree with calorimetric calculation if the absolute difference is ≥ [1.5]%.*	SR 3.3.1.3 *Perform calibration (heat balance only) and adjust the power range excore and ΔT power channels to agree with calorimetric calculation if the absolute difference is ≥ 1.5%.*
SR 3.3.1.3 (Analog) *Calibrate the power range excore channels using the incore detectors.*	SR 3.3.1.4 *Calibrate the power range excore channels using the incore detectors.*
SR 3.3.11.1 (Analog) *Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.*	SR 3.3.7.1 *Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.*
SR 3.3.11.2 (Analog) *Perform CHANNEL CALIBRATION.*	SR 3.3.7.2 *Perform CHANNEL CALIBRATION.*

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.3.12.2 (Analog) *Verify each required control circuit and transfer switch is capable of performing the intended function.*	SR 3.3.8.2 *Verify each required control circuit and transfer switch is capable of performing the intended function.*
SR 3.3.12.3 (Analog) *Perform CHANNEL CALIBRATION for each required instrumentation channel.*	SR 3.3.8.3 *Perform CHANNEL CALIBRATION for each required instrumentation channel.*
SR 3.3.13.1 (Analog) *Perform CHANNEL CHECK.*	SR 3.3.9.1 *Perform CHANNEL CHECK.*
SR 3.3.13.3 (Analog) *Perform CHANNEL CALIBRATION.*	SR 3.3.9.2 *Perform CHANNEL CALIBRATION.*
SR 3.4.12.5 *Verify PORV block valve is open for each required PORV.*	SR 3.4.12.3 *Verify PORV block valve is open for each required PORV.*
SR 3.4.12.6 *Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.*	SR 3.4.12.4 *Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.*
SR 3.4.12.7 *Perform CHANNEL CALIBRATION on each required PORV actuation channel.*	SR 3.4.12.5 *Perform CHANNEL CALIBRATION on each required PORV actuation channel.*
SR 3.5.2.6 *Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.*	SR 3.5.2.5 *Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.*

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.5.2.7 *Verify each ECCS pump starts automatically on an actual or simulated actuation signal.*	SR 3.5.2.6 *Verify each ECCS pump starts automatically on an actual or simulated actuation signal.*
SR 3.5.2.8 *Verify each LPSI pump stops on an actual or simulated actuation signal.*	SR 3.5.2.7 *Verify each LPSI pump stops on an actual or simulated actuation signal.*
SR 3.5.2.9 *[Verify, for each ECCS throttle valve listed below, each position stop is in the correct position.* *Valve Number* *[ ]* *[ ]*	SR 3.5.2.8 *Verify, for each ECCS throttle valve listed below, each position stop is in the correct position.* *Valve Number Function* *MO-3008 LPSI to Cold leg 1A* *MO-3010 LPSI to Cold leg 1B* *MO-3012 LPSI to Cold leg 2A* *MO-3014 LPSI to Cold leg 2B* *MO-3082 HPSI to Hot leg 1* *MO-3083 HPSI to Hot leg 1*
SR 3.6.3.7 *Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.*	SR 3.6.3.6 *Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.*
SR 3.6.6A.4 [Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	SR 3.6.6.3 *Verify the containment spray piping is full of water to the 735 ft elevation in the containment spray header.*
SR 3.7.11.1 *Operate each CREACS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].*	SR 3.7.10.1 *Operate each CRV Filtration train for ≥ 10 continuous hours with associated heater (VHX-26A or VHX-26B) operating.*

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.7.11.3 *Verify each CREACS train actuates on an actual or simulated actuation signal.*	SR 3.7.10.3 *Verify each CRV Filtration train actuates on an actual or simulated actuation signal.*
SR 3.7.12.1 *Verify each CREATCS train has the capability to remove the assumed heat load.*	SR 3.7.11.1 *Verify each CRV Cooling train has the capability to remove the assumed heat load.*
SR 3.7.17.1 *Verify the fuel storage pool boron concentration is within limit.*	SR 3.7.15.1 *Verify the SFP boron concentration is within limit.*
SR 3.7.19.1 *Verify the specific activity of the secondary coolant is within limit.*	SR 3.7.17.1 *Verify the specific activity of the secondary coolant is within limit.*
SR 3.8.1.6 *Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].*	SR 3.8.3.6 *Verify the fuel oil transfer system operates to transfer fuel oil from the fuel oil storage tank to each DG day tank and engine mounted tank.*
SR 3.8.1.9 *Verify each DG rejects a load greater than or equal to its associated single largest post-accident load and:* *a. Following load rejection, the frequency is ≤ [63] Hz,* *b. Within [3] seconds following load rejection, the voltage is ≥ [3740] V and ≤ [4580] V, and* *c. Within [3] seconds following load rejection, the frequency is ≥ [58.8] Hz and ≤ [61.2] Hz.*	SR 3.8.1.5 *Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and:* *a. Following load rejection, the frequency is ≤ 68 Hz;* *b. Within 3 seconds following load rejection, the voltage is ≥ 2280 V and ≤ 2640 V; and* *c. Within 3 seconds following load rejection, the frequency is ≥ 59.5 Hz and ≤ 61.5 Hz.*

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.8.1.11 *Verify on an actual or simulated loss of offsite power signal:* *a. De-energization of emergency buses,* *b. Load shedding from emergency buses,* *c. DG auto-starts from standby condition and:* *1. Energizes permanently connected loads in ≤ [10] seconds,* *2. Energizes auto-connected shutdown loads through [automatic load sequencer],* *3. Maintains steady state voltage ≥ [3740] V and ≤ [4580] V,* *4. Maintains steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and* *5. Supplies permanently connected [and auto-connected] shutdown loads for ≥ 5 minutes.*	SR 3.8.1.7 *Verify on an actual or simulated loss of offsite power signal:* *a. De-energization of emergency buses;* *b. Load shedding from emergency buses;* *c. DG auto-starts from standby condition and:* *1. energizes permanently connected loads in ≤ 10 seconds,* *2. energizes auto-connected shutdown loads through automatic load sequencer,* *3. maintains steady state voltage ≥ 2280 V and ≤ 2520 V,* *4. maintains steady state frequency ≥ 59.5 Hz and ≤ 61.2 Hz, and* *5. supplies permanently connected loads for ≥ 5 minutes.*

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.8.1.19 *Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal:* *a. De-energization of emergency buses,* *b. Load shedding from emergency buses,* *c. DG auto-starts from standby condition and:* *1. energizes permanently connected loads in ≤ [10] seconds,* *2. energizes auto-connected emergency loads through [load sequencer],* *3. achieves steady state voltage ≥ [3740] V and ≤ [4580] V,* *4. achieves steady state frequency ≥ [58.8] Hz and ≤ [61.2] Hz, and* *5. supplies permanently connected [and auto-connected] emergency loads for ≥ [5] minutes.*	SR 3.8.1.11 *Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated safety injection signal:* *a. De-energization of emergency buses;* *b. Load shedding from emergency buses;* *c. DG auto-starts from standby condition and:* *1. energizes permanently connected loads in ≤ 10 seconds,* *2. energizes auto-connected shutdown loads through automatic load sequencer,* *3. achieves steady state voltage ≥ 2280 V and ≤ 2520 V,* *4. achieves steady state frequency ≥ 59.5 Hz and ≤ 61.2 Hz, and* *5. supplies permanently connected loads for ≥ 5 minutes.*
SR 3.8.4.3 *Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.*	SR 3.8.4.7 *Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.*

TABLE 2 PNP TS SECTION NUMBER DIFFERENCES	
TSTF-425 (CEOG STS) SURVEILLANCE	**PNP TS SURVEILLANCE**
SR 3.8.6.6 *Verify battery capacity is ≥ [80%] of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.*	SR 3.8.4.8 *Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.*
Admin 5.5.18 Surveillance Frequency Control Program (SFCP)	Admin 5.5.17 Surveillance Frequency Control Program (SFCP)

2.2.3 TSTF-425 (CEOG STS) Changes Not in PNP TS

PNP's current TS SR, in some cases, do not include the TSTF-425 listed SRs and therefore these changes are not applicable to PNP. They will not be adopted by PNP and are listed in Table 3 below.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
1.1 Definitions STAGGERED TEST BASIS Optional Addition	1.1 Definitions STAGGERED TEST BASIS Currently contained in PNP TS. Will not be added under this LAR.
SR 3.1.4.2 *Verify the CEA motion inhibit is OPERABLE.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.1.6.2 *Verify the accumulated times during which the regulating CEA groups are inserted beyond the steady state insertion limits but within the transient insertion limits.*	This SR is not included in PNP's TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.1.7.1 *Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.*	This SR is not included in PNP's TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.2.1.1 *Verify ASI alarm setpoints are within the limits specific in the COLR.*	This SR is not included in PNP's TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.2.1.3 *Verify incore detector local power density alarm setpoints are less than or equal to the limits specified in the COLR.*	This SR is not included in PNP's TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.2.2.1 Verify the value of F^T_{xy}	This SR is not included in PNP's TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.1.9 (Analog) *Verify RPS RESPONSE TIME is within limits.*	This SR is not included in PNP's TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.2.1 (Analog) *Perform a CHANNEL CHECK of each wide range power channel.*	PNP TS do not include the TSTF-425 STS section for RPS Instrumentation – Shutdown (Analog) 3.3.2. Instead, PNP TS combined the STS sections of RPS Instrumentation – Operating (Analog) 3.3.1 and RPS Instrumentation – Shutdown (Analog) 3.3.2 by adding an Applicable MODEs column to Table 3.3.1-1 for each RPS function. Therefore Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.2.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on the Power Rate of Change trip function.*	PNP TS do not include the TSFT-425 STS section for RPS Instrumentation – Shutdown (Analog) 3.3.2. Instead, PNP TS combined the STS sections of RPS Instrumentation – Operating (Analog) 3.3.1 and RPS Instrumentation – Shutdown (Analog) 3.3.2 by adding an Applicable MODEs column to Table 3.3.1-1 for each RPS function. Therefore Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.2.3 (Analog) *Perform a CHANNEL FUNCITONAL TEST on each automatic bypass removal function.*	PNP TS do not include the TSFT-425 STS section for RPS Instrumentation – Shutdown (Analog) 3.3.2. Instead, PNP TS combined the STS sections of RPS Instrumentation – Operating (Analog) 3.3.1 and RPS Instrumentation – Shutdown (Analog) 3.3.2 by adding an Applicable MODEs column to Table 3.3.1-1 for each RPS function. Therefore Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.2.4 (Analog) *Perform a CHANNEL CALIBRATION, including bypass removal functions with Allowable Value < [2.6] dpm.*	PNP TS do not include the TSFT-425 STS section for RPS Instrumentation – Shutdown (Analog) 3.3.2. Instead, PNP TS combined the STS sections of RPS Instrumentation – Operating (Analog) 3.3.1 and RPS Instrumentation – Shutdown (Analog) 3.3.2 by adding an Applicable MODEs column to Table 3.3.1-1 for each RPS function. Therefore Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.3.1 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each RTCB channel.*	PNP TS include a similar RPS trip Initiation logic channel surveillance at a 92 day frequency (SR 3.3.2.1) CHANNEL FUNCTIONAL TEST. However, since it is not identical to the reactor trip circuit breakers (RCTB) channel, Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.3.4 (Analog) *[Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB channel.*	PNP TS do not include SRs for RTCBs. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.4.5 (Analog) *Verify ESF RESPONSE TIME is within limits.*	PNP TS do not include SRs for verification of engineered safety features (ESF) response time. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.6.1 (Analog) *[Perform CHANNEL CHECK*	PNP TS do not include a SR for performing an ESF channel check. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.8.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on the required CRIS radiation monitor channel.* *Verify CRIS high radiation setpoint is less than or equal to the Allowable Value of [6E4] cpm above normal background.*	PNP TS do not include a SR for performing a channel functional test on the CRIS high radiation setpoint. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.8.6 (Analog) *[Verify response time of required CRIS channel is within limits*	PNP TS do not include a SR for performing radiation monitor control room isolation response time verification. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.3.12.1 (Analog) *[Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.*	PNP TS do not include a SR for performing channel check on normally energized remote shutdown system instrumentation channels. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.13.2 (Analog) *Perform CHANNEL FUNCTIONAL TEST.*	PNP TS do not include a SR for performing channel functional testing of neutron flux monitoring channels. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.1.3 *Verify RCS total flow rate ≥ [148 E6] lb/hour.*	PNP TS do not include a SR for verifying total RCS flow rates every 12 hours. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.11.1 *Perform a complete cycle of each PORV.* This SR to perform a complete cycle of each PORV has a different frequency requirement PNP TS.	PNP TS SR frequency is conditional as, "Once prior to entering MODE 4 from MODE 5," and therefore meets a TSTF-425 exclusion criteria and TSTF-425 may not be used to justify the change. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.11.3 *Perform a complete cycle of each solEntergyid air control valve and check valve on the air accumulators in PORV control systems.* This SR is optional in STS and is not included in PNP TS.	PNP TS do not include this optional SR. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.11.4 *Verify PORVs and block valve(s) are capable of being powered from an emergency power supply.* This SR is optional in STS and is not included in PNP TS.	PNP TS do not include this optional SR. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.4.12.3 *Verify each SIT is isolated.*	PNP TS do not include a SR for verifying each safety injection tank (SIT) is isolated. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.15.2 *Perform CHANNEL FUNCTIONAL TEST of the required containment atmosphere radioactivity monitor.*	This SR is not included in PNP's current TS. PNP performs a channel calibration of the required containment atmosphere gaseous activity monitor every 18 moths per SR 3.4.15.6 Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.15.5 *[Perform CHANNEL CALIBRATION of the required containment air cooler condensate flow rate monitor.* This surveillance requirement is optional in STS and is not included in PNP TS.	PNP TS do not include this optional SR. Note: PNP has containment air cooler condensate collection pan level switches versus condensate flow rate monitor. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.4.17.1 *Verify THERMAL POWER ≤ 5% RTP.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.5.2.3 *Verify ECCS piping is full of water.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.6.3.5 SR *Verify the isolation time of each automatic power operated containment isolation valve is within limits.* FREQUENCY *[In accordance with the Inservice Testing Program or 92 days]*	PNP's frequency for its corresponding SR 3.6.3.4 does not include "or 92 days." Entergy will maintain the current frequency of "in accordance with the INSERVICE TESTING PROGRAM." Therefore Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.6.6A.9 SR *Verify each spray nozzle is unobstructed.* FREQUENCY *[At first refueling]* *AND* *[10 years]*	PNP's frequency for its corresponding SR 3.6.6.9 states "Following maintenance which could result in nozzle blockage." Entergy will maintain this current frequency. Therefore Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.7.9.3 *[Operate each cooling tower fan for ≥ [15] minutes.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.7.11.4 *Verify one CREACS train can maintain a positive pressure of ≥ [0.125] inches water gauge, relative to the adjacent [area] during the emergency radiation state of the emergency mode of operation at an emergency ventilation flow rate of ≤ [3000] cfm.*	PNP has adopted a Control Room Habitability Program which requires unfiltered air inleakage testing. Therefore, this SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.8.1.5 *Check for and remove accumulated water from each day tank [and engine mounted tank].*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.8.1.7 *Verify each DG starts from standby conditions and achieves:* *a. In ≤ [10] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz and* *b. Steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.*	PNP TS do not include this SR. Instead PNP has included TSTF-425 SR 3.8.1.7 in PNP SR 3.8.1.2 for diesel generator (DG) start testing. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.8.1.8 *[Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.8.1.12 *Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and:* *a. In < [10] seconds after auto-start and during tests, achieves voltage > [3740] V and frequency > [58.8] Hz,* *b. Achieves steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz,* *c. Operated for ≥ 5 minutes,* *d. Permanently connected loads remain energized from the offsite power system, and* *e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.8.1.13 *Verify each DG's noncritical automatic trips are bypassed on [actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal].*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.8.1.15 *Verify each DG starts and achieves:* *a. In ≤ [10] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz and* *b. Steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.

TABLE 3 TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.8.1.17 *Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by:* *a. Returning DG to ready-to-load operation and* *[b. Automatically energizing the emergency load from offsite power.]*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.8.1.20 *Verify, when started simultaneously from standby condition, each DG achieves:* *a. In ≤ [10] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz and* *b. Steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
SR 3.8.6.1 *Verify each battery float current is < [2] amps:*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 SR frequency relocation for PNP.
5.5.17 ADMINISTRATIVE CONTROLS *Battery Monitoring and Maintenance Program*	This SR is not included in PNP's current TS. Entergy will not adopt this TSTF-425 administrative controls section change for PNP.

2.2.4 TSTF-425 (CEOG STS) Changes Not Applicable due to PNP Design

PNP's design, in some cases, varies from other CEOG STS plants and therefore not all STS sections are applicable to PNP. These TSTF-425 changes will not be adopted by PNP and are listed in Table 4 below.

TABLE 4
TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN

TSTF-425 (CEOG STS) SR	PNP TS
SR 3.1.1.1 *Verify SDM to be within limits specified in the COLR.* Applies to SDM (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to SDM (Digital) do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.2.1 *Verify overall core reactivity balance is within +1.0% Δk/k of predicted values.* Applies to Reactivity Balance (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to reactivity balance (Digital) do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.4.1 *Verify the indicated position of each full and part length CEA is within [7 inches] of all other CEAs in its group.* Applies to CEA Alignment (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEA Alignment (Digital) do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.4.2 *Verify that, for each CEA, its OPERABLE CEA position indicator channels indicate within [5 inches] of each other.* Applies to CEA Alignment (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEA Alignment (Digital) do not apply. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.1.4.3 *Verify full length CEA freedom of movement (trippability) by moving each individual full length CEA that is not fully inserted in the core at least [5 inches].* Applies to CEA Alignment (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEA Alignment (Digital) do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.4.4 *Perform a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel.* Applies to CEA Alignment (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEA Alignment (Digital) do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.5.1 *Verify each shutdown CEA is withdrawn ≥[145] inches.* Applies to Shutdown CEA insertion Limits (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Part Length CEA Insertion Limits (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.6.1 *Verify each regulating CEA group position is within its insertion limits.* Applies to Regulating CEA insertion Limits (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Part Length CEA Insertion Limits (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.6.2 *Verify the accumulated times during which the regulating CEA groups are inserted beyond the steady state insertion limits but within the transient insertion limits.* Applies to Regulating CEA insertion Limits (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Part Length CEA Insertion Limits (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.1.6.3 *Verify PDIL alarm circuit is OPERABLE.* Applies to Regulating CEA insertion Limits (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Part Length CEA Insertion Limits (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.7.1 *Verify part length CEA group position.* Applies to Part Length CEA insertion Limits (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Part Length CEA Insertion Limits (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.8.1 *Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.* Applies to STE-SDM (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to STE-SDM (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.1.9.1 *Verify THERMAL POWER equal to or less than the test power plateau.* Applies to STE-MODES 1 and 2 (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to STE- MODES 1 and 2 (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.1.1 (Digital) *Verify LHR, as indicated on each OPERABLE local power density channel, is within its limit.* Applies to LHR (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to LHR (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.2.1.2 (Digital) *Verify the COLSS margin alarm actuates at a THERMAL POWER equal to or less than the core power operating limit based on LHR.* Applies to LHR (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to LHR (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.2.1 (Digital) *Verify measured F^M_{xy} obtained using the incore Detector System is equal to or less than the value of F^C_{xy} used in the COLSS and CPCs.* Applies to F_{xy} (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to F_{xy} (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.3.1 (Digital) *Calculate T_q and verify it is within the limit.* Applies to T_q (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to T_q (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.3.2 (Digital) *Verify COLSS azimuthal tilt alarm is actuated at a T_q less than the T_q value used in the CPCs.* Applies to T_q (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to T_q (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.3.3 (Digital) *Independently confirm the validity of the COLSS calculated T_q by use of the incore detectors.* Applies to T_q (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to T_q (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.2.4.1 (Digital) *Verify DNBR, as indicated on all OPERABLE DNBR channels, is within the limit of Figure 3.2.4-1 or 3.2.4-2 of the COLR as applicable.* Applies to departure from nucleic boiling (DNBR) (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to DNBR (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.4.2 (Digital) *Verify COLSS margin alarm actuates at a THERMAL POWER level equal to or less than the core power operating limit based on DNBR.* Applies to (DNBR) (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to DNBR (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.2.5.1 (Digital) *Verify ASI is within limits.* Applies to axial shape index (ASI) (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ASI (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.1 (Analog) *Perform a CHANNEL CHECK on each containment radiation monitor channel.* Applies to containment purge isolation signal (CPIS) (Analog).	PNP plant specific design does not include a CPIS system. Therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.7.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each containment radiation monitor channel.* Verify CPIS high radiation setpoint is less than or equal to the Allowable Value of [220 mR/hr]. Applies to containment purge isolation signal (CPIS) (Analog).	PNP plant specific design does not include a CPIS system. Therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.3 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each CPIS Actuation Logic channel.* Applies to containment purge isolation signal (CPIS) (Analog).	PNP plant specific design does not include a CPIS system. Therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.4 (Analog) *Perform a CHANNEL CALIBRATION on each containment radiation monitor channel.* Applies to containment purge isolation signal (CPIS) (Analog).	PNP plant specific design does not include a CPIS system. Therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.5 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each CPIS Manual Trip channel.* Applies to containment purge isolation signal (CPIS) (Analog).	PNP plant specific design does not include a CPIS system. Therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.6 (Analog) *Verify CPIS response time of each containment radiation channel is within limits.* Applies to containment purge isolation signal (CPIS) (Analog).	PNP plant specific design does not include a CPIS system. Therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.9.1 (Analog) *Perform a CHANNEL CHECK.* Applies to chemical volume control system (CVCS) isolation signal (Analog).	PNP plant specific design does not include a TS CVCS isolation system. Therefore frequency changes to specifications in TSTF-425 that apply to CVCS Isolation Signal (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each CVCS isolation channel with setpoints in accordance with the following Allowable Values:* *West Penetration Room Pressure – High* $\leq$ *.5 psig* *Letdown Heat Exchanger Room Pressure – High* $\leq$*.5 psig* Applies to chemical volume control system (CVCS) isolation signal (Analog).	PNP plant specific design does not include a TS CVCS isolation system. Therefore frequency changes to specifications in TSTF-425 that apply to CVCS Isolation Signal (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.3 (Analog) *Perform a CHANNEL CALIBRATION on each CVCS isolation pressure indicating channel.* Applies to chemical volume control system (CVCS) isolation signal (Analog).	PNP plant specific design does not include a TS CVCS isolation system. Therefore frequency changes to specifications in TSTF-425 that apply to CVCS Isolation Signal (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.10.1 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each SBFAS Automatic actuation channel.* Applies to shield building filtration actuation signal (SBFAS) (Analog).	PNP plant specific design does not include a SBFAS isolation system. Therefore frequency changes to specifications in TSTF-425 that apply to SBFAS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.10.2 (Analog) *Perform a CHANNEL FUNCTIONAL TEST on each SBFAS Manual Trip channel.* Applies to shield building filtration actuation signal (SBFAS) (Analog).	PNP plant specific design does not include a SBFAS isolation system. Therefore frequency changes to specifications in TSTF-425 that apply to SBFAS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.12.4 (Analog) *[Perform CHANNEL FUNCTIONAL TEST of the reactor trip circuit breaker open/closed indication.* Applies to Remote Shutdown System (Analog)	PNP plant specific design does not include reactor trip circuit breaker open/closed indication. Therefore frequency changes to specifications in TSTF-425 that apply to SBFAS (Analog) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.1 (Digital) *Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.2 (Digital) *Verify total Reactor Coolant System (RCS) flow rate as indicated by each CPC is less than or equal to the RCS total flow rate.* *If necessary, adjust the CPC addressable constant flow coefficients such that each CPC indicated flow is less than or equal to the RCS flow rate.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.1.3 (Digital) *Check the CPC auto restart count.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.4 (Digital) *Perform calibration (heat balance only) and adjust the linear power level signals and the CPC addressable constant multipliers to make the CPC ΔT power and CPC nuclear power calculations agree with the calorimetric, if the absolute difference is $\geq$ [2]%.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.5 (Digital) *Verify total RCS flow rate indicated by each CPC is less than or equal to the RCS flow determined by calorimetric calculations.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.6 (Digital) *Verify linear power subchannel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the CPCs.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.1.7 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each channel except Loss of Load and power range neutron flux.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.8 (Digital) *Perform a CHANNEL CALIBRATION of the power range neutron flux channels.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.9 (Digital) *Perform a CHANNEL FUNCTIONAL TEST for Loss of Load Function.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.10 (Digital) *Perform a CHANNEL CALIBRATION on each channel, including bypass removal functions.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.1.11 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each CPC channel.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.1.14 (Digital) *Verify RPS RESPONSE TIME is within limits.* Applies to RPS Instrumentation – Operating (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Operating (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.2.1 (Digital) *Perform a CHANNEL CHECK of each logarithmic power channel.* Applies to RPS Instrumentation – Shutdown (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Shutdown (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.2.2 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each logarithmic power channel.* Applies to RPS Instrumentation – Shutdown (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Shutdown (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.2.4 (Digital) *Perform a CHANNEL CALIBRATION on each logarithmic power channel, including bypass removal function with Allowable Value for trip channels < [.93]%.* Applies to RPS Instrumentation – Shutdown (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Shutdown (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.2.5 (Digital) *Verify RPS RESPONSE TIME is within limits.* Applies to RPS Instrumentation – Shutdown (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Instrumentation - Shutdown (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.3.1 (Digital) *Perform a CHANNEL CHECK.* Applies to CEACs (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEACs (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.3.2 (Digital) *Check the CEAC auto restart count.* Applies to CEACs (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEACs (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.3.3 (Digital) *Perform a CHANNEL FUNCTIONAL TEST.* Applies to CEACs (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEACs (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.3.4 (Digital) *Perform a CHANNEL CALIBRATION.* Applies to CEACs (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEACs (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.3.5 (Digital) *Perform a CHANNEL FUNCTIONAL TEST.* Applies to CEACs (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEACs (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.3.6 (Digital) *Verify the isolation characteristics of each CEAC isolation amplifier and each optical isolator for CEAC to CPC data transfer.* Applies to CEACs (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CEACs (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.4.1 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each RTCB channel.* Applies to RPS Logic and Trip Initiation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Logic and Trip Initiation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.4.2 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each RPS Logic channel.* Applies to RPS Logic and Trip Initiation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Logic and Trip Initiation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.4.3 (Digital) *Perform a CHANNEL FUNCTIONAL TEST, including separate verification of the undervoltage and shunt trips, on each RTCB.* Applies to RPS Logic and Trip Initiation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to RPS Logic and Trip Initiation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.5.1 (Digital) *Perform a CHANNEL CHECK of each ESFAS channel.* Applies to ESFAS Instrumentation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Instrumentation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.5.2 (Digital) *Perform a CHANNEL FUNCTIONAL TEST of each ESFAS channel.* Applies to ESFAS Instrumentation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Instrumentation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.5.3 (Digital) *Perform a CHANNEL CALIBRATION of each ESFAS channel, including bypass removal functions.* Applies to ESFAS Instrumentation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Instrumentation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.5.4 (Digital) *Verify ESF RESPONSE TIME is within limits.* Applies to ESFAS Instrumentation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Instrumentation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.6.1 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each ESFAS logic channel.* Applies to ESFAS Logic and Manual Trip (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Logic and Manual Trip (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.6.2 (Digital) *Perform a subgroup relay test of each Actuation Logic channel, which includes the de-energization of each subgroup relay and verification of the OPERABILITY of each subgroup relay..* Applies to ESFAS Logic and Manual Trip (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Logic and Manual Trip (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.6.3 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.* Applies to ESFAS Logic and Manual Trip (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to ESFAS Logic and Manual Trip (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.1 (Digital) *[Perform CHANNEL CHECK.* Applies to DG - LOVS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to DG - LOVS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.2 (Digital) *Perform CHANNEL FUNCTIONAL TEST.* Applies to DG - LOVS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to DG - LOVS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.7.3 (Digital) *Perform CHANNEL CALIBRATION with setpoint Allowable Values as follows:* *a. Degraded Voltage Function ≥ [3180] V and ≤ [3220] V* *Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V and* *b. Loss of Voltage Function ≥ [3180] V and ≤ [3220] V* *Time delay: ≥ [ ] seconds and ≤ [ ] seconds at [ ] V.* Applies to DG - LOVS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to DG - LOVS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.8.1 (Digital) *Perform a CHANNEL CHECK on required containment area and gaseous radiation monitor channel.* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.8.2 (Digital) *Perform a CHANNEL CHECK on required containment particulate and iodine radiation monitor channel.* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.8.3 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on each required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following:* *Containment Gaseous Monitor: ≤ [2X background]* *Containment Particulate Monitor: ≤ [2X background]* *Containment Area Gamma Monitor: ≤ [325 mR/hr]* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.8.4 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on required containment radiation monitor channel. Verify setpoint [Allowable Value] is in accordance with the following:* *Containment Gaseous Monitor: ≤ [2X background]* *Containment Particulate Monitor: ≤ [2X background]* *Containment Iodine Monitor: ≤ [2X background]* *Containment Area Gamma Monitor: ≤ [2X background]* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.8.5 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on required CIPS Actuation Logic channel.* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.8.6 (Digital) *Perform a CHANNEL CALIBRATION on required containment radiation monitor channel.* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.8.7 (Digital) *Verify that response time of required CPIS channel is within limits.* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.8.8 (Digital) *Perform CHANNEL FUNCTIONAL TEST on required CPIS Manual Trip channel.* Applies to CPIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CPIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.1 (Digital) *Perform a CHANNEL CHECK on the required control room radiation monitor channel.* Applies to CRIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CRIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.2 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on required CRIS radiation monitor channel.* *Verify CRIS high radiation setpoint [Allowable Value] is ≤ [6E4] cpm above normal background.* Applies to CRIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CRIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.3 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on required CRIS Actuation Logic channel.* Applies to CRIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CRIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.4 (Digital) *Perform a CHANNEL CALIBRATION on required CRIS radiation monitor channel.* Applies to CRIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CRIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.9.5 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on required CRIS Manual Trip channel.* Applies to CRIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CRIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.9.6 (Digital) *[verify that response time of required CRIS channel is within limits.* Applies to CRIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to CRIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.10.1 (Digital) *Perform a CHANNEL CHECK on required FHIS radiation monitor channel.* Applies to FHIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to FHIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.10.2 (Digital) *Perform a CHANNEL FUNCTIONAL TEST on required FHIS radiation monitor channel. Verify radiation monitor setpoint [Allowable Values];* *[Airborne Particulate/ Iodine: is ≤ [6E4] cpm above background]* *Airborne Gaseous: ≤ [6E4] cpm above background* Applies to FHIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to FHIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.10.3 (Digital) *Perform a CHANNEL CHECK on required FHIS Actuation Logic channel.* Applies to FHIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to FHIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.10.4 (Digital) *Perform a CHANNEL CHECK on required FHIS Manual Trip logic.* Applies to FHIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to FHIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.10.5 (Digital) *Perform a CHANNEL CALIBRATION on required FHIS radiation monitor channel.* Applies to FHIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to FHIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.10.6 (Digital) *[Verify response time of required FHIS channel is within limits.* Applies to FHIS (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to FHIS (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.11.1 (Digital) *Perform a CHANNEL CHECK on each required instrument channel that is normally energized.* Applies to PAM Instrumentation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to PAM Instrumentation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.11.2 (Digital) *Perform CHANNEL CALIBRATION.* Applies to PAM Instrumentation (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to PAM Instrumentation (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.12.1 (Digital) *[Perform a CHANNEL CHECK on each required instrument channel that is normally energized.* Applies to Remote Shutdown System (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Remote Shutdown System (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.12.2 (Digital) *Verify each required control circuit and transfer switch is capable of performing the intended function.* Applies to Remote Shutdown System (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Remote Shutdown System (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.12.3 (Digital) *Perform CHANNEL CALIBRATION for each required instrumentation channel.* Applies to Remote Shutdown System (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Remote Shutdown System (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.12.4 (Digital) *[Perform CHANNEL FUNCTIONAL TEST of the reactor trip circuit breaker open/closed indication.* Applies to Remote Shutdown System (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to Remote Shutdown System (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.13.1 (Digital) *Perform a CHANNEL CHECK.* Applies to [Logarithmic] Power Monitoring Channels (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to [Logarithmic] Power Monitoring Channels (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.3.13.2 (Digital) *Perform CHANNEL FUNCTIONAL TEST.* Applies to [Logarithmic] Power Monitoring Channels (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to [Logarithmic] Power Monitoring Channels (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.3.13.3 (Digital) *Perform CHANNEL CALIBRATION.* Applies to [Logarithmic] Power Monitoring Channels (Digital)	PNP plant specific design is analogue and therefore frequency changes to specifications in TSTF-425 that apply to [Logarithmic] Power Monitoring Channels (Digital) do not apply to PNP. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.4.12.2 *Verify a maximum of one charging pump is capable of injecting into the RCS.*	PNP plant specific design sizes any vent path credited for performing the LTOP function to be sized large Entergyugh to accommodate flow from all three charging pumps. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.4.14.3 *Verify SDC System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ [600] psig.*	PNP plant specific design does not include a SDC System autoclosure interlock that automatically isolates SDC so this SR is not included in PNP TS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.3.1 *[Verify each [42] inch purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition E of this LCO.*	PNP plant specific design does not include large [42] inch purge valves and therefore this SR in not included in PNP TS. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.6.3.8 *[Verify each [ ] inch containment purge valve is blocked to restrict the valve from opening > [50%].*	PNP plant specific design does not include containment purge valves that are blocked to restrict opening therefore this SR is not included in PNP TS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.1 *Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.*	PNP plant's containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.2 *Operate each containment cooling train fan unit for ≥ 15 minutes.*	PNP plant's containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.3 *Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler.*	PNP plant's containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.4 [Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	PNP containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.6 *Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.*	PNP containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.6.6B.7 *Verify each containment spray pump starts automatically on an actual or simulated actuation signal.*	PNP containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.8 *Verify each containment cooling train starts automatically on an actual or simulated actuation signal.*	PNP containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.6B.9 *Verify each spray nozzle is unobstructed.*	PNP containment is a STS type "A" design and therefore SRs for type "B" containments do not apply. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.7.1 *Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.*	PNP design does not credit a containment spray additive. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.7.2 Verify spray additive tank solution volume is ≥ [816] gal [90%] and ≤ [896] gal [100%].	PNP design does not credit a containment spray additive. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.7.3 Verify spray additive tank [N_2H_2] solution concentration is ≥ [33%] and ≤ [35%] by weight.	PNP design does not credit a containment spray additive. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.6.7.5 *Verify each spray additive automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.*	PNP design does not credit a containment spray additive. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.7.6 *[Verify spray additive flow [rate] from each solution's flow path.*	PNP design does not credit a containment spray additive. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.8.1 *Operate each SBEACS train for [> 10 continuous hours with the heaters operating or (for systems without heaters) > 15 minutes].* Shield Building Exhaust Air Cleanup System (SBEACS)	PNP design does not include a SBEACS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.8.3 *Verify each SBEACS train actuates on an actual or simulated actuation signal.*	PNP design does not include a SBEACS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.8.4 *[Verify each SBEACS filter bypass damper can be opened.*	PNP design does not include a SBEACS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.8.5 *Verify each SBEACS train flow rate is ≥ [ ] cfm.*	PNP plant's design does not include a SBEACS. Entergy will not adopt this TSTF-425 SR Frequency change for PNP
SR 3.6.9.1 *Operate each HMS train for ≥ 15 minutes.* Hydrogen Mixing System (HMS)	PNP design does not include a HMS. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.6.9.2 *Verify each HMS train flow rate on slow speed is ≥ [37,000] cfm.*	PNP design does not include a HMS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.9.3 *Verify each HMS train starts on an actual or simulated actuation signal.*	PNP design does not include a HMS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.10.1 *Operate each ICS train for [> 10 continuous hours with heaters operating or (for systems without heaters) > 15 minutes].* Iodine Cleanup System (ICS)	PNP design does not include an ICS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.10.3 *Verify each ICS train actuates on an actual or simulated actuation signal.*	PNP design does not include an ICS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.10.4 *[Verify each ICS filter bypass damper can be opened.*	PNP design does not include an ICS. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.11.1 *Verify annulus negative pressure is > [5] inches water gauge.* This is applicable to containments with shield buildings.	PNP design does not include a shield building. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.6.11.2 *Verify one shield building access door in each access opening is closed.* This is applicable to containments with shield buildings.	PNP design does not include a shield building. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.6.11.4 *Verify shield building can be maintained at a pressure equal to or more negative than [-0.25] inch water gauge in the annulus by one Shield Building exhaust Air Cleanup System train with a final flow rate < [ ] cfm within [1] minute after a start signal.* This is applicable to containments with shield buildings.	PNP design does not include a shield building. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.4.2 *[Verify one complete cycle of each ADV block valve.* Atmospheric Dump Valves (ADV)	PNP design does not include ADV block valves. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.10.1 *Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.* *Essential Chilled Water (ECW)*	PNP design does not include an ECW system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.10.2 *Verify the proper actuation of each ECW System component on an actual or simulated actuation signal.*	PNP design does not include an ECW system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.13.1 *Operate each ECCS PREACS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].* *Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)*	PNP design does not include an ECCS PREACS system. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.7.13.3 *Verify each ECCS PREACS train actuates on an actual or simulated actuation signal.*	PNP design does not include an ECCS PREACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.13.4 *Verify one ECCS PREACS train can maintain a negative pressure of ≥ [ ] inches water gauge, relative to atmospheric pressure during the [post accident] mode of operation at a flow rate of ≤ [20,000] cfm.*	PNP design does not include an ECCS PREACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.13.5 *[Verify each ECCS PREACS filter bypass damper can be opened.*	PNP design does not include an ECCS PREACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.14.1 *Operate each FBACS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].* *Fuel Building Air Cleanup System (FBACS)*	PNP design does not include an FBACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.14.3 *[Verify each FBACS train actuates on an actual or simulated actuation signal.*	PNP design does not include an FBACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.14.4 *Verify one FBACS train can maintain a negative pressure of ≥ [ ] inches water gauge, with respect to atmospheric pressure during the [post accident] mode of operation at a flow rate of ≤ [3,000] cfm.*	PNP design does not include an FBACS system. Entergy will not adopt this TSTF-425 change for PNP.

TABLE 4 TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN	
TSTF-425 (CEOG STS) SR	**PNP TS**
SR 3.7.14.5 *[Verify each FBACS filter bypass damper can be opened.*	PNP design does not include an FBACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.15.1 *Operate each PREACS train for [≥ 10 continuous hours with heater operating or (for systems without heaters) ≥ 15 minutes].* *Penetration Room Exhaust Cleanup System (PREACS)*	PNP design does not include an PREACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.15.3 *[Verify each PREACS train actuates on an actual or simulated actuation signal.*	PNP design does not include an PREACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.15.4 *Verify one PREACS train can maintain a negative pressure of ≥ [ ] inches water gauge, with respect to atmospheric pressure during the [post accident] mode of operation at a flow rate of ≤ [3,000] cfm.*	PNP design does not include an PREACS system. Entergy will not adopt this TSTF-425 change for PNP.
SR 3.7.15.5 *[Verify each PREACS filter bypass damper can be opened.*	PNP design does not include an PREACS system. Entergy will not adopt this TSTF-425 change for PNP.

3.0 REGULATORY ANALYSIS

3.1 Applicable Regulatory Requirements

A description of the proposed changes and their relationship to applicable regulatory requirements is provided in TSTF-425, Revision 3, and the NRC's model safety evaluation published in the *Notice of Availability* dated July 6, 2009 (Reference 3). Entergy has concluded that the relationship of the proposed changes to the applicable regulatory requirements presented in the Federal Register notice is applicable to PNP.

3.2 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) has reviewed the proposed no significant hazards consideration determination (NSHC) published in Federal Register 74 FR 32000, dated July 6, 2009. Entergy has concluded that the proposed NSHC presented in the Federal Register notice is applicable to Palisades Nuclear Plant and is provided as Attachment 5 in this amendment request, which satisfies the requirements of 10 CFR 50.91(a).

3.3 Precedent

Relocation of surveillance frequencies to a licensee controlled program was approved for multiple licensees including:

- Cooper Nuclear Station per License Amendment No. 258 issued on March 31, 2017 (NRC ADAMS Accession Number ML17061A050)
- D.C. Cook Units 1 and 2 per License Amendment Nos. 334 and 316, respectively, issued on March 31, 2017 (NRC ADAMS Accession Number ML17045A150)
- Brunswick Units 1 and 2 per License Amendment Nos. 276 and 304, respectively, issued on May 24, 2017 (NRC ADAMS Accession Number ML17096A129).

3.4 Conclusion

Based on the considerations discussed herein, (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.

4.0 ENVIRONMENTAL EVALUATION

Entergy has reviewed the environmental consideration included in the NRC's model safety evaluation published in the Federal Register on July 6, 2009 (74 FR 32006). Entergy has concluded that the NRC's findings presented therein are applicable to Palisades Nuclear Plant, and the determination is hereby incorporated by reference for this application.

5.0 REFERENCES

1) Nuclear Energy Institute (NEI), 04-10, Revision 1, *Risk-Informed Technical Specification Initiative 5b, "Risk-Informed Method for Control of Surveillance Frequencies,"* dated April 2007 (NRC ADAMS Accession Number ML071360456)

2) Technical Specifications Task Force letter to the NRC, *Transmittal of TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b,"* dated March 18, 2009 (NRC ADAMS Package Accession Number ML090850642)

3) Federal Register Notice of Availability, 74 FR 31996, *Notice of Availability of Technical Specification Improvement to Relocate Surveillance Frequencies to Licensee Control – Risk-Informed Technical Specification Task Force (RITSTF) Initiative 5b, Technical Specification Task Force-425, Revision 3,* dated July 6, 2009

4) NRC letter to Technical Specifications Task Force, *Notification of Issue with NRC-Approved Technical Specifications Task Force (TSTF) Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b,"* dated April 14, 2010 (NRC ADAMS Accession Number ML100990099)

5) NRC Non-Concurrence, NCP-2015-012, *Perry Nuclear Power Plant – Non-Concurrence for Perry 5b LAR (NCP-2015-012) Sections A, B, & C.*, dated January 22, 2016 (NRC ADAMS Accession Number ML16033A197)

6) Regulatory Guide 1.200, *An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities*, Revision 2 dated March 2009 (NRC ADAMS Accession Number ML090410014)

ATTACHMENTS

1. Palisades Nuclear Plant Probabilistic Risk Assessment Technical Adequacy
2. Proposed Changes to Palisades Plant Renewed Facility Operating License DPR-20 and Appendix A Technical Specifications Pages
3. Page Change Instructions and Revised Pages for the Palisades Plant Renewed Facility Operating License DPR-20 and Appendix A Technical Specifications
4. Proposed Technical Specification Bases Changes (for information only)
5. No Significant Hazards Consideration
6. Traveler TSTF-425 Versus Palisades Nuclear Plant (PNP) Renewed Facility Operating License (RFOL) Surveillance Requirement (SR) Applicability Cross Reference Table

Enclosure Attachment 1 to

PNP 2019-004

Palisades Nuclear Plant

Probabilistic Risk Assessment

Technical Adequacy

52 pages follow

Palisades Nuclear Power Station

PRA Technical Adequacy to Support PNPS Relocation of Technical Specification Surveillance Requirements to an Owner Controlled Program (TSTF 425)

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Table 4. List of SRs Assessed as CC-I in the PNPS Fire PRA Model 52

1. PURPOSE

The purpose of this report is to document the technical adequacy of the Palisades Nuclear Power Station (PNPS) Probabilistic Risk Assessment (PRA) model to support the implementation of the Surveillance Frequency Control Program (SFCP), also referred to as Technical Specifications Initiative 5b (Reference 1). PNPS intends to follow the guidance provided in NEI 04-10, Revision 1 (Reference 2), in evaluating proposed surveillance test interval (STI) changes (also referred as "surveillance frequency" changes).

2. SCOPE

As explained in NEI 04-10, the Technical Specifications Initiative 5b uses a risk-informed, performance-based approach for establishment of the surveillance frequencies, where PRA methods are used to determine the risk impact of the revised intervals. The PRA technical adequacy is addressed through NRC Regulatory Guide (RG) 1.200, Revision 2 (Reference 3), which references the ASME/ANS PRA standard, RA-Sa-2009 (Reference 4), for internal events at power. Risk impacts associated with fire, seismic, external events and shutdown activities may be considered quantitatively or qualitatively.

NEI 04-10 guidance includes the five key safety principles described in RG 1.174 (Reference 5), which are followed as part of this risk-informed Technical Specification Interval change program. The five key safety principles are:

1. Change meets current regulations unless it is explicitly related to a requested exemption or rule change

2. Change is consistent with defense-in-depth philosophy

3. Maintain sufficient safety margins

4. Proposed increases in core damage frequency (CDF) or risk are small and consistent with the Commission's Safety Goal Policy Statement

5. Use performance-measurement strategies to monitor the change

The internal events PRA model Revision 3.4.0 (PSAr3.4.0) is the current model of record for PNPS. The previous revision (PSAr3) of the PNPS internal events PRA is the basis for the PNPS fire PRA model and the PNPS internal flooding PRA model.

The PNPS PRA models and technical content were constructed and documented to meet the ASME/ANS PRA standard (Reference 4). The PNPS fire PRA model was also constructed to meet requirements of NUREG/CR-6850 (Reference 6). The PRA model quantification methodology used at Entergy Operations, Inc, (Entergy) nuclear sites, including Palisades, is recognized within the industry.

Entergy's approach for maintaining, updating and documenting the PRA models at all Entergy nuclear sites is controlled in the fleet procedures. These procedures are consistent with the guidance of the ASME/ANS PRA standard (Reference 4). The procedural process is comprehensive and detailed, which in turn provides the basis for establishing and maintaining the technical adequacy of the models, as well as ensuring the models reflect the as-built, as-operated plant configuration of the sites. In addition, self-assessments and independent peer

reviews are also utilized by Entergy, which reassures the confidence in the approach and overall adequacy of the models against the recognized industry standards and methodologies.

Sections 2.1 and 2.2 describe the general change process and PRA adequacy requirements, respectively, required to support the Initiative 5b. Section 3 documents the technical adequacy of the PNPS PRA model specifically.

2.1. Surveillance Frequency Change Process

NEI 04-10 describes the required steps to be followed to adjust a surveillance test interval (STI). A summary is presented below.

- Once the STI requiring adjustment is selected, NRC regulatory commitments are collected and reviewed. If any prohibitive commitments are identified, such are examined to determine if the commitment can be changed. If there are no prohibitive commitments, or the commitments may be changed using a commitment change process based on NRC endorsed guidance, then evaluation of the STI revision proceeds. If a regulatory commitment exists and the commitment change process does not permit the change, then the STI revision is not implemented (NEI 04-10, Steps 0-4 (Reference 2)).
- The PRA technical adequacy is evaluated using guidance from RG 1.200 (Reference 3). The RG addresses the need to evaluate important assumptions that relate to key modeling uncertainties (such as reactor coolant pump seal models, common cause failure methods, success path determinations, human reliability assumptions, etc.). Further, the RG addresses the need to evaluate parameter uncertainties and demonstrate that calculated risk metrics (i.e., CDF and large early release frequency (LERF)) represent mean values. The identified "gaps" to Capability Category (CC) II requirements from the endorsed PRA standards in the RG and the identified key sources of uncertainty serve as inputs to identifying appropriate sensitivity cases (NEI 04-10, Step 5 (Reference 2)).
- Select the revised STI value and revise any changes to the test strategy (NEI 04-10, Step 6 (Reference 2)).
- Qualitative considerations or qualitative analyses are developed for the STI revision. Qualitative considerations include surveillance test and performance history, past industry and plant-specific experience, impact on defense-in-depth protection, among other considerations (NEI 04-10, Step 7 (Reference 2)).
- Perform quantitative and/or qualitative PRA assessments. Steps 8 through 12, and 14, in NEI 04-10 provide details regarding the use of PRA for evaluating the STI. The use of the PRA includes: determining if the structures, systems and components (SSCs) in question are modeled in the PRA, whether the SSCs or operator actions can be modeled (and make changes to the model if possible) or not, performing qualitative assessments as needed, evaluating total and cumulative effect on CDF and LERF, and performing sensitivity studies as needed.
- The results and proposed STI changes are documented and summarized for consideration by the Integrated Decision-making Panel (IDP). The IDP is usually comprised of the site Maintenance Rule expert panel, a surveillance test coordinator, and a subject matter expert. The IDP approves or rejects the STI changes (with the possibility of adjustments if applicable). If the IDP approves the STI changes, these are documented and implemented. The IDP is also responsible for reviewing the

performance monitoring results and providing feedback, if the STI changes, once implemented, results in unsatisfactory performance (NEI 04-10, Steps 16-20 (Reference 2)).

2.2. Technical Adequacy of a PRA

As previously discussed, NEI 04-10 (Reference 2) references the guidance of the NRC Regulatory Guide 1.200 (Reference 3) for the PRA technical adequacy determination. For the purposes of this report, Section 4.2 of RG 1.200, Rev. 2 is used in support of Initiative 5b license amendment request (LAR) submittals. It is important to note that the scope of the Initiative 5b application is broad, and PRA assessments needed for each proposed STI change vary from case to case. The following requirements are noted in Section 4.2 as necessary to demonstrate that the technical adequacy of the PRA is of sufficient quality to support the Initiative 5b LAR submittal:

1. To address the need for the PRA model to represent the as-designed or as-built, as-operated plant,
2. Identification of permanent plant changes (such as design or operational practices) that have an impact on those SSCs modeled in the PRA but have not been incorporated in the baseline PRA model. If a plant change has not been incorporated in the PRA, the licensee provides a justification of why the change does not impact the PRA results used to support the application. This justification should be in the form of a sensitivity study that demonstrates the accident sequences or contributors significant to the application decision were not adversely impacted (remained the same).
3. Documentation that the parts of the PRA required to produce the results used in the decision are performed consistently with the standard as endorsed in the appendices of the RG. If a requirement of the standard (as endorsed in the appendix to the RG) has not been met, the licensee is to provide a justification of why it is acceptable that the requirement has not been met. This justification should be in the form of a sensitivity study that demonstrates the accident sequences or contributors significant to the application were not impacted (remained the same).
4. A summary of the risk assessment methodology used to assess the risk of the application, including how the base PRA model was modified to appropriately model the risk impact of the application and results (note that this is the same as that required in the application-specific regulatory guides).
5. Identification of the key assumptions and approximations relevant to the results used in the decision-making process. Also, include the peer reviewers' assessment of those assumptions. These assessments provide information to the NRC staff in their determination of whether the use of these assumptions and approximations is appropriate for the application, or whether sensitivity studies performed to support the decision are appropriate.
6. A discussion of the resolution of the peer review (or self-assessment, for peer reviews performed using the criteria in NEI 00-02) facts and observations that are applicable to the parts of the PRA required for the application. This discussion should take the following forms:
   - a discussion of how the PRA model has been changed,

- a justification in the form of a sensitivity study that demonstrates the accident sequences or contributors significant to the application decision were not adversely impacted (remained the same) by the particular issue.

7. The standards or peer review process documents may recognize different capability categories or grades that are related to level of detail, degree of plant specificity, and degree of realism. The licensee's documentation is to identify the use of the parts of the PRA that conform to capability categories or grades lower than deemed required for the given application (Section 1-3 of ASME/ANS RA-Sa-2009).

This PRA technical adequacy report addresses the quality of the PRA to support relocation of STI frequencies to a licensee-controlled document. There are no STI changes proposed for this Initiative 5b LAR submittal. Items 3 and 4, above, are addressed when preparing an STI change request and are, therefore, not covered in this report. The rest of the items are discussed in Section 3.

3. PNPS PRA TECHNICAL ADEQUACY

3.1. Discussion

The PNPS PRA models are controlled in accordance with Entergy procedures consistent with the requirements provided in the RA-Sa-2009 PRA Standard (Reference 4), as previously stated in Section 2. Entergy procedures define the process to be followed to implement scheduled and interim PRA model updates and to control the PRA model files. In addition, the procedure also defines the process for identifying, tracking, and implementing model changes, and for identifying and tracking model improvements or potential issues that may affect the model. Model changes that are identified are tracked via model change requests (MCRs), which are entered in the PNPS MCR database.

Periodic PRA model updates are typically performed at least once every four years, with the option of extending the frequency for up to two years, such that the total update period does not exceed six years. Extensions are justified showing that the PRA model continues to adequately represent the as-built, as-operated plant, and must be approved by management.

The PNPS internal events model PSAr3.4.0 was approved in 2019, and the internal fire and internal flooding PRA models approved in 2014 and 2013, respectively, are the models of record. The internal events and internal flooding PRA models of record were used for the 2018 and 2019 peer review finding closure independent assessments. A peer review finding closure independent assessment has not been conducted for the internal fire PRA model.

Both the internal fire PRA and the internal flooding PRA will be updated in 2019. Both are anticipated to be PRA maintenance updates and not involve upgrades or the use of new methods. Therefore, these updates are not expected to impact the TSTF-425 LAR submittal.

Section 3.2.2 discusses the 2018 and 2019 independent closure assessments performed for the internal events and internal flooding peer review findings. Section 3.3 discusses the fire PRA peer review findings.

3.2. PNPS Internal Events and Internal Flooding PRA Model

3.2.1. Plant Changes Not Yet Incorporated

As discussed in Section 3.1, an MCR database tracks PRA issues or improvements identified by PRA personnel. The MCR database includes the identification of plant changes that could impact the PRA model.

As part of the PRA evaluation for each STI change request, sensitivity cases are expected to be explored for areas of uncertainty associated with unresolved items (peer review Findings for ASME/ANS PRA Standard CC-II or plant changes) that would impact the results of the STI change evaluation, prior to presenting the results of the risk analysis to the IDP.

All plant changes have been implemented in the full power internal events model which may potentially impact the PNPS PRA. The internal flooding model, which applies the same underlying logic as the internal events, is being updated in 2019 and will reflect the as-built plant. PNP is installing a number of plant modifications for NFPA 805 implementation that impact the PRA model. The PNP model infrastructure allows for enabling or disabling of these modifications as needed to ensure the model reflects the current plant, as-built and as-operated. When performing STI evaluations, the PNP model will only credit NFPA 805 modifications that are currently installed and reflected in current plant procedures.

3.2.2. Peer Review Facts and Observations (F&Os)

The PNPS internal events and internal flooding PRA models have undergone several peer reviews and self-assessments which document the model quality and identify any areas with potential for improvement. The following assessment for PRA quality has been performed and documented for the PNPS model:

- In October 2009, an industry peer review of version 3 of the internal events PRA model (PNPS PSAr3), including internal flooding, was performed and documented in a Peer Review Report. This peer review documented eighty (80) new F&Os including fifty-two (52) Findings, twenty-six (26) Suggestions, and two (2) Best Practices. The conclusion of the review was that the PNPS PRA substantially met the ASME PRA standard at CC-II, as endorsed by RG 1.200, Rev. 2, and could be used to support risk-informed applications.
- In February 2019 a focused scope peer review was performed to validate the PNP model addressed findings from the 2009 peer review related to implementation of human error dependency modeling. This peer review documented three (3) new F&Os, all of which were Suggestions (zero findings).

The PNPS internal events model PSAr3.4.0 was approved in 2019 and the internal flood model based on PSAr3 was approved in 2013. These are the current PRA models as stated in Section 2, and address the findings from the 2009 peer review. The 2009 peer review findings and the associated resolutions are documented in a resolution summary report.

The peer review F&Os from 2009 and associated resolutions were reviewed by two independent assessments conducted in May 2018 and February 2019. The closure assessments were conducted in accordance with Appendix X to NEI 05-04 (Reference 7) utilizing the conditions of acceptance stated in an NRC letter to the Nuclear Energy Institute dated May 3, 2017 (Reference 8). The closure assessments evaluated how the F&Os that were

classified as "findings" or "suggestions" from the PRA model full scope peer review were addressed. The 2018 closure assessment was performed by a team of eight and the follow-up 2019 assessment was performed two independent PRA experts. In addition to assessing the closure status, the changes made to the PNPS PRA to address the F&Os were also evaluated to determine whether the changes constituted a "PRA Upgrade" or if new PRA methods were introduced. The independent assessments are documented in a closure report and concluded that none of the changes made to the PNPS PRA constituted an upgrade, while one change implemented in response to a suggestion was considered a new PRA method.

PNPS responded to the suggestion considered an upgrade by developing plant specific time dependent models for station blackout sequences. Implementation of the recovery factors in the post-quantification processing resulted in a reduction in cutset frequency of approximately 2 to 15% for a specific subset of cutsets (e.g., one EDG starts but the other fails to run, both EDGs start and later fail to run, etc.). Given the small subset of cutsets to which the recovery factors were applicable, this resulted in a negligible impact on the overall model results.

Due to the minimal impact and the added complexity of maintaining and updating these models, the recovery factors are not included in the PNP current model of record. ENO does not intend to include these recovery factors in future models or for STI evaluations, and hence there will be no new methodology or upgrade to the PRA with respect to this F&O in regards to this application.

Of the 52 peer review findings and 26 suggestions reviewed during the two independent assessments, 47 findings and 16 suggestions were determined by the team to be closed. Two of the findings related to human error dependency were no longer applicable and closed by the 2019 focused scope peer review. The 3 peer review findings remaining open are presented in Table 1 along with their disposition/resolution, and the impact on the SFCP application.

3.2.3. Consistency with Applicable PRA Standards

The 2009 peer review assessed the PNPS internal events and internal flooding PRA models to meet the ASME/ANS PRA standard (Reference 4) CC-II of the Supporting Requirements (SRs), except where noted in Table 2. The F&O independent assessments reviewed the resolution of associated findings to determine if the issues identified in each F&O were addressed to meet the applicable CC-II SRs.

3.3. PNPS Fire PRA Model

3.3.1. Plant Changes Not Yet Incorporated

The PNPS Fire PRA model used to evaluate STI changes will reflect the as-built plant reflecting only those NFPA-805 modifications installed at the time of the evaluation. Similar to the internal events model, as part of the fire PRA evaluation for each STI change request, sensitivity cases are expected to be explored for areas of uncertainty associated with open items (peer review Findings for ASME/ANS PRA Standard CC-II or plant changes) that would impact the results of the STI change evaluation, prior to presenting the results of the risk analysis to the IDP. As noted in Section 3.2.1, all plant changes have been implemented in the full power internal events model which may potentially impact the PNPS PRA. The internal flooding model, which applies the same underlying logic as the internal events, is being updated in 2019 and will reflect the as-built plant. As additional modifications are installed as part of NFPA 805

implementation, the PNPS model infrastructure is arranged such that the underlying modification logic already exists and can be enabled with a logical operator (i.e. house event set to 'True'). If the final as-built modification differs from the pre-existing logic it will be updated as part of the living model update process such that the final configuration will be reflected in any STI evaluations.

3.3.2. Peer Review Facts and Observations

The PNPS fire PRA model has undergone several peer reviews, including a full scope and two in-process peer reviews. These reviews document the model quality and identify any areas with potential for improvement. The following assessment has been performed and documented for the PNPS fire PRA model:

- The PNPS fire PRA peer review was conducted in March 2011, following two in-process peer reviews held in January 2010 and August 2010. The full-scope peer review produced a total of seventy-six (76) F&Os including sixty (60) Findings, fifteen (15) Suggestions, and one (1) Best Practice.

The current PNPS fire PRA model was approved in 2014 and is based on internal events model PSAr3 that was approved in 2012. This is the current fire PRA model as stated in Section 2, and addresses the findings from the 2011 peer review. The 2011 fire PRA peer review findings and the associated resolutions are documented in a resolution summary report.

The internal fire PRA will be updated in 2019 to include as-built modifications as part of the sites implementation of NFPA 805 (installed during the Fall 2018 refueling outage) as well as incorporate the current state-of-knowledge with respect to fire ignition frequency and heat release rates. This is anticipated to be PRA maintenance update and not involve upgrades or the use of new methods. Therefore, this update is not expected to impact the TSTF-425 LAR submittal.

3.3.3. Consistency with Applicable PRA Standards

As discussed in Section 3.1, the PNPS Fire PRA model was updated in 2012. Per Entergy procedures, all Entergy PRA models are required to meet current industry standards for PRA model development and documentation. Specifically, the Entergy PRA guidelines were developed to attempt to meet the ASME/ANS PRA standard (Reference 4) CC-II of all SRs.

NUREG/CR-6850 guidance was the primary methodology used for the development of the fire PRA. The updated fire PRA in some cases used methodologies that extend beyond the guidance of NUREG/CR-6850. These methods used in the PNPS Fire PRA are considered extensions of the NUREG/CR-6850 methods and are documented via reference to approved NEI 04-02 frequently asked questions (FAQs) or other NUREGs. These references are:

- NUREG/CR-6850, Supplement 1, Rev. 0, "Fire Probabilistic Risk Assessment Methods Enhancements." (EPRI 1019259)

- NUREG/CR-7150, Vol 2, "Joint Assessment of Cable Damage and Quantification of Effects from Fire." (JACQUE-FIRE)

- NUREG-1921, Rev. 0, "EPRI/NRC-RES Fire Human Reliability Analysis Guidelines - Final Report."

- FAQ 14-0009, Rev. 1, "Treatment of Well-Sealed MCC Electrical Panels Greater than 440V."

The full-scope peer review for PNPS fire PRA model was conducted in March 2011 using RG 1.200, Revision 2. The NRC's review and acceptance of Palisades internal fire PRA is documented in the NRC safety evaluation included in Palisades License Amendment dated February 27, 2015 titled, "Palisades Nuclear Plant – Issuance of Amendment Regarding Transition to a Risk-Informed, Performance-Based Fire Protection Program In Accordance with 10 CFR 50.48(c) (TAC No. MF0382), Adams Accession Number ML15007A191. Since then, a model revision was completed which addressed the findings from the peer review. Table 3 provides a listing of the open finding-level F&Os related to the fire PRA and the acceptability of the finding-level F&Os in relation to this application. Of the 60 open findings, all but 13 have been resolved in the current fire PRA model. Table 5 lists SRs associated with the fire PRA which were not reviewed as the model element was not sufficiently complete or were assessed as CC-I only. Table 5 provides the disposition of CC-I acceptability for this application.

As part of the fire PRA evaluation for each STI change request, sensitivity cases would be expected to be explored for areas of uncertainty associated with open items (peer review Findings for ASME/ANS PRA Standard CC-II or plant changes) that would impact the results of the STI change evaluation, prior to presenting the results of the risk analysis to the IDP. At present, there are open items associated with the F&Os in Table 3 and the CC-I or unreviewed SRs in Table 4. Of the 13 unresolved findings in Table 3, seven pertain to detailed human reliability analysis (HRA) and human failure event (HRE) dependency analysis, two are related to cable selection, two to fire scenario selection, two to uncertainty analysis, and one to seismic-fire interactions. Of the seven CC-I or unreviewed SRs in Table 4, four pertain to the plant response model and three pertain to the HRA. Sensitivity cases may need to be explored to assess the impact of using human error probabilities from the detailed HRA, additional cable selection criteria, incorporation of main control room abandonment scenarios, consideration of new initiating events or accident progressions, or undesired operator actions.

3.4. Identification of Key Assumptions

Initiative 5b is a risk-informed process which uses PRA model results to support a proposed STI change. The IDP uses the PRA results as an input to decide whether a STI change is warranted. The methodology recognizes that a key area of uncertainty for this application is the standby failure rate utilized in the determination of the STI extension impact. Therefore, the methodology requires the performance of selected sensitivity studies on the standby failure rate of the component(s) of interest for the STI assessment.

Any additional sensitivity studies identified for specific STI changes are also required per NEI 04-10, Revision 1. Therefore, results of the standby failure rate sensitivity study plus the results of any additional sensitivity studies identified during the performance of the reviews of gaps and open items as summarized in Sections 3.2 and 3.3 herein, will be documented and included in the results of the risk analysis submitted to the IDP.

3.5. External Events Considerations

The NEI 04-10 methodology allows for STI change evaluations to be performed in the absence of quantifiable PRA models for all external hazards and shutdown. For those cases where the STI cannot be modeled in the plant PRA, or where a particular PRA model does not exist for a

given hazard group, a qualitative or bounding analysis is performed to provide justification for the acceptability of the proposed test interval change.

External hazards were evaluated in the PNPS Individual Plant Examination of External Events (IPEEE) submittal in response to the NRC IPEEE Program (Reference 9). The IPEEE Program was a one-time review of external hazard risk and was limited in its purpose to the identification of potential plant vulnerabilities and the understanding of associated severe accident risks. PNPS does not have a PRA model or applications associated with external hazards such as seismic, high wind, or external flooding, and quantitative results cannot be provided to support this STI effort. Therefore, a qualitative or bounding approach will be used to assess external event hazard risk at PNPS for STI changes.

Because PNPS does not have external hazards or shutdown PRA models, external hazards and shutdown screening evaluations are expected to be performed for STI changes in accordance with the guidance of NEI 04-10, Revision 1. When performing STI extension evaluations PNPS will assess the risk from external events hazards (seismic, winds and tornadoes, external flooding) by applying the screening evaluations generated in response to the IPEEE in accordance with the NEI-04-10 guidance. While it is recognized that the IPEEE assessments have remained static since they were completed, they do form the basis for an initial understanding of insights from external hazards. These base insights would then be assessed to account for any updated information or attributes that may have changed since the IPEEE to better reflect the as-built, as-operated plant. Acceptability for the proposed surveillance requirement frequency change for that particular external hazard would then be determined and factored into the overall acceptability of the proposed change.

The PNPS shutdown safety program developed to support implementation of NUMARC 91-06 (Reference 10) is used for the shutdown risk evaluation, or an application-specific shutdown analysis may be performed for STI changes in accordance with the guidance of NEI 04-10, Revision 1. The PNPS shutdown safety program includes input from a Defense-in-Depth shutdown Equipment Out Of Service (EOOS) PRA model.

4. CONCLUSIONS

The information presented herein demonstrate that the PNPS PRA technical adequacy and capability evaluations, as well as the maintenance and update processes conform to the ASME/ANS PRA Standard, which satisfies the guidance of RG 1.200, Revision 2. Therefore, the PNPS PRA supports NEI 04-10 SFCP implementation at PNP.

5. REFERENCES

1. TSTF-425, "Technical Specification Task Force – Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b", Revision 3, March 2009 (ADAMS Accession Numbers are ML090850627, ML090850630, ML090850638).

2. NEI 04-10, "Risk-Informed Technical Specifications Initiative 5b. Risk-Informed Method for Control of Surveillance Frequencies", Revision 1, April 2007 (ADAMS Accession Number is ML071360456).

3. Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities", Revision 2, March 2009.

4. ASME RA-Sa-2009, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications", February 2009.

5. RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 2, May 2011.

6. NUREG/CR-6850 – EPRI-1011089, "Fire PRA Methodology for Nuclear Power Facilities", August 2005.

7. NEI 05-04/07-12/12-06 Appendix X, "Closeout of F&Os", March 2017 (NRC ADAMS Accession No. ML16158A035).

8. Letter from J. Giitter (NRC) & M. Ross-Lee (NRC) to G. Krueger (NEI), "U.S. Nuclear Regulatory Commission Acceptance on Nuclear Energy Institute Appendix X to Guidance 05-04, 07-12, AND 12-13, Close-Out of Facts and Observations (F&Os)", May 3, 2017 (NRC ADAMS Accession No. ML17079A427).

9. Generic Letter 88-20, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities – 10CFR 50.54(f), Supplement 4", June 1991.

10. NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," December 1991 (ADAMS Accession Number ML14365A203).

Table 1.

Open Finding F&Os against the PNPS Internal Events and Internal Flooding Models

F&O	Status	Applicable SRs	Finding/Observation	Disposition	Importance to Application
IFSO-A4-01	Open (Partially Resolved)	IFSO-A4	Palisades did not explicitly identify and characterize human induced flooding events for each flood area. Instead, Palisades chose to characterize the human-induced flooding events by setting a generic element and then back-calculating a frequency without actually delineating what the human induced event was. Without a reasonable characterization of the specific human induced flooding events it is difficult to understand their full impact on the results or address them should they be found to be significant contributors. Palisades should either more fully characterize the human induced flooding events or they should be explicitly called out as assumptions so that they can be assessed for applications affecting internal flooding.	In the latest update, human induced flood events were characterized for each flood area initiating event as part of the maintenance induced flooding frequency development. Maintenance induced flood frequency in each flood area is system specific to characterize the flood mechanism. The approach to this is described in reports EA-PSA-FLOOD-IE-13-02 and EA-PSA-INTFLOOD-13-06. *Independent Assessment*: Finding remains OPEN. While human-induced flooding frequencies are now quantified, the events are still not characterized per the requirements of SR IFSO-A4. The SR requires the identification of flooding mechanisms that would result in the release of water or steam and to include human-induced mechanisms that could lead to overfilling tanks or diverting flow through openings created during maintenance activities.	Additional documentation is needed to close this finding. Maintenance induced flooding events are currently characterized (per industry standard PRA practice) by distributing the plant wide maintenance induced flood frequency among the plant flood areas; but with greater weighting of the frequency applied to areas with more potential flood sources (piping, flanges, valves, pumps, etc.). This approach apportions greater human-induced flood frequency to those flood areas where greater maintenance induced flooding is expected due to increased levels of on-line maintenance in these areas. Current plant maintenance and risk mitigation processes are designed to limit periodic maintenance on systems with high internal flood potential or in areas with risk significant components while the plant is in operation. Additional documentation is required per the ASME standard to identify specific periodic maintenance activities that may induce flooding. However, given the current approach to modeling the characterization of human-induced flooding mechanisms, it is not expected the process of documenting specific maintenance activities will result in identifying an activity that will impact the results of the internal flooding PRA or STI change evaluations performed in accordance with the SFCP.
IFSN-A3-01	Open (Partially	IFSN-A3	Those automatic or operator responses that have the ability	Palisades has developed a flood mitigation abnormal operating	Additional documentation is needed to close this finding.

Table 1.

Open Finding F&Os against the PNPS Internal Events and Internal Flooding Models

F&O	Status	Applicable SRs	Finding/Observation	Disposition	Importance to Application
	Resolved)		to terminate or contain the flood propagation for each defined flood area and flood source were not identified. Required by SR. Identify and document the automatic and operator responses that do have the ability to terminate or contain the flood propagation for each defined flood area and source.	procedure AOP-39 which defines operator actions for flood mitigation in all 11 PRA defined flood areas. Detailed human error probabilities have been developed and incorporated into the model for risk significant actions based on this procedure. *Independent Assessment*: Finding remains OPEN. Although human error probability values were developed for floods in the 1D switchgear room, no other automatic plant or system responses or operator actions for other rooms were detailed. Because some action, plant, or system response would be needed to respond to nearly all flooding events and none have been identified outside the 1D switchgear room, this finding is considered open.	Detailed flood mitigating actions were developed for important plant flood areas (cable spreading room / 1-D / 1-C switchgear areas and EDG 1-1 / EDG 1-2 rooms) as these areas have significantly increasing consequences with rising flood water due to submergence of risk significant components over time. Flooding in plant areas outside of these rooms either do not have increasing consequences due to submergence over time either due to the available flood volume, flow rate, room vent paths, equipment elevation, etc., or it was assumed that all modeled components in the room have failed immediately due to the flooding event and the consequences of flooding in the space are not risk significant. The process of documenting operator responses to contain flood propagation for these lower risk significant flood areas is not expected to reveal any actions that will impact STI change evaluations performed in accordance with the SFCP.

Table 1.

Open Finding F&Os against the PNPS Internal Events and Internal Flooding Models

F&O	Status	Applicable SRs	Finding/Observation	Disposition	Importance to Application
IFQU-A9-01	Open (Partially Resolved)	IFQU-A9	A specific discussion of jet impingement and pipe whips was not identified. Consideration of jet impingement and pipe whips (as appropriate) are a requirement of the standard for this element. Provide a discussion of how jet impingements and pipe whips were considered and handled. The Internal Flooding Analysis Report referenced walkdowns performed for the IPE. The scope of these walkdown was limited as a result of time constraints placed on the walkdown team by the authorized team escort. Palisades indicated that they had performed a more recent complete walkdown, but that walkdown was not referenced in the Internal Flooding Analysis Report. The consideration of jet impingement and pipe whip is qualitatively and semi-quantitatively discussed in the walkdown notes for the more recent walkdown. If Palisades wants to credit the more recent walkdown, they need to reference it in the Internal Flooding Analysis Report	Additional walkdown documentation and clarification was added to EA-PSA-INTFLOOD-13-06 to demonstrate additional walkdowns were performed both before and after the 2008 walkdown in which the escort had limited time. This includes how pipe whip and jet impingement were evaluated during the ISI walkdowns; as the RI-ISI report provides the basis for the indirect effects on equipment for each flood or spray initiator. Detailed walkdowns of all flood areas were documented in the RI-ISI indirect effects report. *Independent Assessment*: Finding remains OPEN. Regulatory Guide 1.200 requires for CC I/II/III that humidity, condensation, temperature concerns, and any other identified failure modes also be addressed. Temperature effects would be expected to be fire system actuation as a result of a HELB. Additionally, high humidity or elevated temperature effects on equipment reliability could be a concern. No evidence was seen that any of the required effects were addressed.	Additional documentation is needed to close this finding. High energy line breaks (main steam, main feedwater) that generate high humidity, condensation, and temperature effects in the Palisades PRA are addressed in the full power internal events hazard analysis and result in failure of all modeled components in the area unless the components are qualified for the specific harsh environment. The internal flooding model covers smaller bore piping localized and direct spray impingement events (heater drain system, S/G blowdown system) with limited blowdown energy that are unlikely to have a broader temperature effects as they do not occur in confined spaces. The potential for additional consequences from submergence effects due to sprinkler system actuation is negligible as the only modeled flood area which includes both high energy lines and a sprinkler system in the Turbine Building. This flood area is very large and at ground level, thus water would runoff into adjacent outdoor areas and could not accumulate in areas that would impact additional risk significant components. Therefore, the process of documenting other flood failure mechanisms (humidity, condensation, temperature, etc.) is not expected to impact the results of the internal flooding PRA or STI change evaluations performed in accordance with the SFCP. If it is found a component being evaluated

Table 1.

Open Finding F&Os against the PNPS Internal Events and Internal Flooding Models

F&O	Status	Applicable SRs	Finding/Observation	Disposition	Importance to Application
					for a STI change is potentially impacted by component failures from events as a result of increased humidity and temperature effects from small bore piping in a given area, the impact could be assessed via sensitivity study that assumes the potentially affected components in that area are all failed for these initiating events.

Table 2.

List of SRs Assessed as CC-I in the PNPS Internal Events PRA Model

SR	Topic	Status	Importance to Application
IE-A9	Finding IE-A9-01 No documentation provided for review for precursors. Only mentioned in Special initiator discussion as "Special initiating events or the potential for such events (e.g., precursors) were considered during the PRA teams' review of the MR database and Maintenance Work Orders (MWO) in support of the data effort."	A documented review of all maintenance rule and work order failures was added to the initiating events notebook NB-PSA-IE to determine if they are potential precursor events. Component failures were obtained from the review of failures documented in the data notebook NB-PSA-DA and individually evaluated as to their potential as a precursor event. No new initiating events were developed as a result of the evaluation. However, the exercise did confirm several existing transient initiator events were appropriately modeled in the PRA. *Independent Assessment*: Finding determined to be CLOSED. This resolution meets the IE-A9 CC-II requirement. The resolution does not involve a new PRA method or a PRA upgrade.	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
AS-A10	Finding AS-A10-01 Event trees are used to model the progression of each accident sequence, including the applicable success criteria for each node of the event trees. Although the event trees include operator actions required for success of key safety functions, the documented actions do not include verification that the operator actions, as evaluated, are "bounding" for all event tree nodes where the operator action is applied. The CC-II requirement to capture and provide sufficient detail for significant differences in requirements associated with systems and/or operator responses is not performed.	NB-PSA-HR, Vol. 1, Rev. 4, Appendix I provides discussions for a number of HEPs that are used in multiple Event Trees. HEPs were assigned to the Operations Department Operating Crews for review. Their reviews included ensuring indications, procedure selection and use, and activity performance man-power and timing are correct. Training personnel reviews included ensuring procedure selection and use were consistent with current training expectations, and the training type and frequency are accurate. *Independent Assessment*: Finding determined to be CLOSED. This resolution meets the AS-A10 CC-II requirement. The resolution does not involve a new PRA method or a PRA upgrade.	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
HR-C2	Finding HR-C2-01 No evidence that an operating experience review [of plant-specific events] was performed [for pre-initiator HFEs].	A review of plant history was conducted for plant specific operating experience. The result of the review was that while there were instances noted of conditions that would be considered pre-initiators, the	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with

Table 2.

List of SRs Assessed as CC-I in the PNPS Internal Events PRA Model

SR	Topic	Status	Importance to Application
		examples noted were either already covered by a pre-initiator event identified during the implementation of the revised methodology or were related to equipment not credited in the PRA. The plant operating experience review is documented in HRA notebook. *Independent Assessment*: Finding determined to be CLOSED. This resolution meets the HR-C2 CC-II/III requirement. The resolution does not involve a new PRA method or a PRA upgrade.	the SFCP.
DA-C7	Finding DA-C7-01 Palisades used actual plant procedures and experience to count surveillance tests. Planned maintenance activities are estimated rather than being based on maintenance plans.	The revision to the data notebook extended the data window. Component starts, stops, and run time data for this period was based on recorded data collected from the Maintenance Rule program availability database, plant operating history for the period, the PI database (from the plant process computer) and control room operating logs. Plant experience applied to the data update was not estimated based on surveillance frequencies. *Independent Assessment*: Finding determined to be CLOSED. This resolution meets the DA-C7 CC-II/III requirement. The resolution does not involve a new PRA method or a PRA upgrade.	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
DA-D1	Finding DA-D1-01 Bayesian updates of all plant specific calculations used the industry average distributions. For Category II, it is necessary to update significant basic events using a non-informative prior or a prior that represents the variability in industry data.	Prior distributions obtained from NUREG/CR-6928, deemed consistent with plant data, represent the variability in the industry data and meet the requirements of standard SR DA-D1. Similarly, data obtained from NUREG/CR-7037 was developed using distributions to account for variation between plants and checked for consistency. *Independent Assessment*: Finding determined to be CLOSED. This resolution meets the DA-D1 CC-II requirement. The resolution	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 2.

List of SRs Assessed as CC-I in the PNPS Internal Events PRA Model

SR	Topic	Status	Importance to Application
		does not involve a new PRA method or a PRA upgrade.	
IFEV-A6	Finding IFSN-A17-01 Generic pipe failure rate data is used if the length of pipe is known. Plant-specific RI-ISI data is used if the length of pipe is not readily known. This approach appears to meet the requirements of the Cat I criteria but does not appear to meet the requirements for Cat II.	The current methodology does not rely on the RI-ISI derived pipe failure frequency data. All pipe failure frequencies were developed in accordance with latest EPRI methodology. All pipe lengths were obtained from plant isometric drawings. *Independent Assessment*: Finding determined to be CLOSED. This resolution meets the IFSN-A17 and IFEV-A6 CC-I/II/III requirements. The resolution does not involve a new PRA method or a PRA upgrade.	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
QU-D4	Finding QU-D1-01 The final model review has not been completed and documented. [The final review of accident sequence results has not been completed and documented so that the reasonableness of the results can be verified. Palisades needs to complete the formal review of accident sequence quantification results and make modifications as needed to address issues found in that review. The final results should then be documented in the corresponding notebooks.]	The documentation of the final model of record (PSAR3), including final reviews, is complete and documented in EA-PSA-FPIE-16-03. *Independent Assessment (2018 review)*: Finding remains OPEN. QU-D4 is met at CC-I because no discussion of how Palisades' results compare with those from similar plants was found.	Palisades has completed a model comparison of results to similar plants that was independently reviewed during the follow-up 2019 F&O closure review. The requirements to meet CC-II for Finding QU-D1-01 were found to be met and the finding was closed. Therefore, the related CC-I open item for SR QU-D4 is also considered closed.
LE-C2	HRA values from WCAP-16341-P, which are generic treatments, were used in the LERF model. No plant-specific HRA evaluation was performed on Level 2 HRA events.	No model change has been made as generic HRA values which meet CC-I are considered adequate for most PRA applications.	If a STI evaluation has the potential to have more than a negligible LERF impact (e.g.. containment isolation valves), cutsets and importance measures will be reviewed to assess the impact of Level 2 specific HRAs. Important Level 2 HRAs will be evaluated by adjusting their HEP values to assess their impact on ΔLERF. If the analysis is found to be sensitive to these values, a plant specific Level 2 HRA or bounding HEP value (i.e., a value that produces a bounding ΔLERF) may be

Table 2.

List of SRs Assessed as CC-I in the PNPS Internal Events PRA Model

SR	Topic	Status	Importance to Application
			developed if needed to support the STI evaluation.
LE-C9	Suggestion LE-C9-01 No credit is taken for equipment survivability or human actions under adverse environments. I think that equipment survivability was reviewed but results did not justify the use of equipment survivability.	No credit is taken for equipment operability or operator actions in adverse environments or after containment failure. Palisades reviewed the LERF results for opportunities to take such credit (as documented in the Level 2 Notebook) and justified the lack of credit. Based on way the standard is written, the only way to earn a CC-II categorization is to credit equipment operation in adverse environment (for LE-C9 and C-10) and after containment failure (for LE-C11 and C12). From an equipment context, Palisades does credit equipment in containment in environments that are considered beyond the EEQ harsh environment for which the equipment is qualified in the design basis. Justifications for this credit is provided by engineering evaluations. *Independent Assessment*: Suggestion determined to be CLOSED. As stated above, the wording of SR LE-C9 in the ASME Standard is poor. CC-II/III states justification must be given for credit taken for equipment survivability beyond design. However, when the cutset review determines that taking such credit will not reduce LERF, the intent of the Standard should be interpreted as credit does not HAVE to be taken. Therefore, the justification provided in the Level 2 notebook and in MAAP analyses referenced are sufficient to meets the LE-C9 CC-II/III requirements. The resolution does not involve a new PRA method or a PRA upgrade.	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
LE-C10	Suggestion LE-C9-01 Since LE-C9 is CC-I then this SR also has to be a CC-I.	See discussion for LE-C9	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with

Table 2.

List of SRs Assessed as CC-I in the PNPS Internal Events PRA Model

SR	Topic	Status	Importance to Application
			the SFCP.
LE-C11	Suggestion LE-C9-01 No credit is taken for equipment survivability or human actions that could be impacted by containment failure. Equipment survivability was reviewed but results did not justify the use of equipment survivability.	See discussion for LE-C9	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
LE-C12	Suggestion LE-C9-01 Since LE-C11 is CC-I then this SR also has to be a CC-I.	See discussion for LE-C9	This issue was resolved such that it conforms to SR CC-II and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
PP-A1-01	Open (Resolved)	PP-A1	Requirement PP-A01 includes Note PP-A1-2 which clarifies that the intent of the requirement is to include plant locations with no credited plant equipment that may affect locations with credited plant equipment in multi compartment fire scenarios. With respect to the multi compartment analysis, the report 0247-07-0005.02 makes no mention on the treatment of qualitatively screened buildings or plant locations. It is recommended that section 2.1.2.2 of the report clarifying that buildings connected to locations with credited equipment will be considered in the multi compartment fire evaluations.	In the Palisades fire PRA there were two PAUs qualitatively screened. The qualitative screening process and criteria are described in Section 2 of the Plant Partitioning and Fire Ignition Frequency Development Report 0247-07-0005.02.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
PP-C2-01	Open (Resolved)	PP-C2	It is not entirely clear how some excluded areas listed in Section 2.1.2.2 of Report 0247-07-0005.02 satisfy the exclusion criteria, namely the Service Building and Administrative building. These buildings appear to share a common boundary with the Auxiliary Building. For example, would not a major fire in the Service building be designated a challenging fire requiring a plant shutdown? The report states that fires within the Administration Building, Service Building, and Service Building Addition were not expected to propagate to the included physical analysis units, cause a plant transient, or require plant shutdown. Are excluded buildings permanently excluded, or are they considered during multi-compartment evaluations? Report 0247-07-0005.02 should indicate	Section 2.1.2.2 of the Plant Partitioning and Fire Ignition Frequency Development Report 0247-07-0005.02 has been updated to satisfy the exclusion criteria of the Service Building and Administrative Building. The buildings common boundary with the Auxiliary Building has been detailed and the PAUs are retained for MCA analysis.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			that the excluded building sharing a wall with any included building should be included later in the multi-compartment analysis to ensure situations in which a fire in the excluded building may propagate to the adjacent included buildings are evaluated.		
ES-A2-01	Open (Resolved)	ES-A2	It is unclear at this point if all interlock / permissive circuits which may lead to specific consequential IEs have been properly captured for the functions being credited in the PRA. This may be particularly important where the function credited in the Appendix R analysis is different from the Fire PRA, or auto actuation of the component is required in the PRA but not in Appendix R. Need to document process by which all supporting equipment and interlocks have been addressed. The PRA team appears to recognize this deficiency exists at present and have plans in places to rectify once all auto actuation modeling issues are resolved.	A complete review of Safety Injection Signal (SIS), Containment High Pressure (CHP), Containment High Radiation (CHR), Containment Isolation Signal (CIS) and Recirculation Actuation Signal (RAS) logic was performed to identify potential adverse component actuations that could occur due to a spurious signal from any of these sources. Logic was added for 45 PRA components to consider spurious operation from any of the automatic actuation circuits. The Multiple Spurious Operation Report 0247-07-0005.04 was updated to reflect these changes.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
ES-A3-01	Open (Resolved)	ES-A3	The review of initiating events considered in the internal events analysis is described in Report 0247-07-0005 03 Appendix B. A rationale for re-examining the screening process to identify new IE which may have been screened or subsumed in that analysis is discussed. No new initiating events or additional equipment were identified. However, the review process undertaken is not well documented. It is unclear, e.g., if multiple coincident pathways were addressed when identifying the size of LOCA that	Appendix B of the Model Development Report 0247-07-0005.03 was updated to provide additional detail as to how initiating events were screened as to their applicability for fire scenarios. The success criteria for consequential LOCA events and their associated pathways and sizes were updated in Section 5.0 of the Event Trees and Success Criteria Notebook NB-PSAETSC. The updated notebook details consequential LOCA events that may result from fire. Consequential ISLOCA	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			may be induced by fire and any potential success criteria conflicts which may arise in the mapping of the fire induced IE to the internal events IE. (e.g. very small LOCA, Small LOCA vs. medium LOCA). (Note the same concerns arise when addressing the screening process for Containment isolation pathways where such pathways were screened on the size of a single pathway.) Expand the documentation of initiating event screening process to identify if fire initiating events should be expanded to address issues identified above.	events, potentially caused by fire, are specifically addressed in the XFR-ISLOCA event tree described in Section 5.6 Additional detail was also added to the Multiple Spurious Operations Report 0247-07-0005.04 for the PCP seal failures and chemical and volume control system (CVCS) pathways. The modeling approach for containment isolation pathways was updated as described in Attachment D of the Internal Events and Fire PRA Model Update Report EA-PSA-FIRE-12-04.	
ES-A5-01	Open (Resolved)	ES-A5 ES-B2	A review of the MSO report 0247-07-0005-04 Appendix A found several deficiencies. These are indicated below. General: The MSO panel was convened in 2008. Westinghouse published the latest MSO report in April 2009 [WCAP-NP-16933]. The current MSO reference numbers and description in Appendix A do not match the list in WCAP-NP-16933. There are some new issues which are not covered by the current MSO panel report. Suggest a final reconciliation of the MSO panel results [either with a new panel meeting or a re-write of the report] with WCAP-NP-16933. PLP-1, PLP-2,PLP-3: The MSO descriptions in these WCAP issues are intended for Westinghouse plants which have 2 diverse methods of seal cooling. The MSO report states the issue is not-applicable to PLP. However, it is necessary to ensure that all failure combinations of loss of CCW seal cooling	The MSO expert panel was reconvened on 03/15/2011 at the Palisades site to address all additions, deletions and/or changes to the MSO assessment that have occurred due to post-expert panel reviews and in consideration of the most current information available from the PWROG Owner's Group. The results of this expert panel review are documented in the Multiple Spurious Operations Report 0247-07-0005.04: • PLP-1, PLP-2, and PLP-3 were updated. Palisades PCP seal LOCA model has been updated to be consistent with the latest industry guidance (WCAP-15749-P, Revision 1, December 2008). • PLP-10 was finalized and the PRA model updated to include spurious valve failures to address this MSO. • PLP-11 is correctly evaluated. Simultaneous spurious closure of CV-3031 and CV-3057 does not isolate charging suction from the SIRWT. • PLP-12 was completed. Spurious closure	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			are included for PLP. PLP-10: Resolution not final.; PLP-11: WCAP issue misunderstood by MSO panel. Issue is for closure of both RWST suction valves and is applicable to PLP. Simultaneous spurious closure of CV3031 and CV3057 is this issue. ;PLP-12: Resolution not final ; PLP-14: In WCAP-NP-16933, issue 14 is applicable to Palisades. Issue 14 is CHP runout when RCS is depressurized. Palisades needs to look at pump runout possibility for all ECCS, CCW, AFW, and SWS pumps. PLP-18: Resolution for PLP-18 states RWST may drain, which is not considered in PRA. If RAS occurs and CV-3029 or CV03030 opens, RWST will not drain, because of check valve in sump line. Other possibilities involving deadhead / NPSH of ECCS pumps are not explored. If 3029/3030 open on a spurious signal, CV3031/CV3057 and CV3027/3056 will receive a signal to close. Power is disabled to 3027/3056. Scenarios for insufficient NPSH include a) spurious SI; b) opening of 3029/3030; c) closure of 3031/3057. Possibilities for ECCS deadhead include: a) spurious SI;b) opening of 3029/3030; c) operator mistakenly restores power to 3027/3056 [based on false instruments] resulting in deadhead of ECCS pumps. PLP-19: Needs final resolution; PLP-27, PLP-34,PLP-35: MSO states SG-ADV does not need to be included because overcooling is not an issue at Palisades. However, need to consider other affects of SO ADV, which are: a) AFW pump	of MO-2087 due to fire was added to the model. • PLP-14 was updated. The evaluation describes how this scenario is addressed in the model. • PLP-18 was updated. The evaluation describes model changes incorporated to explicitly address early drain down of the SIRWT and dead-heading of the ECCS pumps. • PLP-19 was finalized. This scenario • involves early drain down of the SIRWT via containment spray and is addressed in the resolution to scenario PLP-18. • PLP-27, PLP-34, PLP-35 were revised to address affects other than cooldown due to a stuck open atmospheric dump valve (ADV). • PLP-39 had additional evaluation performed. This evaluation provides the basis for excluding the blowdown valves as a potential flow diversion path. • PLP-43 had additional evaluation performed. This evaluation provides the basis for excluding spurious opening of the pressurizer spray valves from the model. • PLP-45 was validated that it is correctly identified in the CAFTA model. • PLP-47 was finalized with the addition of evaluations to describe the treatment of boron dilution events in the PRA. • PLP-57 and PLP-58 have been finalized and incorporated into the PRA model. • PLP-60, PLP-80, and PLP-84 have been finalized. • The modeling approach for containment	

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			runout; b) Faulted SG may be unsuitable for decay heat removal in the long term [i.e.., not able to raise steam].; c) Heat removal is less than effective and condensate inventory makeup is required. PLP-39: Need better reason to exclude blowdown valves as potential flow diversion rates appear to be significant. ; PLP-43: Resolution for pressurizer spray valves states that SO spray valve would lead to loss of subcooling. Loss of subcooling will lead to SI signal. Spurious spray valve opening will lead to SI in [on the order of] 5 minutes. Spray valve spurious should be included in Fire PRA as leading to SI signal. PLP-45: Basic events for pressurizer heaters could not be found in CAFTA as indicated in the resolution, PLP-47: Resolution not final. PLP-57 PLP-58: Effect of spurious operation of load sequencers no evaluated. Possible scenarios include 1) failure of cable causes spurious load shed on operating bus, 2) failure of cable causes load of DG on operating bus. PLP-60,PLP-80,PLP-84: Need final resolution. General: No indication of search for containment isolation failure pathways which can contribute to LERF. Correct deficiencies identified in the MSO report identified in this F&O and complete resolution of outstanding issues	isolation pathways was updated. Consequential ISLOCA and containment bypass events, potentially caused by fire, are specifically addressed in the XFR-ISLOCA event tree.	
ES-C1-01	Open (Resolved)	ES-C1	Since the full complement of OMAs to be included in the fire PRA has yet to be identified instrument set is incomplete.	Instrumentation relevant to operator actions in fire scenarios were identified and validated by completion of Post-Initiator Operator Action Questionnaires (P-IOAQ).	This finding was resolved and therefore is not expected to impact

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
				A copy of the Human Error Probability (HEP) Post-Initiator Calculation (PIC) and P-IOAQ were provided to current SRO licensed on-shift Operations Department personnel and Training Department personnel for use in validating HEP information accuracy. HFEs were assigned to Operations Department Operating Crews and /or Operations training personnel for review. Their reviews included ensuring indications, procedure selection and use, and activity performance manpower and timing is correct. Training personnel reviews included ensuring procedure selection and use were consistent with current training expectations, and the training type and frequency are accurate. The records of the current operating crews and training personnel are provided in the final set of operator manual actions (OMAs), and HRA Notebook NB-PSA-HR.	STI change evaluations performed in accordance with the SFCP.
ES-C2-01	Open (Resolved)	ES-C2	Instruments which provide supporting cues for operator actions have been identified and are being explicitly modeled in the fire PRA together with their associated power supplies Undesired operator actions potentially occurring as a result of spurious plant monitoring and alarm instruments do not appear to have been addressed at the present time. Neither has a process for identifying, screening and modeling such occurrences been discussed. This should be addressed. Recommend using screening process for alarms included in NUREG/CR 6850. Undesired actions in the context of both	A simulator exercise was performed with current Palisades' license holders in which several scenarios were evaluated to determine how Operators would respond given spurious or false instrument indications. The results of these exercises were considered in the HEP development process. The process and evaluation results are documented in the HRA Notebook NB-PSA-HR.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			the alarm response procedures and EOPs.		
CS-A9-01	Open **(Unresolved)**	CS-A9 CS-C4	PLP has conducted updates to the original cable selection to ensure multiple hot short failures are identified. It is not evident that the supplemental analysis work specifically looked for proper polarity hot shorts on ungrounded DC circuits. If the supplemental cable selection work included consideration of proper polarity hot shorts, update the criteria used for the analysis to clearly reflect this fault mode. If this fault mode was not considered, additional work will be needed to meet this supporting requirement.	Although the data gathering is complete, it was not fully implemented into the model. Cable data for the PLP FPRA was obtained from two separate sources: the SAFE database and NEXUS spreadsheets. The SAFE database was populated with the original Palisades Appendix R cable data, the cable data collected for offsite power components, and the initial set of components selected for cable analysis for the fire PRA. Subsequent efforts were performed to analyze additional components, refine previously collected cable data and to revisit vintage data using modern criteria including proper polarity dc hot shorts.	Additional update is needed to close this finding. For those STIs on which the update of the cable selection to reflect consideration of proper polarity hot shorts is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.
CS-B1-01	Open (Resolved)	CS-B1 CS-C4	The analysis and review of electrical overcurrent coordination and protection has been initiated but is not yet complete. The final analysis should address coordination for all Fire PRA electrical distribution buses. Refer to F&O CS-C4-01 for a related discussion on documentation of the coordination and protection analysis. Complete the coordination study and provide supporting documentation as suggested. Ensure the analysis includes cases where overcurrent protection for medium voltage and low voltage switchgear might not be available due to a fire-induced loss of 125 VDC tripping power to power circuit breakers in the switchgear.	Palisades has documented a complete breaker coordination study for all buses considered in the fire PRA as described in the Safe Shutdown Associated Circuits Analysis EA-APR-95-004. Modifications will be installed in 2018 and 2020 to resolve the identified Electrical Coordination Challenges to address all buses where electrical coordination could not be demonstrated.	Plant modifications are needed as a result of this finding. For those STIs on which the modifications to address electrical coordination is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
CS-C1-01	Open **(Unresolved)**	CS-C1	The cable selection and location methodology is documented in Section 4 the Model Development Report (0247-07-0005.03) and associated appendices. The methodology for completed work is documented in a manner consistent with this supporting requirement; however, the methodology for the supplemental cable selection review (Attachment 1) is not formally documented in a manner that ensures consistent interpretation for Fire PRA applications and upgrades. Additionally, the sample cable routing verification check is not formally documented in the Fire PRA Report or any other plant document, and thus does not lend itself to consistent treatment for future Fire PRA applications and upgrades. 1. Formalize Attachment 1 and expand on the existing criteria used for the supplemental cable selection work. 2. Formalize the sample cable routing check and incorporate it in the Fire PRA Report or appropriate plant evaluation/calculation.	Although the data verification is complete, the results have not been fully implemented into the model. Section 4 of the Model Development Report 0247-07-0005.03 has been updated in a manner that ensures consistent interpretation of Fire PRA applications. Additionally, the verification of Appendix R Non-Safe Shutdown Cable Routing to Support the Fire PRA has been separately documented in the Validation of Appendix R Non-Safe Shutdown Cable Routing to Support the Fire PRA Report PLP-RPT-12-0134.	Additional update is needed to close this finding. For those STIs on which the update of the criteria used for supplemental cable selection is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.
CS-C4-01	Open (Resolved)	CS-B1 CS-C4	Unlike other elements of this Technical Element, the Fire PRA Report does not address the methodology, process, or criteria for the electrical coordination and protection analysis. This information will need to be included in final documents to satisfy this supporting requirement. Update Section 4 of the Model Development Report to address electrical coordination and protection.	Palisades has documented a complete breaker coordination study for all buses considered in the fire PRA as described in the Safe Shutdown Associated Circuits Analysis EA-APR-95-004.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
QLS-B2-01	Open (Resolved)	PP-C2 QLS-B2	See PP-C2-01	Section 2.1.2.2 of the Plant Partitioning and Fire Ignition Frequency Development Report 0247-07-0005.02 has been updated to satisfy the exclusion criteria of the Service Building and Administrative Building. The buildings common boundary with the Auxiliary Building has been detailed and the PAUs are retained for MCA analysis.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
PRM-B3-01	Open (Resolved)	PRM-B3	The fault tree model development omitted the DC power dependency requirement for the RCP breaker trip function.	The fault tree model applied to the fire PRA was updated to include the DC power dependency for the primary coolant pump breaker trip function. This logic was added for each of the four primary coolant pumps.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
PRM-B3-02	Open (Resolved)	PRM-B3	Spurious SI is not included as a potential initiating event	A complete review of Safety Injection Signal (SIS), Containment High Pressure (CHP), Containment High Radiation (CHR), Containment Isolation Signal (CIS) and Recirculation Actuation Signal (RAS) logic was performed to identify potential adverse component actuations that could occur due to a spurious signal from any of these sources. Logic was added for 45 PRA components to consider spurious operation from any of the automatic actuation circuits. The Multiple Spurious Operation Report 0247-07-0005.04 was updated to reflect these changes.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
PRM-B5-01	Open (Resolved)	PRM-B5	The MSO expert panel issues have not been completely resolved and incorporated into the PRA model. Thus, all modeling work associated with MSO incorporation has not been done at this	All MSO expert panel issues have been resolved and integrated into the final PRA fire model as appropriate. All MSO scenario dispositions are documented in the final Multiple Spurious Operation Report 0247-07-	This finding was resolved and therefore is not expected to impact STI change

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Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			time.	0005.04.	evaluations performed in accordance with the SFCP.
PRM-B9-01	Open (Resolved)	PRM-B9	Failure to trip Pressurizer heaters is not explicitly addressed Develop basis	A fault tree was added to the fire PRA to model spurious operation of pressurizer heaters and failure of pressurizer spray. Failure of this fault tree results in a potential stuck open pressurizer safety valve, or valves. The Multiple Spurious Operation Report 0247-07-0005.04 was updated to reflect this change.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
PRM-B11-01	Open (**Unresolved**)	PRM-B11	Complete work (to MODEL all operator actions and operator influences in accordance with the HRA element of this Standard.)	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. Screening values are still applied for fire HEPs pending development of final procedures, modifications, and operations reviews.	Additional update is needed to close this finding. For those STIs on which the detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.
FSS-A1-01	Open (Resolved)	FSS-A1	The treatment of MCC's is not properly justified. FSS document 0247-07-0005.06 includes the statement "All Motor Control Centers (MCC) have been treated as closed, sealed and robust in which damage beyond the ignition source will not be postulated." No documentation of inspections of the MCC's, including the top of the cabinets have been provided to justify not propagating fires outside the MCC. Conduct and document a detail walkdown	Section 6.1 of the Fire Scenario Development Report 0247-07-0005.06 has been revised to include a reference to the walkdown information and photographs which provide a basis for this statement.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			to gather data associated with the criteria for classification of MCC's as sealed, robust and secure panels. Use the results of the walkdowns to document the justification of the conclusion of not propagating fires outside the MCC's.		
FSS-A3-01	Open (Resolved)	FSS-A3	The process of mapping and accounting for targets in the Fire PRA is not documented. Technical discussion during the review period indicate that targets with unknown routing are mapped to all the scenarios within a PAU unless it has been verified that the target is not in a specific scenario. However, this process was not clearly demonstrated during the review and is not documented in report 0247-07-0005.06. The process of treating targets should be clearly documented in report 0247-07-0005.06. Specifically how unknown conduit or cable tray locations have been mapped to scenarios in the PAU. Documentation should point readers to tables where the treatment could be verified.	In the event that a cable's plant location cannot be established, the process of crediting by assumed routing was performed. The process involved determining, with a high degree of confidence, locations in the plant that do not contain the cable in question. This is accomplished by considering the likely routing of a cable and was performed by experienced plant personnel. In many cases, this assessment was made by grouping components into an appropriate surrogate category. The results of this detailed assessment are provided in the Model Development Report 0247-07-0005.03.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-B1-01	Open (**Unresolved**)	FSS-B1	The current Fire PRA does not consider abandonment of the main control room due to lack of equipment/control due to fire damage. Include in the analysis a criteria for control room abandonment due to lack of equipment/control failure.	Control room abandonment scenarios with respect to environmental effects have been addressed. However, the current model does not address abandonment due to equipment damage. Main Control room abandonment scenarios have been postulated based on damage to equipment and controls. Postulated fires in the Control Room (CR) have the potential to challenge habitability or visibility due to smoke generation or excessive heat. An	Additional update is needed to close this finding. For those STIs on which the control abandonment scenarios is determined to have a potential impact, the effect is expected to be assessed in the

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
				abandonment analysis documented in the Fire Scenario Development Report 0247-07-0005.06 was performed to determine the response of the CR envelope given a range of possible fire events. The analysis considered three different operating states of the CR mechanical ventilation system and three different configurations of the CR Door.	change evaluations for the affected STIs.
FSS-B2-01	Open (Resolved)	FSS-B2	The CCDP quantification does not reflect the human error probabilities associated with control room abandonment and the fire impacted cables may not reflect the equipment/control that may or may not be available after abandonment. Properly model control abandonment using the criteria based on fire generated conditions and plant operability so that the CCDP accounts for the human error probabilities associated with abandonment conditions and the available equipment and controls that may be affected by the fire.	Main Control room abandonment scenarios have been postulated based on damage to equipment and controls. Postulated fires in the Control Room (CR) have the potential to challenge habitability or visibility due to smoke generation or excessive heat. An abandonment analysis documented in the Fire Scenario Development Report 0247-07-0005.06 was performed to determine the response of the CR envelope given a range of possible fire events. The analysis considered three different operating states of the CR mechanical ventilation system and three different configurations of the CR Door.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-C4-01	Open (Resolved)	FSS-C4	The severity factor for hotwork fires of 0.01 is not properly justified. The documentation does not provide a description how the value was calculated and an explanation of why the value remains independent of the generic ignition frequency. Add a justification for the value of 0.0.01 for hotwork fires. The justification should include the process for determining the value and an explanation of why the value remains independent of the generic ignition frequency.	The 0.01 severity factor for hotwork is no longer applied in final fire PRA model. Severity factors are now based on NUREG/CR-6850. Section 8.3 of the Fire Scenario Development Report 0247-07-0005.06 was updated to reflect this change.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
FSS-C5-01	Open (Resolved)	FSS-C5	No scenario is evaluated for conditions where the target damage criteria is that of sensitive electronics. The analysis documented in report 0247-07-0005.06 suggest locations where sensitive electronics may be targets. The multi compartment and single compartment analysis should use the lower damage criteria for sensitive electronics in these locations.	Section 5.2 of the Fire Scenario Development Report 0247-07-0005.06 was revised to provide further basis for excluding scenarios with the sensitive electronics criteria. The exclusion is based primarily on physical cabinet distances from fire ignition sources and that these targets are generally within an enclosure that provides some protection from the heat source.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-C7-01	Open (Resolved)	FSS-C7	No evaluation of independence of suppression paths have been included in the analysis. Evaluate and justify that the credited suppression features are indeed independent in support of the current analysis, or alternative, incorporate in the analysis any dependency found.	Section 10.1 of the Fire Scenario Development Report 0247-07-0005.06 was revised to describe the treatment of dependence between suppression paths in the scenario suppression event tree.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-C8-01	Open (Resolved)	FSS-C8	The report does not discuss the treatment of fire barriers credited in the analysis. Describe and document the treatment of passive fire protection features credited for cable protection in the Fire PRA. This include documentation of the rating of the barrier and how it is incorporated in the analysis.	Documentation was added to Section 2.2 of the Fire Scenario Development Report 0247-07-0005.02 which discusses the treatment of fire barriers credited in the analysis.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-D1-01	Open (Resolved)	FSS-D1	Although in general appropriate fire models have been selected, the justification for the use of the selected tools need to be improved. This finding is specifically applicable to the use of the time to damage models programmed in MathCad, which are calculations that have not been documented and reviewed by the industry.	Appendix E of the Fire Scenario Development Report 0247-07-0005.06 was updated to include further discussion on the applicability of the MathCAD tool for calculation of the non-suppression probability.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

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Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			Develop and justify the application of the damage time data available in NUREG/CR-6850 in the approach implemented in the Fire PRA. Suggest a sensitivity analysis for key scenarios is documented describing the range of applicability and discussing the impact when compared with the use of Appendix H tables only and a deterministic heat transfer calc (e.g. THIEF).		
FSS-D2-01	Open (Resolved)	FSS-D2	No fire detection analysis has been conducted in support of the activation of fixed suppression systems or the time to smoke detection. Include in the analysis time to detection calculations.	Section 10.1 of the Fire Scenario Development Report 0247-07-0005.06 was revised to describe the treatment of automatic suppression system activation times on the suppression probability.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-D4-01	Open (Resolved)	FSS-D4	This finding is associated with treatment of transient fires. 1) Fire elevation for transient fires has been assumed to be on the floor. 2) the heat release rate for transient fires have been assumed to be characterized by electric motor fires. These are important input values for determining zone of influence. Consider a higher fire elevation to account for transient fires elevated from the floor. Consider using the heat release rate probability distribution for transient fires instead of the one for electric motors.	Section 7.0 of the Fire Scenario Development Report 0247-07-0005.06 was revised to describe the treatment of fire elevation and heat release rate for transient fires. The transient heat release rate was increased to 317 kW; 98th percentile heat release rate for transient combustibles, in lieu of the value for electric motor fires.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-D7-01	Open (Resolved)	FSS-D7	Items a, b, and c in the Cat II requirement are not explicitly addressed in the analysis.	Section 10.0 of the Fire Scenario Development Report 0247-07-0005.06 was revised to describe the basis for availability of automatic suppression systems and the	This finding was resolved and therefore is not expected to impact

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			Conduct a qualitative or quantitative study addressing items a, b, and c in the Cat II requirement in support of the use of generic values.	impact on suppression probability.	STI change evaluations performed in accordance with the SFCP.
FSS-D8-01	Open (Resolved)	FSS-D8	The Fire PRA currently does not include an assessment of the effectiveness of the fire suppression and detection systems credited in the analysis. Evaluate time to detection and suppression. Include walkdown notes documenting the inspection and evaluation of the effectiveness of the system to control fires in the postulated scenarios.	Section 10.1 of the Fire Scenario Development Report 0247-07-0005.06 was revised to provide an assessment of the effectiveness of automatic suppression systems and the impact on suppression probability.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-E3-01	Open **(Unresolved)**	FSS-E3	A qualitative characterization of the parameters used in the fire modeling in significant fire scenarios have not been completed as the Fire PRA still needs detailed analysis to reduced the plant CDF. The qualitative discussion required to meet category 1 should be completed once key scenarios are identified. Add a qualitative discussion of the uncertainty in fire modeling parameters for the significant scenarios once those are identified.	A characterization of the parameters used in the fire modeling in significant fire scenarios has not been completed. However, this does not impact the point estimate numerical results of the fire PRA.	Additional update is needed to close this finding. Characterization of fire modeling parameters is expected to have no impact on the fire PRA results or the STI change evaluations performed in accordance with the SFCP.
FSS-F1-01	Open (Resolved)	FSS-F1	The report 0247-07-0005.08, which documents structural steel analysis, does not describe what is a "high hazard fire". Consequently, it is not clear what specific fires where considered as high hazard during the walkdowns and analysis to conclude that a scenario should be quantified in the analysis.	The definition of a significant fire hazard was added to Section 2.0 of the Exposed Structural Steel Analysis Report 0247-07-0005.08: A significant fire hazard was defined as having at least the same or greater combustible loading equivalent to 50 gallons of fuel oil, which is in excess of a heat value of 7E+6 BTU."	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			Add a definition of "high hazard fire" and apply such definition in the analysis.		SFCP.
FSS-F2-01	Open (Resolved)	FSS-F2	The criteria for identifying and analyzing fire scenarios associated with damage to structural steel is not clearly documented. The criteria utilized has been inferred from the analysis and is considered appropriate. The criteria includes 1) possibility of a high hazard fire, 2) exposed structural steel, and 3) a steel temperature of 1000 F. Clearly document the criteria for identifying scenarios associated with damage to structural steel elements.	The appropriate criteria for fire damage to structural steel were added to Section 3.0 of the, Exposed Structural Steel Analysis Report 0247-07-0005.08 to clearly document the criteria used for identifying and analyzing fire scenarios associated with structural steel damage: 1) presence of significant fire hazard, 2) presence of exposed structural steel, 3) steel surface temperature in excess of 1000°F for fire Configuration.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-F3-01	Open (Resolved)	FSS-F3	The four scenarios selected for evaluation have been screened and therefore not included in the CDF calculation for the plant. The screening process for one of the scenarios is based on the frequency of such an event (PAU-23, turbine generator fire). The calculated frequency is not based on fire ignition frequencies documented in current Fire PRA EPRI guidance. Revise the frequency analysis for the turbine generator scenario and re-evaluated the screening decision.	Section 3.2.2 of the Exposed Structural Steel Analysis Report 0247-07-0005.08 was revised using the frequencies found in NUREG/CR-6850 and EPRI TR 1016735 to calculate a new turbine-generator catastrophic fire frequency. Quantitative calculations and factors applied are also documented. Site Specific frequencies documented in the Fire Ignition Frequency and Plant Partitioning Report 0247-07-0005.02 were implemented in the quantitative assessment of the FPRA.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-G2-01	Open (Resolved)	FSS-G2	Elements of the qualitative criteria require further evaluation. Specifically, "exposing PAU is outdoors; no HGL postulated" and "exposed PAU has a sufficient volume that any hot gases that may enter PAU would dissipate before significant damage would occur." In the former, the qualitative assessment should include a discussion	The assumptions in Section 1.1 and the screening criteria in Table 3-1 of the Multi-Compartment Analysis 0247-07-0005.07 were revised to add discussion of outdoor transformers near turbine building walls and hot gas layer.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			of yard transformer fires near turbine building walls. In the later, assessment of hot gas layer conditions should be quantitatively address. Some combinations of PAU's may require a description/justification of the applicability of the qualitative screening criteria invoked.		SFCP.
FSS-G2-02	Open (Resolved)	FSS-G2	The quantitative screening criteria do not include consideration for the cumulative risk screened out due to multi compartment combinations. Currently, multi compartments are screened at a threshold of 1E-7, but there is no verification of the cumulative risk screened. Include in the screening criteria a verification of the cumulative risk screened out so that the screening process consistent with QNS-A1.	Section 3.5 of the Multi-Compartment Analysis 0247-07-0005.07 was revised to describe the cumulative impact of CDF screening at 1E-7.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-G4-01	Open (Resolved)	FSS-G4	The SR requires confirmation of allowed credit, assessment of effectiveness and reliability, and evaluation of random failures of passive barriers. No analysis has been presented or documented addressing these requirements. Provide an assessment of the rating and integrity of the barriers that would support the failure probabilities of the barriers incorporated in the analysis. This may consist of a walkdown to inspect/confirm boundaries and reference to inspection procedures and results.	Appendix A of the Multi-Compartment Analysis 0247-07-0005.07 was revised to describe the applicability and basis for the random failure probability of passive fire barriers from NUREG/CR-6850 used in the multi-compartment analysis.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-G5-01	Open (Resolved)	FSS-G5	The SR requires quantification of effectiveness, reliability and availability of	Appendix A of the Multi-Compartment Analysis 0247-07-0005.07 was revised to	This finding was resolved and

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			the active fire barriers. No analysis has been presented or documented addressing these requirements in addition of using the generic values in NUREG/CR-6850. Refer to inspection records of the barriers to identify if the generic values for barrier failure probabilities in NUREG/CR 6850 are applicable and document this assessment.	describe the applicability and basis for the random failure probability of active fire barriers from NUREG/CR-6850 used in the multi-compartment analysis (MCA). Table 3-4 of this analysis reflects the quantification of MCA interaction failures.	therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-H2-01	Open (Resolved)	FSS-H2	The treatment of hydrogen fires is incorrectly documented in report 0247-07-0005.06. Update the information associated with treatment of hydrogen fires to reflect current practice discuss during the peer review.	The documentation for treatment of hydrogen fires in the Fire Scenario Development Report 0247-07-0005.06 was updated to be consistent with approach applied in the fire model which complies with Appendix N of NUREG/CR-6850.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-H5-01	Open (Resolved)	FSS-H5	The Fire PRA is in process. Fire modeling results are not complete. Documentation of output results should be consistent with current approach for scenarios analyzed while the fire PRA is completed. Document fire modeling outputs consistent with the requirements of Cat II.	The final fire modeling output results for each analyzed fire scenario were documented in Section 6.0 of the Fire Risk Quantification and Summary Report 0247-07-0005.01.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FSS-H9-01	Open (Resolved)	FSS-H9	Sources of uncertainty in the fire modeling analysis are not documented in 0247-07-0005.06. Document sources of uncertainty in the fire modeling analysis.	Sources of uncertainty in the fire scenario selection process were documented in the Fire Risk Quantification and Summary Report 0247-07-0005.01.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

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IGN-A7-01	Open (Resolved)	IGN-A7	Page 3-1 of report 0247-07-0005.02 appears to suggest that no frequency for miscellaneous hydrogen fires has been assigned to applicable physical analysis units. This may affect the PAU level quantification by reducing the fire ignition frequency assigned to the applicable plant locations. Add the contribution from miscellaneous hydrogen fires to applicable PAU's.	The Plant Partitioning and Fire Ignition Frequency Development Report 0247.07-07-0005.02 and Fire Ignition Frequency calculation database have been updated to assign miscellaneous hydrogen fires to all applicable Physical Analysis Units (PAUs). The frequency associated with Bin 19, Miscellaneous Hydrogen Fires, has been allocated based on linear feet, valve location and tank location in PAUs where hydrogen equipment exists. Applying these criteria has apportioned miscellaneous hydrogen frequency to the following PAUs: 04 (1C Switchgear Room), 13 (Reactor Building), and 23 (Turbine Building).	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
IGN-A10-01	Open (Resolved)	IGN-A10	The characterization of uncertainties in the fire ignition frequencies has not been addressed in the report qualitatively or quantitatively. The uncertainties in the fire ignition frequencies should be discussed qualitatively or quantitatively in the report so that a category can be assigned.	The characterization of uncertainties in the fire ignition frequencies has been addressed in the Fire Risk Quantification and Summary Report 0247.07.005.01. The report describes the sensitivities run by changing the bin ignition frequencies to the 5th and 95th percentile values of the original frequencies for both EPRI and NUREG/CR-6850 values. This sensitivity provides an adequate upper and lower bound of the final CDF which used the mean frequencies.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
HRA-A2-01	Open (Resolved)	HRA-A2	The identification of fire response actions is not yet complete. Additional fire safe shutdown actions are still being identified as the Fire PRA analysis continues to be refined. Complete the identification of fire response actions necessary to make the response to all risk significant fire scenarios realistic.	The final identification of fire response actions was completed and documented in the Human Reliability Analysis Notebook NB-PSA-HR-1. These actions were incorporated into the final fire PRA model where appropriate.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
HRA-A3-01	Open (Resolved)	HRA-A3	Section 6.3 of the HRA Notebook discusses the review that was performed with the licensed operators for the identification of the new, undesired operator actions in response to spurious indications. However, the detailed documentation for the evaluation process and the justifications for the conclusion that no undesired operator actions will be taken in these instrumentation failure conditions was not yet completed for the reviewers to confirm the conclusion that no undesired operator actions need to be considered. Complete the documentation for the identification and evaluation process and for the justifications of the evaluation conclusion. Also, complete the review of the ARPs. It is expected that Category II can be met when the documentation is complete and conclusion verified.	A simulator exercise was performed with current Palisades' license holders in which several scenarios were evaluated to determine how Operators would respond given spurious or false instrument indications. The results of these exercises were considered in the HEP development process. The process and evaluation results are documented in the Human Reliability Analysis Notebook NB-PSA-HR.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
HRA-A4-01	Open **(Unresolved)**	HRA-A4	As the fire scenario refinement continues, additional fire response actions will be identified and evaluated, which will require the performance of additional operator interviews. As such, this task is not fully completed yet. Also, operator interviews for those fire response actions that are still using screening values (e.g., ACP-DGOT-B5B-DG, ACP-PMOE-383-11A, ACP-PMOE-383-12A, AFW-PMOA-P8B-CRAB, etc.) may not have been completed. Complete the fire scenario refinement, HRA for fire response actions, and operator interviews for the new fire	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. A copy of the Human Failure Event (HFE) Post-Initiator Calculation (P-IC) and associated Post-Initiator Operator Action Questionnaire (P-IOAQ) were provided to current SRO licensed on-shift Operations Department personnel and Training Department personnel for use in validating HEP information accuracy. HFEs were assigned to Operations Department Operating Crews and /or Operations training personnel for review. Their reviews included ensuring indications,	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			response actions.	procedure selection and use, and activity performance manpower and timing is correct. Operator comments were reviewed and discussed with PRA personnel and resolutions forwarded to the comment initiator for acceptance. Significant HFEs were evaluated and developed in further detail. Screening values are still applied for fire HEPs pending development of final procedures, modifications, and operations reviews. The records of the current operating crews and training personnel are provided in the Human Reliability Analysis notebook NB-PSA-HR.	
HRA-B2-01	Open (Resolved)	HRA-B2	Identification of new, fire response actions and incorporation of the identified fire response actions into the Fire PRA model are not completed. Complete the incorporation of the identified fire response actions and the identification of new, fire response HFEs as the refinement of fire scenario analysis continues.	The final identification of fire response actions was completed and documented in the Human Reliability Analysis notebook NB-PSA-HR. These actions were incorporated into the final fire PRA model where appropriate.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
HRA-B3-01	Open **(Unresolved)**	HRA-B3	The impact of loss of all redundant/diverse instrumentation on HEPs has been modeled by OR-ing the instrumentation logic with its associated HEP. Thus, in cases where total instrument failure (by hardware fault or fire) occurs (including the failure of the only instrument available), the HEP is appropriately failed. However, the failure impact of partial instrumentation on an HEP has not yet been implemented. There are cases in the model where	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. The simulator exercise performed with current Palisades' license holders evaluated operator response to several scenarios with false, partial or total loss of instrument indications. The results of these exercises were considered in the HFE development process for purposes of developing timing of cues and time windows.	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.

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F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			multiple instruments provide cues to the operators to perform actions. Operator actions based on false indication have not been considered. In addition, HFEs modeled using screening values (for some of the fire response actions identified; e.g., ACP-DGOT-B5B-DG, FPS-PMOE-START-L, ACP-PMOE-383-12A, ACP-PMOE-383-11A, etc.) and those fire response actions that will be identified as the fire scenario refinement continues have not yet accounted for the scenario context including timing, procedural guidance, instrumentation, task complexity, etc. Also, HRA Calculator evaluation sheets cannot be located for PCP-PMOF-P-50X-LOC and EDG-PMOE-PORT-PUMP, and AFW-AVOA-CV-2010-D, SWS-AVOA-CV-0823-26, and SWS-AVOB-CV-082447M still need to be modified for fire related conditions. This can be addressed by developing an associated HEP considering partial instrumentation and modifying the logic between the instrumentation and HEPs to properly reflect the dependence on instrumentation. Alternatively, this impact could be addressed in post-processing. Complete the definition and evaluation of the fire response actions.	The final developed fire HFEs incorporate task complexity and procedural guidance as documented in the Post-Initiator Operator Action Questionnaire (P-IOAQ) provided to current SRO licensed on-shift Operations Department personnel and Training Department personnel for use in validating HFE information accuracy. Significant HFEs were evaluated and developed in further detail. Screening values are still applied for fire HEPs pending development of final procedures, modifications, and operations reviews. The final list of fire HFEs and their associated documentation are provided in the Human Reliability Analysis notebook NB-PSA-HR.	
HRA-C1-01	Open **(Unresolved)**	HRA-C1	Fire response HFEs modeled with screening values have not yet been evaluated in a manner accounting for relevant PSFs (e.g., ACP-DGOT-B5B-DG, FPS-PMOE-START-L, ACP-PMOE-383-11A, ACP-PMOE-383-12A, etc.). Also, HRA Calculator evaluation sheet	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. Significant HFEs were evaluated and developed in further detail as documented in the Human Reliability Analysis notebook NB-PSA-HR. Screening values are still	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact,

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Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			cannot be located for PCP-PMOF-P-50X-LOC and EDG-PMOE-PORT-PUMP, and AFW-AVOA-CV-2010-D, SWS-AVOA-CV-0823-26, and SWS-AVOB-CV-082447M still need to be modified for fire related conditions. This task is not completed. Complete detailed assessment of HFEs (for fire response actions) associated with risk significant fire scenarios.	applied for fire HEPs pending development of final procedures, modifications, and operations reviews.	the effect is expected to be assessed in the change evaluations for the affected STIs.
HRA-D1-01	Open (Resolved)	HRA-D1	Identification and evaluation of recovery actions for risk significant scenarios are expected to continue as the refinement of fire scenario analysis continues. Currently, some of the top core damage fire scenarios still do not account for realistic recovery actions. This task is not completed yet. Complete identification and evaluation of recovery actions for risk significant scenarios as the refinement of fire scenario analysis continues.	The final developed fire HEPs incorporate task complexity and procedural guidance as documented in the Post-Initiator Operator Action Questionnaire (P-IOAQ) provided to current SRO licensed on-shift Operations Department personnel and Training Department personnel for use in validating HEP information accuracy. Significant HEPs were evaluated and developed in further detail. Screening values are still applied for some HEPs, however, the values selected for screening are considered conservative. The final list of fire HEPs and their associated documentation are provided in the Human Reliability Analysis notebook NB-PSA-HR.	This finding was resolved and therefore is not expected to impact, STI change evaluations performed in accordance with the SFCP.
HRA-D2-01	Open **(Unresolved)**	HRA-D2	Many of the operator recovery actions associated with fire response are still modeled with screening values; i.e., not accounting for all of the relevant PSFs. Dependency analysis has been performed for the current set of fire scenarios and operator actions in the "T" model. The results generated from the "Q" model did not incorporate the dependency analysis. The dependency analysis needs to be re-analyzed before finalization of the	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. Screening values are still applied for fire HEPs. A dependency analysis was completed to identify combinations of human failure events (HFEs) in which dependencies between actions may contribute to an increase in CDF when compared to the CDF	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			Fire PRA model. This task is not complete yet. Also, HRA Calculator evaluation sheets cannot be located for PCP-PMOF-P-50X-LOC and EDG-PMOE-PORT-PUMP, and AFW-AVOA-CV-2010-D, and SWS-AVOA-CV-0823-26, and SWS-AVOB-CV-082447M still need to be modified for fire related conditions. Complete the detailed assessments for recovery actions identified in risk significant scenario.	calculated when nominal screening values for human error probabilities (HEPs) are used. The fire PRA HRA dependency analysis is documented in the Human Reliability Analysis notebook NB-PSA-HR. Dependencies between actions were assigned based on sequence-specific evaluations of cues, timing, location, and available resources, and the HEPs adjusted if necessary to represent the level of dependence; the CDF was then recalculated using the modified HEPs. HFEs not explicitly evaluated for dependence were assigned HEPs of 1 (i.e., the represented operator actions are assumed to fail with a probability of unity), and thus the resulting CDF represents an upper bound for the potential impact of dependencies upon the results. Shared cues conservatively assumed 100% dependence. This approach has identified important HFEs for which the completion of detailed human reliability analyses may be beneficial; those analyses have not been completed.	for the affected STIs.
HRA-E1-01	Open **(Unresolved)**	HRA-E1	Documentation for HFEs associated with selected fire response HFEs (e.g., FPS-PMOE-START-L, ACP-PMOE-383-11A, ACP-PMOE-383-12A, etc.) in the risk significant fire scenarios need to be provided. Also, HRA Calculator evaluation sheets cannot be located for PCP-PMOF-P-50X-LOC, EDG-PMOE-PORT-PUMP, and PULLFUSE; AFW-PMOT-P-8B-LOC seems to have been changed to AFW-PMOT-P-8B-SBO in HRA notebook (but not changed in Fire PRA model); and	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. Screening values are still applied for fire HEPs pending development of final procedures, modifications, and operations reviews.	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			AFW-AVOA-CV-2010-D, SWS-AVOA-CV-0823-26, and SWS-AVOB-CV-082447M still need to be modified for fire related conditions. This task is not complete. Complete the detailed assessments and documentation of HFEs associated with fire response HFEs in the risk significant fire scenarios.		
SF-A1-01	Open **(Unresolved)**	SF-A1	The current seismic fire interactions analysis relies on the IPEEE study. The report needs to demonstrate that the scope of that work meets the objectives of the Standard and that plant changes since the work was performed do not compromise the conclusions. The report should clarify the scope of the IPEEE review and demonstrate it is adequate to fully address the issues identified in the SRs and /or supplement the work as necessary. Furthermore the report needs to provide assurance that the conclusions of that work have not been compromised by plant hardware/procedural changes since the IPEEE work was performed.	The Seismic-Fire Interaction Report 0247-07-0005.05 evaluates Palisades with respect to NUREG/CR-6850 Task 13, Seismic-Fire Interactions Assessment. The seismic fire interactions analysis has not been updated. However, since the Standard only requires a qualitative analysis, there is no impact on the quantified results in fire PRA model.	Additional update is needed to close this finding. Qualitative analysis of seismic-fire interactions is expected to have no impact on the fire PRA results or the STI change evaluations performed in accordance with the SFCP.
FQ-A4-01	Open (Resolved)	FQ-A4	Many of the accident sequences involve a Fire initiator which goes straight to core damage [i.e.., there is no success path]. This implies a single fire event can fail both trains of safe shutdown capability. The CDF is too high to accept so many individual sequences with no success path. There has not been sufficient investigation done to indicate whether recovery actions are truly not possible, or simply not modeled yet.	Recovery actions and proposed modifications have been incorporated into the final version of the fire PRA model and documentation. The final model has no sequences with a conditional core damage probability of 1. Results are described in Appendix B of the Fire Risk Quantification and Summary Report 0247-07-0005.01.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			Complete accident sequence modeling.		
FQ-B1-01	Open (Resolved)	FQ-B1	QU-B3 requires demonstration of acceptable truncation value by an iterative convergence process. The PLP fire PRA does not have this process. Although there is no indication the current truncation value is not acceptable, the convergence process exercise was not done. Provide a demonstration of iterative truncation	The convergence process to determine acceptable truncation limits for the final fire PRA model was documented in Section 6.0 of the Fire Risk Quantification and Summary Report 0247-07-0005.01.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
FQ-C1-01	Open **(Unresolved)**	FQ-C1	PRA document NB-PSA-HR-1, Rev 3 provides an HEP dependency analysis and develops adjustment factors to apply to the cutsets. Multiple HFE's are evaluated for dependencies using the EPRI HRA calculator. Dependency adjustment factors are developed and applied in the cutsets. However, the "Q" model [which was reviewed] does not incorporate this work. Therefore the F&O and the not met assessment. Complete the T model quantification	The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. A dependency analysis was completed to identify combinations of human failure events (HFEs) in which dependencies between actions may contribute to an increase in CDF when compared to the CDF calculated when nominal screening values for human error probabilities (HEPs) are used. The fire PRA HRA dependency analysis is documented in the Human Reliability Analysis notebook NB-PSA-HR. Dependencies between actions were assigned based on sequence-specific evaluations of cues, timing, location, and available resources, and the HEPs adjusted if necessary to represent the level of dependence; the CDF was then recalculated using the modified HEPs. HFEs not explicitly evaluated for dependence were assigned HEPs of 1 (i.e., the represented operator actions are assumed to fail with a	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
				probability of unity), and thus the resulting CDF represents an upper bound for the potential impact of dependencies upon the results. Shared cues conservatively assumed 100% dependence. This approach has identified important HFEs for which the completion of detailed human reliability analyses may be beneficial; those analyses have not been completed.	
FQ-E1-01	Open (Resolved)	FQ-E1	The discussion of dominant results is not presented in the 0247-07-0005.01. The results are categorized and sorted in terms of the dominant contributors [as per FQ-E1], but there is no discussion as required by this SR. Revise the model to yield representative results and then develop a discussion of dominant sequences.	Section 6.0 of the Fire Risk Quantification and Summary Report 0247-07-0005.01 was revised to include a discussion of the dominant results.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
UNC-A1-01	Open (Resolved)	UNC-A2 QU-E1 QU-E2 QU-E4 LE-F3	Only a limited number of parameter and modeling uncertainties and associated assumptions have been identified. The list is incomplete and not defined in sufficient detail to support a reasonable characterization or evaluation. Uncertainties have been propagated through a Monte Carlo approach. However, correlation of state of knowledge uncertainties has not been addressed, i.e. all initiators have been treated as independent variables, Severity Factor (SF) and Non Suppression Probabilities (NSP) and spurious actuation probabilities are not correlated. (Uncertainties carried over from the internal events analysis are correlated). This approach has led to unrealistically	The Fire Risk Quantification and Summary Report 0247-07-0005.01, was revised to include additional discussion and evaluation of the state-of-knowledge correlation and the impact of uncertainty associated with severity factors and non-suppression probability. The resulting distributions were found to have greater range factors and thus represent a more realistic analysis of the fire PRA uncertainty.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			narrow predictions of CDF and LERF distributions (error factor of 2) and the potential underestimation of the mean values for scenarios which are quantified based on the product of like distributions (e.g. multiple spurious actuation probabilities). Compile a comprehensive list of sources of model uncertainty, including related assumptions, and their potential impact on the Fire PRA model. Use NUREG/CR 6850 to identify generic issues and individual task analysis documents to identify plant specific issues. Develop and implement strategies for addressing each issue identified.		
UNC-A2-01	Open **(Unresolved)**	UNC-A2 IGN-A10 IGN-B5 FSS-E3 CF-A2 DA-D3 IE-C15 QU-A3	The uncertainty intervals assigned to Fire IEs, Severity Factors and Non Suppression Probabilities are not based on acceptable systematic methods. 1) Uncertainty distributions for fire IEs have been assigned the same error factor of 10 rather than using posterior distributions from Bayesian update 2) SF distributions have been assigned without an underlying basis. 3) NSP uncertainty distribution has been derived on the basis of NUREG/CR 1278. This provides guidance on HEP uncertainty assessment. However, NSP terms are an output of a combination of fire growth and suppression modeling and guidance in NUREG/CR 1278 has therefore little relevance. A valid approach would be to address the uncertainties in damage times in combination with uncertainties in suppression probabilities	The approach for performing the parametric uncertainty evaluation has not yet been updated. The parametric uncertainty analysis is presented in Section 7.1 of the Fire Risk Quantification and Summary Report 0247-07-0005.01. The issues identified have not been fully addressed, but this primarily impacts the potential range of the uncertainty distribution and does not have a significant impact on the mean value; and has no impact on the point estimate mean values used in the analysis.	Additional update is needed to close this finding. A parametric uncertainty analysis is expected to have no impact on the fire PRA point estimate results or the STI change evaluations performed in accordance with the SFCP.

Table 3.

Open Finding F&Os Against the PNPS Fire PRA Model

F&O	Status	Applicable SR(s)	Finding/Observation	Disposition	Importance to Application
			based on specific contributing factors. 4) Uncertainties associated with spurious actuation probabilities have been characterized according to a set of rules defined for severity factors. In this case spurious actuation probabilities with a failure probability of > 0.25 are assigned an error factor of 1.0. In contrast NUREG/CR 6850 recommend use of a uniform distribution with the following limits: Cables with 15 or less conductors: +20% Cables with more than 15 conductors: +50% Alternatively the values included in tables 10-1 to 10-5 NUREG/CR 6850 could be used where limits appear to be wider. The Palisades analysis has not accounted for larger uncertainties associated with cables with > 15 conductors. Identify sources of parametric uncertainty and estimate uncertainty intervals for significant ignition frequencies and fire growth modeling parameters using an acceptable method such as Bayesian updating, frequentist method or expert judgment.		
MU-A1-01	Open (Resolved)	MU-A1	The Palisades PRA Model Update procedure includes maintenance and upgrades to the PRA to be consistent with the as-built, as-operated plant. Resolution of the Full Power Internal Events (FPIE) Peer Review F&Os and incorporation of design and operational information relevant to a Fire PRA should result in meeting the Standard.	Section 3.3 of the PSA Model Configuration Control Notebook NB-PSA-CC has been revised to include a requirement for a peer review against the ASME standard for PSA model upgrades.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.

Table 4.

List of SRs Assessed as CC-I or Not Reviewed for the PNPS Fire PRA Model

SRs	Topic	Status	Importance to Application
PRM-A3	Construct the fire PRA plant response model so it is capable of determining the significant contributors to fire-induced risk when quantified. (CC-I/II/III)	SR was not reviewed. The sequence infrastructure to provide this capability is not available at this time, although the risk importance in a single scenario can be calculated.	The structure of the plant response model is not expected to impact STI change evaluations performed in accordance with the SFCP evaluations.
PRM-B2	Verify the peer review exceptions and deficiencies for the Internal Events PRA are dispositioned, and the disposition does not adversely affect the development of the fire PRA plant response model. (CC-I/II/III)	SR was not reviewed. The internal events F&O closure review documents the disposition of the internal events peer review exceptions and deficiencies.	The impact of internal events PRA findings on STI change evaluations performed in accordance with the SFCP evaluations is discussed in Table 2.
PRM-B4	Model any new initiating events identified in PRM-B2 in accordance with the SRs for HLR-IE-A, -B, and -C. Address the SRs in the context of a fire inducing the initiating events excluding the initiating events that cannot be induced by a fire. Develop a basis to support the non-applicability of any of the HLR-IE requirements. (CC-I/II/III)	SR was not reviewed. This SR was not required as no new initiating events were identified. However, PRM-B3 indicates spurious SI should be considered, so that the SR must be completed.	For those STIs on which new initiating events are determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.
PRM-B14	Identify any new accident progressions beyond the onset of core damage that would be applicable to the fire PRA that were not addressed for LERF in the Internal Events PRA. (CC-I/II/III)	SR was not reviewed. The LERF analysis did not assess whether there were any LERF phenomena applicable to the fire PRA which were not included in the internal events PRA. The fire PRA peer reviewers were not aware of any Fire PRA which looked for "beyond internal events" LERF phenomena.	For those STIs on which new accident progressions are determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.
HRA-A3	Finding HRA-A3-01, also see Table 3. The documentation for the identification and evaluation process as well as the detailed justifications for the conclusion of no undesired operator actions need to be completed and reviewed to confirm the evaluation conclusion.	SR was assessed as CC-I. A simulator exercise was performed with current Palisades' license holders in which several scenarios were evaluated to determine how Operators would respond given spurious or false instrument indications. The results of these exercises were considered in the HEP development process. The process and evaluation results are documented in the Human Reliability Analysis Notebook NB-PSA-HR.	This finding was resolved and therefore is not expected to impact STI change evaluations performed in accordance with the SFCP.
HRA-B4	Include HFEs for cases where fire-induced instrumentation failure of any single instrument could cause an undesired operator action consistent with HLR-ES-C and in accordance with	SR was assessed as CC-I. Finding ES-C2-01 also pertains to undesired operator actions, see Table 3. Instrument failures are built into the fire PRA and	For those STIs on which undesired operator actions due to instrument failure is determined to have a potential impact, the effect is

Table 4.

List of SRs Assessed as CC-I or Not Reviewed for the PNPS Fire PRA Model

SRs	Topic	Status	Importance to Application
	the SRs for HLR-HR-F. Develop a basis to support the non-applicability of the HLR-HR-F requirements.	directly impact the HRA. A simulator exercise was performed with current Palisades' license holders in which several scenarios were evaluated to determine how Operators would respond given spurious or false instrument indications. The results of these exercises were considered in the HEP development process. The process and evaluation results are documented in the HRA Notebook NB-PSA-HR.	expected to be assessed in the change evaluations for the affected STIs.
HRA-C1	Finding HRA-C1-01, also see Table 3. HFEs in risk significant scenarios need to receive detailed assessment accounting for relevant PSFs.	SR was assessed as CC-I. The procedures, modification detail, operations review, and detailed HRA model development are not yet complete. Significant HFEs were evaluated and developed in further detail as documented in the Human Reliability Analysis notebook NB-PSA-HR. Screening values are still applied for fire HEPs pending development of final procedures, modifications, and operations reviews.	Additional update is needed to close this finding. For those STIs on which detailed HRA is determined to have a potential impact, the effect is expected to be assessed in the change evaluations for the affected STIs.

Enclosure Attachment 2 to

PNP 2019-004

Proposed Changes to Palisades Plant

Renewed Facility Operating License DPR-20

and

Appendix A Technical Specifications Pages

(showing proposed changes; additions are highlighted and deletions are strikethrough)

93 pages follow

INSERT 1

In accordance with the Surveillance Frequency Control Program

INSERT 2

5.5.17 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

(1) Pursuant to Section 104b of the Act, as amended, and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," (a) ENP to possess and use, and (b) ENO to possess, use and operate, the facility as a utilization facility at the designated location in Van Buren County, Michigan, in accordance with the procedures and limitation set forth in this license;

(2) ENO, pursuant to the Act and 10 CFR Parts 40 and 70, to receive, possess, and use source and special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended;

(3) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use byproduct, source, and special nuclear material as sealed sources for reactor startup, reactor instrumentation, radiation monitoring equipment calibration, and fission detectors in amounts as required;

(4) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material for sample analysis or instrument calibration, or associated with radioactive apparatus or components; and

(5) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operations of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act; to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) ENO is authorized to operate the facility at steady-state reactor core power levels not in excess of 2565.4 Megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) The Technical Specifications contained in Appendix A, as revised through Amendment No. ~~266~~XXX, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Fire Protection

ENO shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated December 12, 2012 and November 1, 2017, as supplemented by letters dated February 21, 2013, September 30, 2013, October 24, 2013, December 2, 2013, April 2, 2014, May 7,

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be within the limits specified in the COLR.

APPLICABILITY: MODE 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM to be within limits.	~~24 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	----------NOTE---------- The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 Effective Full Power Days (EFPD) after each fuel loading. ----------	
	Verify overall core reactivity balance is within ± 1% $\Delta\rho$ of predicted values.	Prior to entering MODE 1 after each fuel loading AND ----------NOTE--------- Only required after initial 60 EFPD ---------- ~~31 EFPD~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify the position of each control rod to be within 8 inches of all other control rods in its group.	~~12 hours~~ Insert 1
SR 3.1.4.2	Perform a CHANNEL CHECK of the control rod position indication channels.	~~12 hours~~ Insert 1
SR 3.1.4.3	----------NOTE---------- Not required to be performed or met for control rod 13 during cycle 25 provided control rod 13 is administratively declared immovable, but trippable and Condition D is entered for control rod 13. ----------	
	Verify control rod freedom of movement by moving each individual full-length control rod that is not fully inserted into the reactor core ≥ 6 inches in either direction.	~~92 days~~ Insert 1
SR 3.1.4.4	Verify the rod position deviation alarm is OPERABLE.	~~18 months~~ Insert 1
SR 3.1.4.5	Perform a CHANNEL CALIBRATION of the control rod position indication channels.	~~18 months~~ Insert 1
SR 3.1.4.6	Verify each full-length control rod drop time is ≤ 2.5 seconds.	Prior to reactor criticality, after each reinstallation of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown and Part-Length Control Rod Group Insertion Limits

LCO 3.1.5 All shutdown and part-length rod groups shall be withdrawn to ≥ 128 inches.

APPLICABILITY: MODE 1,
MODE 2 with any regulating rod withdrawn above 5 inches.

----------NOTE----------
This LCO is not applicable while performing SR 3.1.4.3 (rod exercise test).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown or part-length rods not within limit.	A.1 Declare affected control rod(s) inoperable and enter the applicable Conditions and Required Actions of LCO 3.1.4.	Immediately
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each shutdown and part-length rod group is withdrawn ≥ 128 inches.	~~12 hours~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Regulating rod groups not within sequence or overlap limits.	B.1 Restore regulating rod groups to within appropriate sequence and overlap limits.	2 hours
C. PDIL or CROOS alarm circuit inoperable.	C.1 Perform SR 3.1.6.1 (group position verification).	Once within 15 minutes following any rod motion
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify each regulating rod group is within its withdrawal sequence, overlap, and insertion limits.	~~12 hours~~ Insert 1
SR 3.1.6.2	Verify PDIL alarm circuit is OPERABLE.	~~31 days~~ Insert 1
SR 3.1.6.3	Verify CROOS alarm circuit is OPERABLE.	~~31 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify THERMAL POWER is ≤ 2% RTP.	~~1 hour~~ Insert 1
SR 3.1.7.2	Verify T_{ave} is ≥ 500°F.	~~1 hour~~ Insert 1
SR 3.1.7.3	Verify ≥ 1% shutdown reactivity is available for trip insertion.	~~24 hours~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Incore Alarm and Excore Monitoring Systems inoperable for monitoring LHR.	B.1 Reduce THERMAL POWER to ≤ 85% RTP. AND B.2 Verify LHR is within limits using manual incore readings.	2 hours 4 hours AND Once per 2 hours thereafter
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	----------NOTE---------- Only required to be met when the Incore Alarm System is being used to monitor LHR. ---------- Verify LHR is within the limits specified in the COLR.	~~12 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.2	----------NOTE---------- Only required to be met when the Incore Alarm System is being used to monitor LHR. ---------- Adjust incore alarm setpoints based on a measured power distribution.	Prior to operation > 50% RTP after each fuel loading AND ~~31 EFPD thereafter~~ Insert 1
SR 3.2.1.3	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify measured ASI has been within 0.05 of target ASI for last 24 hours.	Prior to each initial use of Excore Monitoring System to monitor LHR
SR 3.2.1.4	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify THERMAL POWER is less than the APL.	~~1 hour~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.5	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify measured ASI is within 0.05 of target ASI.	~~1 hour~~ Insert 1
SR 3.2.1.6	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify $T_q \leq 0.03$.	~~24 hours~~ Insert 1

3.2 POWER DISTRIBUTION LIMITS

3.2.2 TOTAL RADIAL PEAKING FACTOR (F_R^T)

LCO 3.2.2 F_R^T shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. F_R^T not within limits specified in the COLR.	A.1 Restore F_R^T to within limits.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify F_R^T is within limits specified in the COLR.	Prior to operation > 50% RTP after each fuel loading AND ~~31 EFPD thereafter~~

Insert 1

3.2 POWER DISTRIBUTION LIMITS

3.2.3 QUADRANT POWER TILT (T_q)

LCO 3.2.3 T_q shall be ≤ 0.05.

APPLICABILITY: MODE 1 with THERMAL POWER > 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_q > 0.05.	A.1 Verify F_R^T is within the limits of LCO 3.2.2, "TOTAL RADIAL PEAKING FACTOR ".	2 hours AND Once per 8 hours thereafter
B. T_q > 0.10.	B.1 Reduce THERMAL POWER to < 50% RTP.	4 hours
C. Required Action and associated Completion Time not met. OR T_q > 0.15.	C.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify T_q is □ 0.05.	~~12 hours~~ Insert 1

3.2 POWER DISTRIBUTION LIMITS

3.2.4 AXIAL SHAPE INDEX (ASI)

LCO 3.2.4 The ASI shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ASI not within limits specified in COLR.	A.1 Restore ASI to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	Verify ASI is within limits specified in the COLR.	~~12 hours~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time not met. OR Control room ambient air temperature > 90°F.	G.1 Be in MODE 3. AND G.2.1 Verify no more than one full-length control rod is capable of being withdrawn. OR G.2.2 Verify PCS boron concentration is at REFUELING BORON CONCENTRATION.	6 hours 6 hours 6 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.1-1 to determine which SR shall be performed for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform a CHANNEL CHECK.	~~12 hours~~ Insert 1
SR 3.3.1.2	Verify control room temperature is ≤ 90°F.	~~12 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.3	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. ---------- Perform calibration (heat balance only) and adjust the power range excore and ΔT power channels to agree with calorimetric calculation if the absolute difference is ≥ 1.5%.	~~24 hours~~ Insert 1
SR 3.3.1.4	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER is ≥ 25% RTP. ---------- Calibrate the power range excore channels using the incore detectors.	~~31 days~~ Insert 1
SR 3.3.1.5	Perform a CHANNEL FUNCTIONAL TEST and verify the Thermal Margin Monitor Constants.	~~92 days~~ Insert 1
SR 3.3.1.6	Perform a calibration check of the power range excore channels with a test signal.	~~92 days~~ Insert 1
SR 3.3.1.7	Perform a CHANNEL FUNCTIONAL TEST of High Startup Rate and Loss of Load Functions.	Once within 7 days prior to each reactor startup

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform a CHANNEL CALIBRATION.	~~18 months~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met. OR One or more Functions with two or more Manual Trip, Matrix Logic or Trip Initiation Logic channels inoperable for reasons other than Condition D.	E.1 Be in MODE 3. AND E.2.1 Verify no more than one full-length control rod is capable of being withdrawn. OR E.2.2 Verify PCS boron concentration is at REFUELING BORON CONCENTRATION.	6 hours 6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform a CHANNEL FUNCTIONAL TEST on each RPS Matrix Logic channel and each RPS Trip Initiation Logic channel.	~~92 days~~ Insert 1
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Refer to Table 3.3.3-1 to determine which SR shall be performed for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL CHECK.	~~12 hours~~ Insert 1
SR 3.3.3.2	Perform a CHANNEL FUNCTIONAL TEST.	~~92 days~~ Insert 1
SR 3.3.3.3	Perform a CHANNEL CALIBRATION.	~~18 months~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two Manual Initiation, or Actuation Logic channels inoperable for Functions 5 or 6. OR Required Action and associated Completion Time of Condition A not met for Functions 5 or 6.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform functional test of each SIS actuation channel normal and standby power functions.	~~92 days~~ Insert 1
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST of each AFAS actuation logic channel.	~~92 days~~ Insert 1
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST.	~~18 months~~ Insert 1

3.3 INSTRUMENTATION

3.3.5 Diesel Generator (DG) - Undervoltage Start (UV Start)

LCO 3.3.5 Three channels of Loss of Voltage Function and three channels of Degraded Voltage Function auto-initiation instrumentation and associated logic channels for each DG shall be OPERABLE.

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - UV Start instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform a CHANNEL FUNCTIONAL TEST on each DG-UV start logic channel.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.2	Perform CHANNEL CALIBRATION on each Loss of Voltage and Degraded Voltage channel with setpoints as follows: a. Degraded Voltage Function ≥ 2187 V and ≤ 2264 V Time delay: ≥ 0.5 seconds and ≤ 0.8 seconds; and b. Loss of Voltage Function ≥ 1780 V and ≤ 1940 V Time delay: ≥ 5.45 seconds and ≤ 8.15 seconds at 1400 V.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform a CHANNEL CHECK of each refueling CHR monitor channel.	~~12 hours~~ Insert 1
SR 3.3.6.2	Perform a CHANNEL FUNCTIONAL TEST of each refueling CHR monitor channel.	~~31 days~~ Insert 1
SR 3.3.6.3	Perform a CHANNEL FUNCTIONAL TEST of each CHR Manual Initiation channel.	~~18 months~~ Insert 1
SR 3.3.6.4	Perform a CHANNEL CALIBRATION of each refueling CHR monitor channel.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

----------NOTE----------

These SRs apply to each PAM instrumentation Function in Table 3.3.7-1.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	~~31 days~~ Insert 1
SR 3.3.7.2	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL FUNCTIONAL TEST of the Source Range Neutron Flux Function.	Once within 7 days prior to each reactor startup
SR 3.3.8.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	~~18 months~~ Insert 1
SR 3.3.8.3	----------NOTES---------- 1. Not required for Functions 16, 17, and 18. 2. Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION for each required instrumentation channel.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	~~12 hours~~ Insert 1
SR 3.3.9.2	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	~~18 months~~ Insert 1

3.3 INSTRUMENTATION

3.3.10 Engineered Safeguards Room Ventilation (ESRV) Instrumentation

LCO 3.3.10 Two channels of ESRV Instrumentation shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Initiate action to isolate the associated ESRV System.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform a CHANNEL CHECK.	~~12 hours~~ Insert 1
SR 3.3.10.2	Perform a CHANNEL FUNCTIONAL TEST.	~~31 days~~ Insert 1
SR 3.3.10.3	Perform a CHANNEL CALIBRATION. Verify high radiation setpoint on each ESRV Instrumentation radiation monitoring channel is ≤ 2.2E+5 cpm.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure within the limits specified in the COLR.	~~12 hours~~ Insert 1
SR 3.4.1.2	Verify PCS cold leg temperature within the limit specified in the COLR.	~~12 hours~~ Insert 1
SR 3.4.1.3	----------NOTE---------- Not required to be performed until 31 EFPD after THERMAL POWER is ≥ 90% RTP. ----------	
	Verify PCS total flow rate within the limit specified in the COLR.	~~18 months~~ Insert 1 AND After each plugging of 10 or more steam generator tubes

3.4 PRIMARY COOLANT SYSTEM (PCS)

3.4.2 PCS Minimum Temperature for Criticality

LCO 3.4.2 Each PCS loop average temperature (T_{ave}) shall be ≥ 525°F.

APPLICABILITY: MODE 1
MODE 2 with $K_{eff} \geq 1.0$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{ave} in one or more PCS loops not within limit.	A.1 Be in MODE 2 with K_{eff} < 1.0.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify PCS T_{ave} in each loop ≥ 525°F.	~~12 hours~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ----------	C.1 Initiate action to restore parameter(s) to within limits.	Immediately
	AND	
Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.2 Determine PCS is acceptable for continued operation.	Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	----------NOTE---------- Only required to be performed during PCS heatup and cooldown operations. ----------	
	Verify PCS pressure, PCS temperature, and PCS heatup and cooldown rates are within the limits of Figure 3.4.3-1 and Figure 3.4.3-2.	~~30 minutes~~ Insert 1

3.4 PRIMARY COOLANT SYSTEM (PCS)

3.4.4 PCS Loops - MODES 1 and 2

LCO 3.4.4 Two PCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify each PCS loop is in operation.	~~12 hours~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 4.	24 hours
C. No PCS loop OPERABLE. OR No PCS loop in operation.	C.1	Suspend all operations involving a reduction of PCS boron concentration.	Immediately
	AND		
	C.2	Initiate action to restore one PCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required PCS loop is in operation.	~~12 hours~~ Insert 1
SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ -84%.	~~12 hours~~ Insert 1
SR 3.4.5.3	Verify correct breaker alignment and indicated power available to the required primary coolant pump that is not in operation.	~~7 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core, or one PCS loop is in operation.	~~12 hours~~ Insert 1
SR 3.4.6.2	Verify secondary side water level in required SG(s) is ≥ -84%.	~~12 hours~~ Insert 1
SR 3.4.6.3	Verify correct breaker alignment and indicated power available to the required pump that is not in operation.	~~7 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core.	~~12 hours~~ Insert 1
SR 3.4.7.2	Verify required SG secondary side water level is ≥ - 84%.	~~12 hours~~ Insert 1
SR 3.4.7.3	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	~~7 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately
B. Two SDC trains inoperable. OR SDC flow through the reactor core not within limits.	B.1 Suspend all operations involving reduction of PCS boron concentration. AND B.2 Initiate action to restore one SDC train to OPERABLE status and operation with SDC flow through the reactor core within limit.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	----------NOTE---------- Only required to be met when complying with LCO 3.4.8.a. ---------- Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core.	~~12 hours~~ Insert 1

SURVEILLANCE		FREQUENCY
SR 3.4.8.2	----------NOTE---------- Only required to be met when complying with LCO 3.4.8.b. ---------- Verify one SDC train is in operation with ≥ 650 gpm flow through the reactor core.	~~12 hours~~ Insert 1
SR 3.4.8.3	----------NOTE---------- Only required to be met when complying with LCO 3.4.8.b. ---------- Verify two of three charging pumps are incapable of reducing the boron concentration in the PCS below the minimum value necessary to maintain the required SHUTDOWN MARGIN.	~~12 hours~~ Insert 1
SR 3.4.8.4	Verify correct breaker alignment and indicated power available to the SDC pump that is not in operation.	~~7 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 30 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	----------NOTE---------- Not required to be met until 1 hour after establishing a bubble in the pressurizer and the pressurizer water level has been lowered to within its normal operating band. ---------- Verify pressurizer water level is < 62.8%.	~~12 hours~~ Insert 1
SR 3.4.9.2	Verify the capacity of pressurizer heaters from electrical bus 1D, and electrical bus 1E is ≥ 375 kW.	~~18 months~~ Insert 1
SR 3.4.9.3	Verify the required pressurizer heater capacity from electrical bus 1E is capable of being powered from an emergency power supply.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Perform a complete cycle of each block valve.	Once prior to entering MODE 4 from MODE 5 if not performed within previous 92 days
SR 3.4.11.2	Perform a complete cycle of each PORV with PCS average temperature > 200°F.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	----------NOTE---------- Only required to be met when complying with LCO 3.4.12.a. ---------- Verify both HPSI pumps are incapable of injecting into the PCS.	~~12 hours~~ Insert 1
SR 3.4.12.2	Verify required PCS vent, capable of relieving ≥ 167 gpm at a PCS pressure of 315 psia, is open.	~~12 hours for unlocked open vent valve(s)~~ ~~AND~~ ~~31 days for locked open vent valve(s)~~ Insert 1
SR 3.4.12.3	Verify PORV block valve is open for each required PORV.	~~72 hours~~ Insert 1
SR 3.4.12.4	----------NOTE---------- Not required to be performed until 12 hours after decreasing any PCS cold leg temperature to < 430°F. ---------- Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.	~~31 days~~ Insert 1
SR 3.4.12.5	Perform CHANNEL CALIBRATION on each required PORV actuation channel.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	----------NOTES---------- 1. Not required to be performed in MODE 3 or 4 until 12 hours of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. ---------- Verify PCS operational LEAKAGE is within limits by performance of PCS water inventory balance.	----------NOTE-------- Only required to be performed during steady state operation ---------- ~~72 hours~~ Insert 1
SR 3.4.13.2	---------- NOTE ---------- Not required to be performed until 12 hours after establishment of steady state operation. ---------- Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.	~~72 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTES---------- 1. Only required to be performed in MODES 1 and 2. 2. Leakage rates ≤ 5.0 gpm are unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible leakage rate of 5.0 gpm by 50% or greater. 3. Minimum test differential pressure shall not be less than 150 psid. ---------- Verify leakage from each PCS PIV is equivalent to ≤ 5 gpm at a PCS pressure of 2060 psia.	~~18 months~~ Insert 1 AND Once prior to entering MODE 2 whenever the plant has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months
SR 3.4.14.2	Verify each SDC suction valve interlock prevents its associated valve from being opened with a simulated or actual PCS pressure signal ≥ 280 psia.	~~18 months~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. All required channels inoperable.	C.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment sump level indicator.	~~12 hours~~ Insert 1
SR 3.4.15.2	Perform CHANNEL CHECK of the required containment atmosphere gaseous activity monitor.	~~12 hours~~ Insert 1
SR 3.4.15.3	Perform CHANNEL CHECK of the required containment atmosphere humidity monitor.	~~12 hours~~ Insert 1
SR 3.4.15.4	Perform CHANNEL FUNCTIONAL TEST of the required containment air cooler condensate level switch.	~~18 months~~ Insert 1
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the required containment sump level indicator.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.6	Perform CHANNEL CALIBRATION of the required containment atmosphere gaseous activity monitor.	~~18 months~~ Insert 1
SR 3.4.15.7	Perform CHANNEL CALIBRATION of the required containment atmosphere humidity monitor.	~~18 months~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 ≥ 40 μCi/gm. OR Gross specific activity of the primary coolant not within limit.	B.1 Be in MODE 3 with T_{ave} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify primary coolant gross specific activity ≤ 100/Ē μCi/gm.	~~7 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.2	----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify primary coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	~~14 days~~ Insert 1 AND Once between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period
SR 3.4.16.3	----------NOTE---------- Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ---------- Determine Ē from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	~~184 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each SIT isolation valve is fully open.	~~12 hours~~ Insert 1
SR 3.5.1.2	Verify borated water volume in each SIT is $\geq$ 1040 ft^3 and $\leq$ 1176 ft^3.	~~12 hours~~ Insert 1
SR 3.5.1.3	Verify nitrogen cover pressure in each SIT is $\geq$ 200 psig.	~~12 hours~~ Insert 1
SR 3.5.1.4	Verify boron concentration in each SIT is $\geq$ 1720 ppm and $\leq$ 2500 ppm.	~~31 days~~ Insert 1
SR 3.5.1.5	Verify power is removed from each SIT isolation valve operator.	~~31 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the following valves and hand switches are in the open position. Valve/Hand Switch Number — Function CV-3027 — SIRWT Recirc Valve HS-3027A — Hand Switch For CV-3027 HS-3027B — Hand Switch For CV-3027 CV-3056 — SIRWT Recirc Valve HS-3056A — Hand Switch For CV-3056 HS-3056B — Hand Switch For CV-3056	~~12 hours~~ Insert 1
SR 3.5.2.2	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ Insert 1
SR 3.5.2.3	Verify CV-3006, "SDC Flow Control Valve," is open and its air supply is isolated.	~~31 days~~ Insert 1
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.5	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.5.2.7	Verify each LPSI pump stops on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.5.2.8	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. Valve Number — Function MO-3008 — LPSI to Cold leg 1A MO-3010 — LPSI to Cold leg 1B MO-3012 — LPSI to Cold leg 2A MO-3014 — LPSI to Cold leg 2B MO-3082 — HPSI to Hot leg 1 MO-3083 — HPSI to Hot leg 1	~~18 months~~ Insert 1
SR 3.5.2.9	Verify, by visual inspection, the containment sump passive strainer assemblies are not restricted by debris, and the containment sump passive strainer assemblies and other containment sump entrance pathways show no evidence of structural distress or abnormal corrosion.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify SIRWT borated water temperature is ≥ 40°F and ≤ 100°F.	~~24 hours~~ Insert 1
SR 3.5.4.2	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ----------	
	Verify SIRWT borated water volume is ≥ 250,000 gallons.	~~7 days~~ Insert 1
SR 3.5.4.3	----------NOTE---------- Only required to be met in MODE 4. ----------	
	Verify SIRWT borated water volume is ≥ 200,000 gallons.	~~7 days~~ Insert 1
SR 3.5.4.4	Verify SIRWT boron concentration is ≥ 1720 ppm and ≤ 2500 ppm.	~~31 days~~ Insert 1

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Containment Sump Buffering Agent and Weight Requirements

LCO 3.5.5 Buffer baskets shall contain ≥ 8,186 lbs and ≤10,553 lbs of Sodium Tetraborate Decahydrate (STB) $Na_2B_4O_7 \cdot 10H_2O$.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. STB not within limits.	A.1 Restore STB to within limits.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 30 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	Verify the STB baskets contain ≥ 8,186 lbs and ≤10,553 lbs of equivalent weight sodium tetraborate decahydrate.	~~18 months~~ Insert 1
SR 3.5.5.2	Verify that a sample from the STB baskets provides adequate pH adjustment of borated water.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ---------- Perform required air lock leakage rate testing in accordance with the Containment Leak Rate Testing Program.	In accordance with the Containment Leak Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	~~24 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 8 inch purge valve and 12 inch air room supply valve is locked closed.	~~31 days~~ Insert 1
SR 3.6.3.2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------	
	Verify each manual containment isolation valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured in position, and is required to be closed during accident conditions, is closed, except for containment isolation valves that are open under administrative controls.	~~31 days~~ Insert 1
SR 3.6.3.3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------	
	Verify each manual containment isolation valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured in position, and required to be closed during accident conditions, is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.3.5	Verify each containment 8 inch purge exhaust and 12 inch air room supply valve is closed by performance of a leakage rate test.	~~184 days~~ Insert 1
SR 3.6.3.6	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	~~18 months~~ Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≤ 1.0 psig in MODES 1 and 2 and ≤ 1.5 psig in MODES 3 and 4.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limit.	A.1 Restore containment pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify containment pressure is within limit.	~~12 hours~~ Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be ≤ 140°F.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment average air temperature is within limit.	~~24 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	~~31 days~~ Insert 1
SR 3.6.6.2	Operate each Containment Air Cooler Fan Unit for ≥ 15 minutes.	~~31 days~~ Insert 1
SR 3.6.6.3	Verify the containment spray piping is full of water to the 735 ft elevation in the containment spray header.	~~31 days~~ Insert 1
SR 3.6.6.4	Verify total service water flow rate, when aligned for accident conditions, is ≥ 4800 gpm to Containment Air Coolers VHX-1, VHX-2, and VHX-3.	~~18 months~~ Insert 1
SR 3.6.6.5	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.6.6	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.6.6.8	Verify each containment cooling fan starts automatically on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.6.6.9	Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify closure time of each MSIV is ≤ 5 seconds on an actual or simulated actuation signal from each train under no flow conditions.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the closure time of each MFRV and MFRV bypass valve is ≤ 22 seconds on a actual or simulated actuation signal.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ADV.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each required AFW manual, power operated, and automatic valve in each water flow path and in the steam supply flow path to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ Insert 1
SR 3.7.5.2	----------NOTE---------- Not required to be met for the turbine driven AFW pump in MODE 3 below 800 psig in the steam generators. ----------	
	Verify the developed head of each required AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.5.3	----------NOTE---------- Only required to be met in MODES 1, 2 or 3 when AFW is not in operation. ----------	
	Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.7.5.4	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ----------	
	Verify each required AFW pump starts automatically on an actual or simulated actuation signal.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify condensate useable volume is ≥ 100,000 gallons.	~~12 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	----------NOTE---------- Isolation of CCW flow to individual components does not render the CCW System inoperable. ---------- Verify each CCW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ Insert 1
SR 3.7.7.2	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.7.7.3	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each CCW pump starts automatically on an actual or simulated actuation signal in the "with standby power available" mode.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	----------NOTE---------- Isolation of SWS flow to individual components does not render SWS inoperable. ---------- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ Insert 1
SR 3.7.8.2	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.7.8.3	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each SWS pump starts automatically on an actual or simulated actuation signal in the "with standby power available" mode.	~~18 months~~ Insert 1

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 568.25 ft above mean sea level.	~~24 hours~~ Insert 1
SR 3.7.9.2	Verify water temperature of UHS is ≤ 85°F.	~~24 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CRV Filtration train for ≥ 10 continuous hours with associated heater (VHX-26A or VHX-26B) operating.	~~31 days~~ Insert 1
SR 3.7.10.2	Perform required CRV Filtration filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.7.10.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4, and during movement of irradiated fuel assemblies in containment. ----------	
	Verify each CRV Filtration train actuates on an actual or simulated actuation signal.	~~18 months~~ Insert 1
SR 3.7.10.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two CRV Cooling trains inoperable during CORE ALTERATIONS, during movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP.	E.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	E.3	Suspend movement of a fuel cask in or over the SFP.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify each CRV Cooling train has the capability to remove the assumed heat load.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Perform required Fuel Handling Area Ventilation System filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.7.12.2	Verify the flow rate of the Fuel Handling Area Ventilation System, when aligned to the emergency filter bank, is ≥ 5840 cfm and ≤ 8760 cfm.	~~18 months~~ Insert 1

3.7 PLANT SYSTEMS

3.7.13 Engineered Safeguards Room Ventilation (ESRV) Dampers

LCO 3.7.13 Two ESRV Damper trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ESRV Damper trains inoperable.	A.1 Initiate action to isolate associated ESRV Damper train(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Verify each ESRV Damper train closes on an actual or simulated actuation signal.	~~31 days~~ Insert 1

3.7 PLANT SYSTEMS

3.7.14 Spent Fuel Pool (SFP) Water Level

LCO 3.7.14 The SFP water level shall be ≥ 647 ft elevation.

----------NOTE----------
SFP level may be below the 647 ft elevation to support fuel cask movement, if the displacement of water by the fuel cask when submerged in the SFP, would raise SFP level to ≥ 647 ft elevation.

APPLICABILITY: During movement of irradiated fuel assemblies in the SFP,
During movement of a fuel cask in or over the SFP.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP water level not within limit.	A.1 Suspend movement of irradiated fuel assemblies in SFP.	Immediately
	AND	
	A.2 Suspend movement of fuel cask in or over the SFP.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify the SFP water level is ≥ 647 ft elevation.	~~7 days~~ Insert 1

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pool (SFP) Boron Concentration

LCO 3.7.15 The SFP boron concentration shall be ≥ 1720 ppm.

APPLICABILITY: When fuel assemblies are stored in the Spent Fuel Pool.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP boron concentration not within limit.	A.1 Suspend movement of fuel assemblies in the SFP.	Immediately
	AND	
	A.2 Initiate action to restore SFP boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the SFP boron concentration is within limit.	~~7 days~~ Insert 1

3.7 PLANT SYSTEMS

3.7.17 Secondary Specific Activity

LCO 3.7.17 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify the specific activity of the secondary coolant is within limit.	~~31 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours
G. Three or more AC sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and voltage for each offsite circuit.	~~7 days~~ Insert 1
SR 3.8.1.2	Verify each DG starts from standby conditions and achieves: a. In ≤ 10 seconds, ready-to-load status; and b. Steady state voltage ≥ 2280 V and ≤ 2520 V, and frequency ≥ 59.5 Hz and ≤ 61.2 Hz.	~~31 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	----------NOTES---------- 1. Momentary transients outside the load range do not invalidate this test. 2. This Surveillance shall be conducted on only one DG at a time. 3. This Surveillance shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2. ---------- Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes: a. For ≥ 15 minutes loaded to greater than or equal to peak accident load; and b. For the remainder of the test at a load ≥ 2300 kW and ≤ 2500 kW.	~~31 days~~ Insert 1
SR 3.8.1.4	Verify each day tank contains ≥ 2500 gallons of fuel oil.	~~31 days~~ Insert 1
SR 3.8.1.5	Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 68 Hz; b. Within 3 seconds following load rejection, the voltage is ≥ 2280 V and ≤ 2640 V; and c. Within 3 seconds following load rejection, the frequency is ≥ 59.5 Hz and ≤ 61.5 Hz.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.6	Verify each DG, operating at a power factor ≤ 0.9, does not trip, and voltage is maintained ≤ 4000 V during and following a load rejection of ≥ 2300 kW and ≤ 2500 kW.	~~18 months~~ Insert 1
SR 3.8.1.7	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected shutdown loads through automatic load sequencer, 3. maintains steady state voltage ≥ 2280 V and ≤ 2520 V, 4. maintains steady state frequency ≥ 59.5 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected loads for ≥ 5 minutes.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTE---------- Momentary transients outside the load and power factor ranges do not invalidate this test. ---------- Verify each DG, operating at a power factor ≤ 0.9, operates for ≥ 24 hours: a. For ≥ 100 minutes loaded ≥ its peak accident loading; and b. For the remaining hours of the test loaded ≥ 2300 kW and ≤ 2500 kW.	~~18 months~~ Insert 1
SR 3.8.1.9	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. Verify each DG: a. Synchronizes with offsite power source while supplying its associated 2400 V bus upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify the time of each sequenced load is within ± 0.3 seconds of design timing for each automatic load sequencer.	~~18 months~~ Insert 1
SR 3.8.1.11	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated safety injection signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through its automatic load sequencer, 3. achieves steady state voltage ≥ 2280 V and ≤ 2520 V, 4. achieves steady state frequency ≥ 59.5 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected loads for ≥ 5 minutes.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify the fuel oil storage subsystem contains ≥ a 7 day supply of fuel.	~~24 hours~~ Insert 1
SR 3.8.3.2	Verify stored lube oil inventory is ≥ a 7 day supply.	~~31 days~~ Insert 1
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Fuel Oil Testing Program.	In accordance with the Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is ≥ 200 psig.	~~31 days~~ Insert 1
SR 3.8.3.5	Check for and remove excess accumulated water from the fuel oil storage tank.	~~92 days~~ Insert 1
SR 3.8.3.6	Verify the fuel oil transfer system operates to transfer fuel oil from the fuel oil storage tank to each DG day tank and engine mounted tank.	~~92 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	~~7 days~~ Insert 1
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 50 μohm for inter-cell connections, ≤ 360 μohm for inter-rack connections, and ≤ 360 μohm for inter-tier connections.	~~92 days~~ Insert 1
SR 3.8.4.3	Inspect battery cells, cell plates, and racks for visual indication of physical damage or abnormal deterioration that could degrade battery performance.	~~12 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	Remove visible terminal corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	~~12 months~~ Insert 1
SR 3.8.4.5	Verify battery connection resistance is ≤ 50 μohm for inter-cell connections, ≤ 360 μohm for inter-rack connections, and ≤ 360 μohm for inter-tier connections.	~~12 months~~ Insert 1
SR 3.8.4.6	Verify each required battery charger supplies ≥ 180 amps at ≥ 125 V for ≥ 8 hours.	~~18 months~~ Insert 1
SR 3.8.4.7	----------NOTES---------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	~~18 months~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.8	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	~~60 months~~ Insert 1 AND 12 months when battery shows degradation or has reached 85% of the expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells < 70°F. OR One or more batteries with one or more battery cell parameters not within Category C limits.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	~~31 days~~ Insert 1
SR 3.8.6.2	Verify average electrolyte temperature of representative cells is ≥ 70°F.	~~31 days~~ Insert 1
SR 3.8.6.3	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	~~92 days~~ Insert 1

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 Four inverters shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One inverter inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any Preferred AC bus de-energized. ---------- A.1 Restore inverter to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to Preferred AC buses.	~~7 days~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage, frequency, and alignment to required Preferred AC buses.	~~7 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. Two or more inoperable distribution subsystems that result in a loss of function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and Preferred AC bus electrical power distribution subsystems.	~~7 days~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate actions to restore required AC, DC, and Preferred AC bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required shutdown cooling train inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and Preferred AC bus electrical power distribution subsystems.	~~7 days~~ Insert 1

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Primary Coolant System and the refueling cavity shall be maintained at the REFUELING BORON CONCENTRATION.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Boron concentration not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
	AND		
	A.3	Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is at the REFUELING BORON CONCENTRATION.	~~72 hours~~ Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	~~12 hours~~ Insert 1
SR 3.9.2.2	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	~~18 months~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required to be met containment penetration is in the required status.	~~7 days~~ Insert 1
SR 3.9.3.2	----------NOTE---------- Only required to be met for unisolated containment penetrations. ----------	
	Verify each required automatic isolation valve closes on an actual or simulated Refueling Containment High Radiation signal.	~~18 months~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND		
	A.4	Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one SDC train is in operation and circulating primary coolant at a flow rate of ≥ 1000 gpm.	~~12 hours~~ Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. No SDC train OPERABLE or in operation.	B.1	Suspend operations involving a reduction in primary coolant boron concentration.	Immediately
	AND		
	B.2	Initiate action to restore one SDC train to OPERABLE status and to operation.	Immediately
	AND		
	B.3	Initiate action to close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one SDC train is in operation and circulating primary coolant at a flow rate of ≥ 1000 gpm.	~~12 hours~~ Insert 1
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	~~7 days~~ Insert 1

3.9 REFUELING OPERATIONS

3.9.6 Refueling Cavity Water Level

LCO 3.9.6 The refueling cavity water level shall be maintained ≥ 647 ft elevation.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Refueling cavity water level not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify refueling cavity water level is ≥ 647 ft elevation.	~~24 hours~~ Insert 1

5.5 Programs and Manuals

Insert 2

This page retained for page numbering

Enclosure Attachment 3 to

PNP 2019-004

Page Change Instructions and Revised Pages

for the Palisades Plant

Renewed Facility Operating License DPR-20

and

Appendix A Technical Specifications

100 pages follow

Page Change Instructions

ATTACHMENT TO LICENSE AMENDMENT NO. 2xx

RENEWED FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Remove the following page of Palisades Plant Renewed Facility Operating License, and replace with the attached revised page. The revised page is identified by amendment number and contains a line in the margin indicating the area of change.

REMOVE	INSERT
Page 3	Page 3

Remove the following pages of Appendix A, Technical Specifications, and replace with the attached revised pages. The revised pages are identified by amendment number and contain a line in the margin indicating the area of change.

REMOVE	INSERT
Page 3.1.1-1	Page 3.1.1-1
Page 3.1.2-2	Page 3.1.2-2
Page 3.1.4-3	Pages 3.1.4-3 – 3.1.4-4
Page 3.1.5-1	Page 3.1.5-1
Page 3.1.6-2	Page 3.1.6-2
Page 3.1.7-2	Page 3.1.7-2
Pages 3.2.1-2 – 3.2.1-4	Pages 3.2.1-2 – 3.2.1-4
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Page 3.2.4-1	Page 3.2.4-1
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Page 3.3.2-2	Page 3.3.2-2
Page 3.3.3-3	Page 3.3.3-3
Page 3.3.4-2	Page 3.3.4-2
Pages 3.3.5-1 – 3.3.5-2	Pages 3.3.5-1 – 3.3.5-2

Page Change Instructions

ATTACHMENT TO LICENSE AMENDMENT NO. 2xx

RENEWED FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

REMOVE (Continued)	INSERT (Continued)
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(1) Pursuant to Section 104b of the Act, as amended, and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," (a) ENP to possess and use, and (b) ENO to possess, use and operate, the facility as a utilization facility at the designated location in Van Buren County, Michigan, in accordance with the procedures and limitation set forth in this license;

(2) ENO, pursuant to the Act and 10 CFR Parts 40 and 70, to receive, possess, and use source and special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report, as supplemented and amended;

(3) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use byproduct, source, and special nuclear material as sealed sources for reactor startup, reactor instrumentation, radiation monitoring equipment calibration, and fission detectors in amounts as required;

(4) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material for sample analysis or instrument calibration, or associated with radioactive apparatus or components; and

(5) ENO, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operations of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act; to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) ENO is authorized to operate the facility at steady-state reactor core power levels not in excess of 2565.4 Megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) The Technical Specifications contained in Appendix A, as revised through Amendment No. XXX, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. ENO shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Fire Protection

ENO shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated December 12, 2012 and November 1, 2017, as supplemented by letters dated February 21, 2013, September 30, 2013, October 24, 2013, December 2, 2013, April 2, 2014, May 7,

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be within the limits specified in the COLR.

APPLICABILITY: MODE 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify SDM to be within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	----------NOTE---------- The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 Effective Full Power Days (EFPD) after each fuel loading. ----------	
	Verify overall core reactivity balance is within ± 1% $\Delta\rho$ of predicted values.	Prior to entering MODE 1 after each fuel loading AND ----------NOTE---------- Only required after initial 60 EFPD ---------- In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify the position of each control rod to be within 8 inches of all other control rods in its group.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.2	Perform a CHANNEL CHECK of the control rod position indication channels.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	----------NOTE---------- Not required to be performed or met for control rod 13 during cycle 25 provided control rod 13 is administratively declared immovable, but trippable and Condition D is entered for control rod 13. ---------- Verify control rod freedom of movement by moving each individual full-length control rod that is not fully inserted into the reactor core ≥ 6 inches in either direction.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.4	Verify the rod position deviation alarm is OPERABLE.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.5	Perform a CHANNEL CALIBRATION of the control rod position indication channels.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.6	Verify each full-length control rod drop time is ≤ 2.5 seconds.	Prior to reactor criticality, after each reinstallation of the reactor head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown and Part-Length Control Rod Group Insertion Limits

LCO 3.1.5 All shutdown and part-length rod groups shall be withdrawn to ≥ 128 inches.

APPLICABILITY: MODE 1,
MODE 2 with any regulating rod withdrawn above 5 inches.

----------NOTE----------
This LCO is not applicable while performing SR 3.1.4.3 (rod exercise test).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown or part-length rods not within limit.	A.1 Declare affected control rod(s) inoperable and enter the applicable Conditions and Required Actions of LCO 3.1.4.	Immediately
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each shutdown and part-length rod group is withdrawn ≥ 128 inches.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Regulating rod groups not within sequence or overlap limits.	B.1 Restore regulating rod groups to within appropriate sequence and overlap limits.	2 hours
C. PDIL or CROOS alarm circuit inoperable.	C.1 Perform SR 3.1.6.1 (group position verification).	Once within 15 minutes following any rod motion
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify each regulating rod group is within its withdrawal sequence, overlap, and insertion limits.	In accordance with the Surveillance Frequency Control Program
SR 3.1.6.2	Verify PDIL alarm circuit is OPERABLE.	In accordance with the Surveillance Frequency Control Program
SR 3.1.6.3	Verify CROOS alarm circuit is OPERABLE.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify THERMAL POWER is ≤ 2% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify T_{ave} is ≥ 500°F.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	Verify ≥ 1% shutdown reactivity is available for trip insertion.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Incore Alarm and Excore Monitoring Systems inoperable for monitoring LHR.	B.1 Reduce THERMAL POWER to ≤ 85% RTP. AND B.2 Verify LHR is within limits using manual incore readings.	2 hours 4 hours AND Once per 2 hours thereafter
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	----------NOTE---------- Only required to be met when the Incore Alarm System is being used to monitor LHR. ---------- Verify LHR is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.2	----------NOTE---------- Only required to be met when the Incore Alarm System is being used to monitor LHR. ---------- Adjust incore alarm setpoints based on a measured power distribution.	Prior to operation > 50% RTP after each fuel loading <u>AND</u> In accordance with the Surveillance Frequency Control Program
SR 3.2.1.3	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify measured ASI has been within 0.05 of target ASI for last 24 hours.	Prior to each initial use of Excore Monitoring System to monitor LHR
SR 3.2.1.4	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify THERMAL POWER is less than the APL.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.5	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify measured ASI is within 0.05 of target ASI.	In accordance with the Surveillance Frequency Control Program
SR 3.2.1.6	----------NOTE---------- Only required to be met when the Excore Monitoring System is being used to monitor LHR. ---------- Verify $T_q \leq 0.03$.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 TOTAL RADIAL PEAKING FACTOR (F_R^T)

LCO 3.2.2 F_R^T shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. F_R^T not within limits specified in the COLR.	A.1 Restore F_R^T to within limits.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify F_R^T is within limits specified in the COLR.	Prior to operation > 50% RTP after each fuel loading AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 QUADRANT POWER TILT (T_q)

LCO 3.2.3 T_q shall be ≤ 0.05.

APPLICABILITY: MODE 1 with THERMAL POWER > 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_q > 0.05.	A.1 Verify F_R^T is within the limits of LCO 3.2.2, "TOTAL RADIAL PEAKING FACTOR ".	2 hours AND Once per 8 hours thereafter
B. T_q > 0.10.	B.1 Reduce THERMAL POWER to < 50% RTP.	4 hours
C. Required Action and associated Completion Time not met. OR T_q > 0.15.	C.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.3.1 Verify T_q is ≤ 0.05.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.4 AXIAL SHAPE INDEX (ASI)

LCO 3.2.4 The ASI shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER > 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ASI not within limits specified in COLR.	A.1 Restore ASI to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	Verify ASI is within limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time not met. OR Control room ambient air temperature > 90°F.	G.1 Be in MODE 3. AND G.2.1 Verify no more than one full-length control rod is capable of being withdrawn. OR G.2.2 Verify PCS boron concentration is at REFUELING BORON CONCENTRATION.	6 hours 6 hours 6 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------
Refer to Table 3.3.1-1 to determine which SR shall be performed for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform a CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2	Verify control room temperature is ≤ 90°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.3	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. ---------- Perform calibration (heat balance only) and adjust the power range excore and ΔT power channels to agree with calorimetric calculation if the absolute difference is ≥ 1.5%.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.4	----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER is ≥ 25% RTP. ---------- Calibrate the power range excore channels using the incore detectors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.5	Perform a CHANNEL FUNCTIONAL TEST and verify the Thermal Margin Monitor Constants.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.6	Perform a calibration check of the power range excore channels with a test signal.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.7	Perform a CHANNEL FUNCTIONAL TEST of High Startup Rate and Loss of Load Functions.	Once within 7 days prior to each reactor startup

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform a CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met. OR One or more Functions with two or more Manual Trip, Matrix Logic or Trip Initiation Logic channels inoperable for reasons other than Condition D.	E.1 Be in MODE 3. AND E.2.1 Verify no more than one full-length control rod is capable of being withdrawn. OR E.2.2 Verify PCS boron concentration is at REFUELING BORON CONCENTRATION.	6 hours 6 hours 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform a CHANNEL FUNCTIONAL TEST on each RPS Matrix Logic channel and each RPS Trip Initiation Logic channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2	Perform a CHANNEL FUNCTIONAL TEST on each RPS Manual Trip channel.	Once within 7 days prior to each reactor startup

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Refer to Table 3.3.3-1 to determine which SR shall be performed for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform a CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2	Perform a CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.3	Perform a CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two Manual Initiation, or Actuation Logic channels inoperable for Functions 5 or 6. OR Required Action and associated Completion Time of Condition A not met for Functions 5 or 6.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform functional test of each SIS actuation channel normal and standby power functions.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2	Perform a CHANNEL FUNCTIONAL TEST of each AFAS actuation logic channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.3	Perform a CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5 Diesel Generator (DG) - Undervoltage Start (UV Start)

LCO 3.3.5 Three channels of Loss of Voltage Function and three channels of Degraded Voltage Function auto-initiation instrumentation and associated logic channels for each DG shall be OPERABLE.

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per DG inoperable.	A.1 Enter applicable Conditions and Required Actions for the associated DG made inoperable by DG - UV Start instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform a CHANNEL FUNCTIONAL TEST on each DG-UV start logic channel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.2	Perform CHANNEL CALIBRATION on each Loss of Voltage and Degraded Voltage channel with setpoints as follows: a. Degraded Voltage Function ≥ 2187 V and ≤ 2264 V Time delay: ≥ 0.5 seconds and ≤ 0.8 seconds; and b. Loss of Voltage Function ≥ 1780 V and ≤ 1940 V Time delay: ≥ 5.45 seconds and ≤ 8.15 seconds at 1400 V.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform a CHANNEL CHECK of each refueling CHR monitor channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2	Perform a CHANNEL FUNCTIONAL TEST of each refueling CHR monitor channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3	Perform a CHANNEL FUNCTIONAL TEST of each CHR Manual Initiation channel.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4	Perform a CHANNEL CALIBRATION of each refueling CHR monitor channel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

----------NOTE----------
These SRs apply to each PAM instrumentation Function in Table 3.3.7-1.

	SURVEILLANCE	FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL FUNCTIONAL TEST of the Source Range Neutron Flux Function.	Once within 7 days prior to each reactor startup
SR 3.3.8.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.3	----------NOTES---------- 1. Not required for Functions 16, 17, and 18. 2. Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION for each required instrumentation channel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.9.2	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.10 Engineered Safeguards Room Ventilation (ESRV) Instrumentation

LCO 3.3.10 Two channels of ESRV Instrumentation shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Initiate action to isolate the associated ESRV System.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.10.1	Perform a CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.10.2	Perform a CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.10.3	Perform a CHANNEL CALIBRATION. Verify high radiation setpoint on each ESRV Instrumentation radiation monitoring channel is ≤ 2.2E+5 cpm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	Verify PCS cold leg temperature within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3	----------NOTE---------- Not required to be performed until 31 EFPD after THERMAL POWER is ≥ 90% RTP. ---------- Verify PCS total flow rate within the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program AND After each plugging of 10 or more steam generator tubes

3.4 PRIMARY COOLANT SYSTEM (PCS)

3.4.2 PCS Minimum Temperature for Criticality

LCO 3.4.2 Each PCS loop average temperature (T_{ave}) shall be ≥ 525°F.

APPLICABILITY: MODE 1
MODE 2 with $K_{eff} \geq 1.0$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{ave} in one or more PCS loops not within limit.	A.1 Be in MODE 2 with K_{eff} < 1.0.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify PCS T_{ave} in each loop ≥ 525°F.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Required Action C.2 shall be completed whenever this Condition is entered. ----------	C.1 Initiate action to restore parameter(s) to within limits.	Immediately
	AND	
Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.2 Determine PCS is acceptable for continued operation.	Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	----------NOTE---------- Only required to be performed during PCS heatup and cooldown operations. ----------	
	Verify PCS pressure, PCS temperature, and PCS heatup and cooldown rates are within the limits of Figure 3.4.3-1 and Figure 3.4.3-2.	In accordance with the Surveillance Frequency Control Program

3.4 PRIMARY COOLANT SYSTEM (PCS)

3.4.4 PCS Loops - MODES 1 and 2

LCO 3.4.4 Two PCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify each PCS loop is in operation.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 4.	24 hours
C. No PCS loop OPERABLE. OR No PCS loop in operation.	C.1	Suspend all operations involving a reduction of PCS boron concentration.	Immediately
	AND		
	C.2	Initiate action to restore one PCS loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required PCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.2	Verify secondary side water level in each steam generator ≥ -84%.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.3	Verify correct breaker alignment and indicated power available to the required primary coolant pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core, or one PCS loop is in operation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.2	Verify secondary side water level in required SG(s) is ≥ -84%.	In accordance with the Surveillance Frequency Control Program
SR 3.4.6.3	Verify correct breaker alignment and indicated power available to the required pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.2	Verify required SG secondary side water level is ≥ - 84%.	In accordance with the Surveillance Frequency Control Program
SR 3.4.7.3	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SDC train inoperable.	A.1 Initiate action to restore SDC train to OPERABLE status.	Immediately
B. Two SDC trains inoperable. OR SDC flow through the reactor core not within limits.	B.1 Suspend all operations involving reduction of PCS boron concentration. AND B.2 Initiate action to restore one SDC train to OPERABLE status and operation with SDC flow through the reactor core within limit.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	----------NOTE---------- Only required to be met when complying with LCO 3.4.8.a. ---------- Verify one SDC train is in operation with ≥ 2810 gpm flow through the reactor core.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE		FREQUENCY
SR 3.4.8.2	----------NOTE---------- Only required to be met when complying with LCO 3.4.8.b. ---------- Verify one SDC train is in operation with ≥ 650 gpm flow through the reactor core.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.3	----------NOTE---------- Only required to be met when complying with LCO 3.4.8.b. ---------- Verify two of three charging pumps are incapable of reducing the boron concentration in the PCS below the minimum value necessary to maintain the required SHUTDOWN MARGIN.	In accordance with the Surveillance Frequency Control Program
SR 3.4.8.4	Verify correct breaker alignment and indicated power available to the SDC pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition B or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 30 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	----------NOTE---------- Not required to be met until 1 hour after establishing a bubble in the pressurizer and the pressurizer water level has been lowered to within its normal operating band. ---------- Verify pressurizer water level is < 62.8%.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify the capacity of pressurizer heaters from electrical bus 1D, and electrical bus 1E is ≥ 375 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.3	Verify the required pressurizer heater capacity from electrical bus 1E is capable of being powered from an emergency power supply.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	Perform a complete cycle of each block valve.	Once prior to entering MODE 4 from MODE 5 if not performed within previous 92 days
SR 3.4.11.2	Perform a complete cycle of each PORV with PCS average temperature > 200°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	----------NOTE---------- Only required to be met when complying with LCO 3.4.12.a. ---------- Verify both HPSI pumps are incapable of injecting into the PCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify required PCS vent, capable of relieving ≥ 167 gpm at a PCS pressure of 315 psia, is open.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.3	Verify PORV block valve is open for each required PORV.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.4	----------NOTE---------- Not required to be performed until 12 hours after decreasing any PCS cold leg temperature to < 430°F. ---------- Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.5	Perform CHANNEL CALIBRATION on each required PORV actuation channel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	----------NOTES---------- 1. Not required to be performed in MODE 3 or 4 until 12 hours of steady state operation. 2. Not applicable to primary to secondary LEAKAGE. ---------- Verify PCS operational LEAKAGE is within limits by performance of PCS water inventory balance.	----------NOTE-------- Only required to be performed during steady state operation ---------- In accordance with the Surveillance Frequency Control Program
SR 3.4.13.2	---------- NOTE ---------- Not required to be performed until 12 hours after establishment of steady state operation. ---------- Verify primary to secondary LEAKAGE is ≤ 150 gallons per day through any one SG.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTES---------- 1. Only required to be performed in MODES 1 and 2. 2. Leakage rates ≤ 5.0 gpm are unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible leakage rate of 5.0 gpm by 50% or greater. 3. Minimum test differential pressure shall not be less than 150 psid. ----------	
	Verify leakage from each PCS PIV is equivalent to ≤ 5 gpm at a PCS pressure of 2060 psia.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Once prior to entering MODE 2 whenever the plant has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months
SR 3.4.14.2	Verify each SDC suction valve interlock prevents its associated valve from being opened with a simulated or actual PCS pressure signal ≥ 280 psia.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. All required channels inoperable.	C.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment sump level indicator.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform CHANNEL CHECK of the required containment atmosphere gaseous activity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CHECK of the required containment atmosphere humidity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL FUNCTIONAL TEST of the required containment air cooler condensate level switch.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the required containment sump level indicator.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.6	Perform CHANNEL CALIBRATION of the required containment atmosphere gaseous activity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.7	Perform CHANNEL CALIBRATION of the required containment atmosphere humidity monitor.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 ≥ 40 µCi/gm. OR Gross specific activity of the primary coolant not within limit.	B.1 Be in MODE 3 with T_{ave} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify primary coolant gross specific activity ≤ 100/Ē µCi/gm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.2	----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify primary coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 µCi/gm.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Once between 2 and 6 hours after THERMAL POWER change of ≥ 15% RTP within a 1 hour period
SR 3.4.16.3	----------NOTE---------- Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ---------- Determine Ē from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each SIT isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each SIT is $\geq$ 1040 ft^3 and $\leq$ 1176 ft^3.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each SIT is $\geq$ 200 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each SIT is $\geq$ 1720 ppm and $\leq$ 2500 ppm.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.5	Verify power is removed from each SIT isolation valve operator.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the following valves and hand switches are in the open position. Valve/Hand Switch Number — Function CV-3027 — SIRWT Recirc Valve HS-3027A — Hand Switch For CV-3027 HS-3027B — Hand Switch For CV-3027 CV-3056 — SIRWT Recirc Valve HS-3056A — Hand Switch For CV-3056 HS-3056B — Hand Switch For CV-3056	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify CV-3006, "SDC Flow Control Valve," is open and its air supply is isolated.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.5	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify each LPSI pump stops on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. Valve Number — Function MO-3008 — LPSI to Cold leg 1A MO-3010 — LPSI to Cold leg 1B MO-3012 — LPSI to Cold leg 2A MO-3014 — LPSI to Cold leg 2B MO-3082 — HPSI to Hot leg 1 MO-3083 — HPSI to Hot leg 1	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.9	Verify, by visual inspection, the containment sump passive strainer assemblies are not restricted by debris, and the containment sump passive strainer assemblies and other containment sump entrance pathways show no evidence of structural distress or abnormal corrosion.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	Verify SIRWT borated water temperature is ≥ 40°F and ≤ 100°F.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify SIRWT borated water volume is ≥ 250,000 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.3	----------NOTE---------- Only required to be met in MODE 4. ---------- Verify SIRWT borated water volume is ≥ 200,000 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.4	Verify SIRWT boron concentration is ≥ 1720 ppm and ≤ 2500 ppm.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Containment Sump Buffering Agent and Weight Requirements

LCO 3.5.5 Buffer baskets shall contain ≥ 8,186 lbs and ≤10,553 lbs of Sodium Tetraborate Decahydrate (STB) $Na_2B_4O_7 \cdot 10H_2O$.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. STB not within limits.	A.1 Restore STB to within limits.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 30 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.5.1	Verify the STB baskets contain ≥ 8,186 lbs and ≤10,553 lbs of equivalent weight sodium tetraborate decahydrate.	In accordance with the Surveillance Frequency Control Program
SR 3.5.5.2	Verify that a sample from the STB baskets provides adequate pH adjustment of borated water.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ---------- Perform required air lock leakage rate testing in accordance with the Containment Leak Rate Testing Program.	In accordance with the Containment Leak Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Verify each 8 inch purge valve and 12 inch air room supply valve is locked closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each manual containment isolation valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured in position, and is required to be closed during accident conditions, is closed, except for containment isolation valves that are open under administrative controls.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each manual containment isolation valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured in position, and required to be closed during accident conditions, is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.3.5	Verify each containment 8 inch purge exhaust and 12 inch air room supply valve is closed by performance of a leakage rate test.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.6	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≤ 1.0 psig in MODES 1 and 2 and ≤ 1.5 psig in MODES 3 and 4.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limit.	A.1 Restore containment pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1	Verify containment pressure is within limit.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be ≤ 140°F.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Containment average air temperature not within limit.	A.1	Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	Verify containment average air temperature is within limit.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.2	Operate each Containment Air Cooler Fan Unit for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.3	Verify the containment spray piping is full of water to the 735 ft elevation in the containment spray header.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.4	Verify total service water flow rate, when aligned for accident conditions, is ≥ 4800 gpm to Containment Air Coolers VHX-1, VHX-2, and VHX-3.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.5	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.6.6	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.8	Verify each containment cooling fan starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.9	Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify closure time of each MSIV is ≤ 5 seconds on an actual or simulated actuation signal from each train under no flow conditions.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the closure time of each MFRV and MFRV bypass valve is ≤ 22 seconds on a actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ADV.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each required AFW manual, power operated, and automatic valve in each water flow path and in the steam supply flow path to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	----------NOTE---------- Not required to be met for the turbine driven AFW pump in MODE 3 below 800 psig in the steam generators. ---------- Verify the developed head of each required AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.5.3	----------NOTE---------- Only required to be met in MODES 1, 2 or 3 when AFW is not in operation. ---------- Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.4	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each required AFW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify condensate useable volume is ≥ 100,000 gallons.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	----------NOTE---------- Isolation of CCW flow to individual components does not render the CCW System inoperable. ---------- Verify each CCW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.2	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.3	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each CCW pump starts automatically on an actual or simulated actuation signal in the "with standby power available" mode.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	----------NOTE---------- Isolation of SWS flow to individual components does not render SWS inoperable. ---------- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.2	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.3	----------NOTE---------- Only required to be met in MODES 1, 2, and 3. ---------- Verify each SWS pump starts automatically on an actual or simulated actuation signal in the "with standby power available" mode.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 568.25 ft above mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Verify water temperature of UHS is ≤ 85°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CRV Filtration train for ≥ 10 continuous hours with associated heater (VHX-26A or VHX-26B) operating.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2	Perform required CRV Filtration filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.7.10.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4, and during movement of irradiated fuel assemblies in containment. ---------- Verify each CRV Filtration train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two CRV Cooling trains inoperable during CORE ALTERATIONS, during movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP.	E.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	E.3	Suspend movement of a fuel cask in or over the SFP.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify each CRV Cooling train has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Perform required Fuel Handling Area Ventilation System filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.7.12.2	Verify the flow rate of the Fuel Handling Area Ventilation System, when aligned to the emergency filter bank, is ≥ 5840 cfm and ≤ 8760 cfm.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.13 Engineered Safeguards Room Ventilation (ESRV) Dampers

LCO 3.7.13 Two ESRV Damper trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ESRV Damper trains inoperable.	A.1 Initiate action to isolate associated ESRV Damper train(s).	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Verify each ESRV Damper train closes on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.14 Spent Fuel Pool (SFP) Water Level

LCO 3.7.14 The SFP water level shall be ≥ 647 ft elevation.

----------NOTE----------
SFP level may be below the 647 ft elevation to support fuel cask movement, if the displacement of water by the fuel cask when submerged in the SFP, would raise SFP level to ≥ 647 ft elevation.

APPLICABILITY: During movement of irradiated fuel assemblies in the SFP,
During movement of a fuel cask in or over the SFP.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP water level not within limit.	A.1 Suspend movement of irradiated fuel assemblies in SFP.	Immediately
	AND	
	A.2 Suspend movement of fuel cask in or over the SFP.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify the SFP water level is ≥ 647 ft elevation.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pool (SFP) Boron Concentration

LCO 3.7.15 The SFP boron concentration shall be ≥ 1720 ppm.

APPLICABILITY: When fuel assemblies are stored in the Spent Fuel Pool.

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP boron concentration not within limit.	A.1 Suspend movement of fuel assemblies in the SFP.	Immediately
	AND	
	A.2 Initiate action to restore SFP boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the SFP boron concentration is within limit.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.17 Secondary Specific Activity

LCO 3.7.17 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify the specific activity of the secondary coolant is within limit.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1	Be in MODE 3.	6 hours
	AND		
	F.2	Be in MODE 5.	36 hours
G. Three or more AC sources inoperable.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and voltage for each offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	Verify each DG starts from standby conditions and achieves: a. In ≤ 10 seconds, ready-to-load status; and b. Steady state voltage ≥ 2280 V and ≤ 2520 V, and frequency ≥ 59.5 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	----------NOTES---------- 1. Momentary transients outside the load range do not invalidate this test. 2. This Surveillance shall be conducted on only one DG at a time. 3. This Surveillance shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2. ---------- Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes: a. For ≥ 15 minutes loaded to greater than or equal to peak accident load; and b. For the remainder of the test at a load ≥ 2300 kW and ≤ 2500 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Verify each day tank contains ≥ 2500 gallons of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 68 Hz; b. Within 3 seconds following load rejection, the voltage is ≥ 2280 V and ≤ 2640 V; and c. Within 3 seconds following load rejection, the frequency is ≥ 59.5 Hz and ≤ 61.5 Hz.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.6	Verify each DG, operating at a power factor ≤ 0.9, does not trip, and voltage is maintained ≤ 4000 V during and following a load rejection of ≥ 2300 kW and ≤ 2500 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.7	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected shutdown loads through automatic load sequencer, 3. maintains steady state voltage ≥ 2280 V and ≤ 2520 V, 4. maintains steady state frequency ≥ 59.5 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTE---------- Momentary transients outside the load and power factor ranges do not invalidate this test. ---------- Verify each DG, operating at a power factor ≤ 0.9, operates for ≥ 24 hours: a. For ≥ 100 minutes loaded ≥ its peak accident loading; and b. For the remaining hours of the test loaded ≥ 2300 kW and ≤ 2500 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.9	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify each DG: a. Synchronizes with offsite power source while supplying its associated 2400 V bus upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify the time of each sequenced load is within ± 0.3 seconds of design timing for each automatic load sequencer.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.11	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated safety injection signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through its automatic load sequencer, 3. achieves steady state voltage ≥ 2280 V and ≤ 2520 V, 4. achieves steady state frequency ≥ 59.5 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify the fuel oil storage subsystem contains ≥ a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify stored lube oil inventory is ≥ a 7 day supply.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Fuel Oil Testing Program.	In accordance with the Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is ≥ 200 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove excess accumulated water from the fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.6	Verify the fuel oil transfer system operates to transfer fuel oil from the fuel oil storage tank to each DG day tank and engine mounted tank.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 50 μohm for inter-cell connections, ≤ 360 μohm for inter-rack connections, and ≤ 360 μohm for inter-tier connections.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	Inspect battery cells, cell plates, and racks for visual indication of physical damage or abnormal deterioration that could degrade battery performance.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	Remove visible terminal corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.5	Verify battery connection resistance is ≤ 50 μohm for inter-cell connections, ≤ 360 μohm for inter-rack connections, and ≤ 360 μohm for inter-tier connections.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.6	Verify each required battery charger supplies ≥ 180 amps at ≥ 125 V for ≥ 8 hours.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.7	----------NOTES---------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.8	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ----------	
	Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program <u>AND</u> 12 months when battery shows degradation or has reached 85% of the expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells < 70°F. OR One or more batteries with one or more battery cell parameters not within Category C limits.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify average electrolyte temperature of representative cells is ≥ 70°F.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.3	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program

Table 3.8.6-1 (page 1 of 1)
Battery Surveillance Requirements

PARAMETER	CATEGORY A: NORMAL LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: NORMAL LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[b][c]	≥ 1.205	≥ 1.200 <u>AND</u> Average of connected cells ≥ 1.205	Not more than 0.020 below average connected cells <u>AND</u> Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.

(c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7 Four inverters shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One inverter inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any Preferred AC bus de-energized. ---------- A.1 Restore inverter to OPERABLE status.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to Preferred AC buses.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage, frequency, and alignment to required Preferred AC buses.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. Two or more inoperable distribution subsystems that result in a loss of function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and Preferred AC bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate actions to restore required AC, DC, and Preferred AC bus electrical power distribution subsystems to OPERABLE status.	Immediately
	AND	
	A.2.5 Declare associated required shutdown cooling train inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and Preferred AC bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Primary Coolant System and the refueling cavity shall be maintained at the REFUELING BORON CONCENTRATION.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Boron concentration not within limit.	A.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	A.2	Suspend positive reactivity additions.	Immediately
	AND		
	A.3	Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is at the REFUELING BORON CONCENTRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.9.2.2	----------NOTE---------- Neutron detectors are excluded from the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required to be met containment penetration is in the required status.	In accordance with the Surveillance Frequency Control Program
SR 3.9.3.2	----------NOTE---------- Only required to be met for unisolated containment penetrations. ---------- Verify each required automatic isolation valve closes on an actual or simulated Refueling Containment High Radiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND		
	A.4	Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one SDC train is in operation and circulating primary coolant at a flow rate of ≥ 1000 gpm.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. No SDC train OPERABLE or in operation.	B.1	Suspend operations involving a reduction in primary coolant boron concentration.	Immediately
	AND		
	B.2	Initiate action to restore one SDC train to OPERABLE status and to operation.	Immediately
	AND		
	B.3	Initiate action to close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one SDC train is in operation and circulating primary coolant at a flow rate of ≥ 1000 gpm.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required SDC pump that is not in operation.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Refueling Cavity Water Level

LCO 3.9.6 The refueling cavity water level shall be maintained ≥ 647 ft elevation.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refueling cavity water level not within limit.	A.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify refueling cavity water level is ≥ 647 ft elevation.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals

5.5.17 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

Enclosure Attachment 4 to

PNP 2019-004

Proposed Technical Specification Bases Changes (for information only)
(showing proposed changes; additions are highlighted and deletions are strikethrough)

129 pages follow

INSERT 3

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.1.1 (continued)

f. Isothermal Temperature Coefficient (ITC).

Using the ITC accounts for Doppler reactivity in this calculation because the reactor is subcritical and the fuel temperature will be changing at the same rate as the PCS.

Samarium is not considered in the reactivity analysis since the analysis assumes that the negative reactivity due to Samarium is offset by the positive reactivity of Plutonium built in.

SR 3.1.1.1 requires SDM to be within the limits specified in the COLR. This SDM value ensures the consequences of an MSLB, will be acceptable as a result of a cooldown of the PCS which adds positive reactivity in the presence of a negative moderator temperature coefficient as well as the other events described in the Applicable Safety Analysis. As such, the requirements of this SR must be met whenever the plant is in MODES 3, 4, and 5.

~~The Frequency of 24 hours for the verification of SDM is based on the generally slow change in required boron concentration, and also allows sufficient time for the operator to collect the required data, which may include performing a boron concentration analysis, and completing the calculation.~~

Insert 3

REFERENCES

1. FSAR, Section 5.1
2. FSAR, Section 14.14
3. FSAR, Section 14.3
4. 10 CFR 50.67
5. FSAR, Section 14.2

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.2.1

Core reactivity is verified by periodic comparisons of measured and predicted PCS boron concentrations. The comparison is made considering that other core conditions are fixed or stable including control rod position, moderator temperature, fuel temperature, fuel depletion, and xenon concentration. The Surveillance is performed prior to entering MODE 1 as an initial check on core conditions and design calculations at BOC. The SR is modified by a Note in the Surveillance column which indicates that if the normalization of predicted core reactivity to the measured value is to occur, it must take place within the first 60 Effective Full Power Days (EFPD) after each refueling. This allows sufficient time for core conditions to reach steady state, but prevents operation for a large fraction of the fuel cycle without establishing a benchmark for the design calculations. ~~The required subsequent Frequency of 31 EFPD following the initial 60 EFPD after entering MODE 1, is acceptable, based on the slow rate of core changes due to fuel depletion and the presence of other indicators (e.g., T_q, etc.) for prompt indication of an imbalance.~~ A second Note, "only required after initial 60 EFPD," is added to the Frequency column to allow this.

Insert 3

REFERENCES

1. FSAR, Section 5.1
2. FSAR, Chapter 14

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1

Verification that individual control rod positions are within 8 inches of all other control rods in the group ~~at a 12-hour Frequency~~ allows the operator to detect a control rod that is beginning to deviate from its expected position. ~~The specified Frequency takes into account other control rod position information that is continuously available to the operator in the control room, so that during control rod movement, deviations can be detected. Also protection can be provided by the control rod deviation alarm.~~

Insert 3

SR 3.1.4.2

OPERABILITY of two control rod position indicator channels is required to determine control rod positions, and thereby ensure compliance with the control rod alignment and insertion limits. Performance of a CHANNEL CHECK on the primary and secondary control rod position indication channels provides confidence in the accuracy of the rod position indication systems. The control rod "full in" and "full out" lights, which correspond to the lower electrical limit and the upper electrical limit respectively, provide an additional means for determining the control rod positions when the control rods are at either their fully inserted or fully withdrawn positions.

~~The 12-hour Frequency takes into consideration other information continuously available to the operator in the control room, so that during control rod movement, deviations can be detected, and protection can be provided by the control rod deviation alarm.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.4.3

Verifying each full-length control rod is trippable would require that each full-length control rod be tripped. In MODES 1 and 2, tripping each full-length control rod would result in radial or axial power tilts, or oscillations. Therefore, individual full-length control rods are exercised ~~every 92 days~~ to provide increased confidence that all full-length control rods continue to be trippable, even if they are not regularly tripped. A movement of 6 inches is adequate to demonstrate motion without exceeding the alignment limit when only one control rod is being moved. ~~The 92-day Frequency takes into consideration other information available to the operator in the control room and other surveillances being performed more frequently, which add to the determination of OPERABILITY of the control rods.~~ At any time, if a control rod(s) is immovable, a determination of the trippability of the control rod(s) must be made, and appropriate action taken. Condition 3.1.4 D would apply whenever it is discovered that a single full-length control rod cannot be moved by its operator, yet the control rod is still capable of being tripped (or is fully inserted.)

Insert 3

SR 3.1.4.4

Demonstrating the rod position deviation alarm is OPERABLE verifies the alarm is functional. ~~The 18-month Frequency takes into account other information continuously available to the operator in the control room, so that during control rod movement, deviations can be detected.~~

Insert 3

SR 3.1.4.5

Performance of a CHANNEL CALIBRATION of each control rod position indication channel ensures the channel is OPERABLE and capable of indicating control rod position over the entire length of the control rod's travel with the exception of the secondary rod position indicating channel dead band near the bottom of travel. This dead band exists because the control rod drive mechanism housing seismic support prevents operation of the reed switches. ~~Since this Surveillance must be performed when the reactor is shut down, an 18-month Frequency to be coincident with refueling outage was selected. Operating experience has shown that these components usually pass this Surveillance when performed at a Frequency of once every 18 months. Furthermore, the Frequency takes into account other surveillances being performed at shorter Frequencies, which determine the OPERABILITY of the control rod position indicating systems.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

Verification that the shutdown and part-length rod groups are within their insertion limits prior to an approach to criticality ensures that when the reactor is critical, or being taken critical, the shutdown rods will be available to shut down the reactor, and the required SDM will be maintained following a reactor trip. Verification that the part-length rod groups are within their insertion limits ensures that they do not adversely affect power distribution requirements. This SR ~~and Frequency~~ ensures that the shutdown and part-length rod groups are withdrawn before the regulating rods are withdrawn during a plant startup.

~~Since control rod groups are positioned manually by the control room operator, verification of shutdown and part-length rod group position at a Frequency of 12 hours is adequate to ensure that the shutdown and part-length rod groups are within their insertion limits. Also, the 12-hour Frequency takes into account other information available to the operator in the control room for the purpose of monitoring the status of the shutdown and part-length rod groups.~~

Insert 3

REFERENCES

1. FSAR, Section 5.1
2. FSAR, Section 14.2
3. FSAR, Section 14.6

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.6.1

With the PDIL alarm circuit OPERABLE, verification of each regulating rod group position ~~every 12 hours~~ is sufficient to detect rod positions that may approach the acceptable limits, and to provide the operator with time to undertake the Required Action(s) should the sequence or insertion limits be found to be exceeded.

~~The 12-hour Frequency also takes into account the indication provided by the PDIL alarm circuit and other information about rod group positions available to the operator in the control room.~~

Insert 3

SR 3.1.6.2

Demonstrating the PDIL alarm circuit OPERABLE verifies that the PDIL alarm circuit is functional. ~~The 31-day Frequency takes into account other Surveillances being performed at shorter Frequencies that identify improper control rod alignments.~~

Insert 3

SR 3.1.6.3

Demonstrating the CROOS alarm circuit OPERABLE verifies that the CROOS alarm circuit is functional. ~~The 31-day Frequency takes into account other Surveillances being performed at shorter Frequencies that identify improper control rod alignment.~~

Insert 3

REFERENCES

1. FSAR, Section 5.1
2. 10 CFR 50.46
3. FSAR, Section 14.16
4. FSAR, Section 14.4

BASES

ACTIONS (continued)

D.1

If Required Actions of Condition A, Condition B, or Condition C cannot be completed within the required Completion Time, PHYSICS TESTS must be suspended within 1 hour. Allowing 1 hour for suspending PHYSICS TESTS allows the operator sufficient time to change any abnormal rod configuration back to within the limits of LCO 3.1.4, LCO 3.1.5, and LCO 3.1.6, or to restore Primary Coolant System (PCS) temperature to within the limits of LCO 3.4.2.

SURVEILLANCE REQUIREMENTS

SR 3.1.7.1

Verifying that THERMAL POWER is ≤ 2% RTP as specified in the PHYSICS TEST procedure and required by the safety analysis, ensures that adequate LHR and DNB parameter margins are maintained while LCOs are suspended. ~~The 1 hour Frequency is sufficient, based on the slow rate of power change and increased operational controls in place during PHYSICS TESTS.~~ Insert 3

SR 3.1.7.2

Verifying T_{ave} ≥ 500°F during the PHYSICS TEST ensures that T_{ave} remains in an analyzed range while the LCOs are suspended. ~~The 1 hour Frequency is sufficient, based on the slow rate of change and increased operational controls in place during PHYSICS TESTS.~~ Insert 3

SR 3.1.7.3

Verification that ≥ 1% shutdown reactivity is available for trip insertion is performed by a reactivity balance calculation, considering the following reactivity effects:

a. PCS boron concentration;

b. Control rod group position;

c. PCS average temperature;

d. Fuel burnup based on gross thermal energy generation;

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.3 (continued)

e. Xenon concentration; and

f. Isothermal Temperature Coefficient (ITC).

Using the ITC accounts for Doppler reactivity in this calculation because reactor power is maintained below 2% RTP, and for most of the PHYSIC TESTS below the point of adding heat the fuel temperature will be changing at the same rate as the PCS.

~~The Frequency of 24 hours is based on the generally slow change in boron concentration and on the low probability of an accident occurring without the SDM established by LCO 3.1.5.~~

Insert 3

REFERENCES

1. 10 CFR 50, Appendix B, Section XI
2. 10 CFR 50.59
3. Regulatory Guide 1.68, Revision 2, August 1978
4. ANSI/ANS-19.6.1-2005, November 29, 2005

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.1.1

The Incore Alarm portion of the Incore Monitoring System provides continuous monitoring of LHR through the plant computer. The PIDAL computer program is used to generate alarm setpoints for the plant computer that are based on measured margin to allowed LHR. As the incore detectors are read by the plant computer, they are continuously compared to the alarm setpoints. If the Incore Alarm System LHR monitoring function is inoperable, excore detectors or manual recordings of the incore detector readings may be used to monitor LHR. Periodically monitoring LHR ensures that the assumptions made in the Safety Analysis are maintained. This SR is modified by a Note that states that the SR is only required to be met when the Incore Alarm System is being used to monitor LHR. ~~The 12 hour Frequency is consistent with an SR which is to be performed each shift.~~

Insert 3

SR 3.2.1.2

Continuous monitoring of the LHR is provided by the Incore Alarm System which provides adequate monitoring of the core power distribution and is capable of verifying that the LHR does not exceed its specified limits.

Performance of this SR verifies the Incore Alarm System can accurately monitor LHR by ensuring the alarm setpoints are based on a measured power distribution. Therefore, they are only applicable when the Incore Alarm System is being used to determine the LHR.

The alarm setpoints must be initially adjusted following each fuel loading prior to operation above 50% RTP, and periodically adjusted ~~every 31 Effective Full Power Days (EFPD)~~ thereafter. ~~A 31 EFPD Frequency is consistent with the historical testing frequency of the reactor monitoring system.~~ The SR is modified by a Note which requires the SR to be met only when the Incore Alarm System is being used to determine LHR.

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.2.1.3

SR 3.2.1.3 requires, prior to initial use of the excore LHR monitoring function, verification that the absolute difference of the measured ASI and the target ASI has been ≤ 0.05 for each OPERABLE channel for the last 24 hours using the previous 24 hourly recorded values. Performance of this SR verifies that plant conditions are acceptable for the Excore Monitoring System to accurately monitor the LHR (Ref. 5). The prior to initial use verification identifies that there have been no significant power distribution anomalies while using other monitoring methods, e.g., the incore detectors, which may affected the ability of the excore detectors to monitor LHR.

The SR is modified by a Note that states that the SR is only required to be met when the Excore Monitoring System is being used to monitor LHR. Failure of this SR prevents the Excore Monitoring System from being considered OPERABLE for monitoring of LHR.

SR 3.2.1.4

SR 3.2.1.4 requires verification that THERMAL POWER is less than or equal to the Allowable Power Level (APL) which is limited to not more than 10% greater than the THERMAL POWER at which the APL was last determined. Performance of this SR also verifies that plant conditions are acceptable for the Excore Monitoring System to accurately monitor the LHR (Ref. 5). ~~The 1 hour Frequency is based on engineering judgement and the need to assure that conditions remain acceptable for use of the Excore Monitoring System to monitor LHR.~~ Insert 3

The SR is modified by a Note that states that the SR is only required to be met when the Excore Monitoring System is being used to monitor LHR. Failure of this SR prevents the Excore Monitoring System from being considered OPERABLE for monitoring of LHR.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.2.1.5

SR 3.2.1.5 requires verification that the absolute difference of the measured ASI and the target ASI is ≤ 0.05 every hour. This must be verified on at least 3 of the 4, 2 of the 3, or 2 of the 2 OPERABLE channels, whichever is the applicable case. However, any otherwise OPERABLE channel which indicates an absolute difference of > 0.05 must be considered out of limits. Performance of this SR verifies that plant conditions are acceptable for the Excore Monitoring System to be used to assure LHR is within limits (Ref. 5). ~~The 1 hour Frequency is appropriate because the excore detectors input neutron flux information into the ASI calculation which is normally performed automatically and continuously.~~ Insert 3

The SR is modified by a Note that states that the SR is only required to be met when the Excore Monitoring System is being used to monitor LHR. Failure of this SR (when using an OPERABLE Excore Monitoring System) is a failure to verify that LHR is within limits and is therefore considered a failure to meet the LCO due to LHR not within limits as determined by the Excore Monitoring System.

SR 3.2.1.6

SR 3.2.1.6 requires verification that the QUADRANT POWER TILT is ≤ 0.03. Performance of this SR also verifies that plant conditions are acceptable for the Excore Monitoring System to be used to assure LHR is within limits (Ref. 5). ~~The 24 hour Frequency is based on engineering judgement and the need to identify adverse trends in these parameters prior to their affecting the ability of the Excore Monitoring System to monitor LHR.~~ Insert 3

The SR is modified by a Note that states that the SR is only required to be met when the Excore Monitoring System is being used to monitor LHR. Failure of this SR (when using an OPERABLE Excore Monitoring System) is a failure to verify that LHR is within limits and is therefore considered a failure to meet the LCO due to LHR not within limits as determined by the Excore Monitoring System.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.2.1

The periodic Surveillance to determine F_R^T ensures that F_R^T remains within the range assumed in the analysis throughout the fuel cycle. Determining F_R^T using the incore detectors after each fuel loading prior to the reactor exceeding 50% RTP ensures that the core is properly loaded.

~~Performance of the Surveillance every 31 Effective Full Power Days (EFPD) ensures that unacceptable changes in F_R^T are promptly detected.~~

Insert 3

REFERENCES None

BASES

ACTIONS (continued)

C.1

If T_q is > 0.15, or if Required Actions and associated Completion Times are not met, THERMAL POWER must be reduced to ≤ 25% RTP. This requirement ensures that the core is operating within its thermal limits and places the core in a conservative condition. Four hours is a reasonable time to reach 25% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.3.1

QUADRANT POWER TILT (T_q) is determined from excore detector readings which are calibrated using incore detector measurements (Ref. 1). Calibration factors are determined using incore measurements and an incore analysis computer program (Ref. 2). Each power range channel provides alarms if T_q exceeds its limits. Therefore, with all power range channels OPERABLE, this SR only requires verification that the channel deviation alarms do not indicate an excessive T_q. If the Excore Monitoring System T_q deviation alarm monitoring function is inoperable, excore detector readings or symmetric incore detector readings may be used to monitor T_q at 12 hour intervals. ~~The 12 hour Frequency prevents significant xenon redistribution between Surveillances.~~

Insert 3

REFERENCES

1. FSAR, Section 7.6.2.2
2. FSAR, Section 7.6.2.4

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.4.1

Verifying that the ASI is within the limits specified in the COLR ensures that the core is not approaching DNB conditions. ASI is determined from excore detector readings which are calibrated using incore detector measurements (Ref. 1). Calibration factors are determined using incore measurements and an incore analysis computer program (Ref. 2). ASI is normally calculated and compared to the alarm setpoints continuously and automatically. Therefore, this SR only requires verification that alarms do not indicate an excessive ASI. If the Excore Monitoring System ASI Alarm function is inoperable, excore detector or incore indications may be used to monitor ASI. ~~A Frequency of 12 hours is adequate for the operator to identify trends in conditions that result in an approach to the ASI limits, because the mechanisms that affect the ASI, such as xenon redistribution or control rod drive mechanism malfunctions, cause the ASI to change slowly and should be discovered before the limits are exceeded.~~ Insert 3

REFERENCES

1. FSAR, Section 7.6.2.2
2. FSAR, Section 7.6.2.4

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1 (continued)

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limits.

The Containment High Pressure and Loss of Load channels are pressure switch actuated. As such, they have no associated control room indicator and do not require a CHANNEL CHECK.

~~The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is extremely low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.~~ Insert 3

SR 3.3.1.2

This SR verifies that the control room ambient air temperature is within the environmental qualification temperature limits for the most restrictive RPS components, which are the Thermal Margin Monitors. These monitors provide input to both the VHPT Function and the TM/LP Trip Function. ~~The 12 hour Frequency is reasonable based on engineering judgment and plant operating experience.~~ Insert 3

SR 3.3.1.3

A ~~daily~~ calibration (heat balance) is performed when THERMAL POWER is ≥ 15%. The ~~daily~~ calibration consists of adjusting the "nuclear power calibrate" potentiometers to agree with the calorimetric calculation if the absolute difference is ≥ 1.5%. Nuclear power is adjusted via a potentiometer, or THERMAL POWER is adjusted via a Thermal Margin Monitor bias number, as necessary, in accordance with the ~~daily~~ calibration (heat balance) procedure. Performance of the ~~daily~~ calibration ensures that the two inputs to the Q power measurement are indicating accurately with respect to the much more accurate secondary calorimetric calculation.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.3 (continued)

~~The Frequency of 24 hours is based on plant operating experience and takes into account indications and alarms located in the control room to detect deviations in channel outputs.~~

Insert 3

The Frequency is modified by a Note indicating this Surveillance must be performed within 12 hours after THERMAL POWER is ≥ 15% RTP. The secondary calorimetric is inaccurate at lower power levels. The 12 hours allows time requirements for plant stabilization, data taking, and instrument calibration.

SR 3.3.1.4

It is necessary to calibrate the power range excore channel upper and lower subchannel amplifiers such that the measured ASI reflects the true core power distribution as determined by the incore detectors. ASI is utilized as an input to the TM/LP trip function where it is used to ensure that the measured axial power profiles are bounded by the axial power profiles used in the development of the T_{inlet} limitation of LCO 3.4.1. An adjustment of the excore channel is necessary only if reactor power is greater than 25% RTP and individual excore channel ASI differs from AXIAL OFFSET, as measured by the incores, outside the bounds of the following table:

Allowed Reactor Power	Group 4 Rods ≥ 128" withdrawn	Group 4 Rods <128" withdrawn
≤ 100%	-0.020 ≤ (AO-ASI) ≤ 0.020	-0.040 ≤ (AO-ASI) ≤ 0.040
< 95	-0.033 ≤ (AO-ASI) ≤ 0.020	-0.053 ≤ (AO-ASI) ≤ 0.040
< 90	-0.046 ≤ (AO-ASI) ≤ 0.020	-0.066 ≤ (AO-ASI) ≤ 0.040
< 85	-0.060 ≤ (AO-ASI) ≤ 0.020	-0.080 ≤ (AO-ASI) ≤ 0.040
< 80	-0.120 ≤ (AO-ASI) ≤ 0.080	-0.140 ≤ (AO-ASI) ≤ 0.100
< 75	-0.120 ≤ (AO-ASI) ≤ 0.080	-0.140 ≤ (AO-ASI) ≤ 0.100
< 70	-0.120 ≤ (AO-ASI) ≤ 0.080	-0.140 ≤ (AO-ASI) ≤ 0.100
< 65	-0.120 ≤ (AO-ASI) ≤ 0.080	-0.140 ≤ (AO-ASI) ≤ 0.100
< 60	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 55	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 50	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 45	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 40	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 35	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 30	-0.160 ≤ (AO-ASI) ≤ 0.120	-0.180 ≤ (AO-ASI) ≤ 0.140
< 25	Below 25% RTP any AO/ASI difference is acceptable	

Table values determined with a conservative P_{var} gamma constant of –9505.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.4 (continued)

Below 25% RTP any difference between ASI and AXIAL OFFSET is acceptable. A Note indicates the Surveillance is not required to have been performed until 12 hours after THERMAL POWER is ≥ 25% RTP. Uncertainties in the excore and incore measurement process make it impractical to calibrate when THERMAL POWER is < 25% RTP. The 12 hours allows time for plant stabilization, data taking, and instrument calibration.

~~The 31 day Frequency is adequate, based on operating experience of the excore linear amplifiers and the slow burnup of the detectors. The excore readings are a strong function of the power produced in the peripheral fuel bundles and do not represent an integrated reading across the core. Slow changes in neutron flux during the fuel cycle can also be detected at this Frequency.~~ Insert 3

SR 3.3.1.5

A CHANNEL FUNCTIONAL TEST is performed on each RPS instrument channel, except Loss of Load and High Startup Rate, ~~every 92 days~~ to ensure the entire channel will perform its intended function when needed. For the TM/LP Function, the constants associated with the Thermal Margin Monitors must be verified to be within tolerances.

A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment must be consistent with the assumptions of the current setpoint analysis.

~~The Frequency of 92 days is based on the reliability analysis presented in topical report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation" (Ref. 5).~~ Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.6

A calibration check of the power range excore channels is performed using the internal test circuitry ~~is required every 92 days~~. This SR uses an internally generated test signal to check that the 0% and 50% levels read within limits for both the upper and lower detector, both on the analog meter and on the TMM screen. This check verifies that neither the zero point nor the amplifier gain adjustment have undergone excessive drift since the previous complete CHANNEL CALIBRATION.

~~The Frequency of 92 days is acceptable, based on plant operating experience, and takes into account indications and alarms available to the operator in the control room.~~

Insert 3

SR 3.3.1.7

A CHANNEL FUNCTIONAL TEST on the Loss of Load and High Startup Rate channels is performed prior to a reactor startup to ensure the entire channel will perform its intended function.

A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval with applicable extensions~~.

The High Startup Rate trip is actuated by either of the Wide Range Nuclear Instrument Startup Rate channels. NI-1/3 sends a trip signal to RPS channels A and C; NI-2/4 to channels B and D. Since each High Startup Rate channel would cause a trip on two RPS channels, the High Startup Rate trip is not tested when the reactor is critical.

The four Loss of Load Trip channels are all actuated by a single pressure switch monitoring turbine auto stop oil pressure which is not tested when the reactor is critical. Operating experience has shown that these components usually pass the Surveillance when performed at a Frequency of once per 7 days prior to each reactor startup.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.8

SR 3.3.1.8 ~~is the~~ performance~~s~~ ~~of~~ a CHANNEL CALIBRATION ~~every 18 months~~.

CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor (except neutron detectors). The Surveillance verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift between successive calibrations to ensure that the channel remains operational between successive tests. CHANNEL CALIBRATIONS must be consistent with the setpoint analysis.

The bistable setpoints must be found to trip within the Allowable Values specified in the LCO and left set consistent with the assumptions of the setpoint analysis. The Variable High Power Trip setpoint shall be verified to reset properly at several indicated power levels during (simulated) power increases and power decreases.

The as-found and as-left values must also be recorded and reviewed for consistency with the assumptions of the setpoint analysis.

As part of the CHANNEL CALIBRATION of the wide range Nuclear Instrumentation, automatic removal of the ZPM Bypass for the Low PCS Flow, TM/LP must be verified to assure that these trips are available when required.

~~The Frequency is based upon the assumption of an 18 month calibration interval for the determination of the magnitude of equipment drift.~~

Insert 3

This SR is modified by a Note which states that it is not necessary to calibrate neutron detectors because they are passive devices with minimal drift and because of the difficulty of simulating a meaningful signal. Slow changes in power range excore neutron detector sensitivity are compensated for by performing the ~~daily~~ calorimetric calibration (SR 3.3.1.3) and the ~~monthly~~ calibration using the incore detectors (SR 3.3.1.4). Sudden changes in detector performance would be noted during the required CHANNEL CHECKS (SR 3.3.1.1).

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1 (continued)

Trip Initiation Logic Tests

These tests are similar to the Matrix Logic tests, except that test power is withheld from one matrix relay at a time, allowing the initiation circuit to de-energize, de-energizing the affected set of clutch power supplies.

~~The Frequency of 92 days is based on the reliability analysis presented in topical report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation" (Ref. 5).~~

Insert 3

SR 3.3.2.2

A CHANNEL FUNCTIONAL TEST on the Manual Trip channels is performed prior to a reactor startup to ensure the entire channel will perform its intended function if required. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Manual Trip Function is not tested at power. However, the simplicity of this circuitry and the absence of drift concern makes this Frequency adequate. Additionally, operating experience has shown that these components usually pass the Surveillance when performed once within 7 days prior to each reactor startup.

REFERENCES

1. 10 CFR 50, Appendix A
2. 10 CFR 100
3. FSAR, Figure 7-1
4. FSAR, Section 7.2
5. CEN-327, June 2, 1986, including Supplement 1, March 3, 1989
6. 10 CFR 50.67

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.1 (continued)

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. If the channels are normally off scale during times when Surveillance is required, the CHANNEL CHECK will only verify that they are off scale in the same direction. Offscale low current loop channels are verified to be reading at the bottom of the range and not failed downscale.

~~The Frequency of about once every shift is based on operating experience that demonstrates channel failure is rare. Since the probability of two random failures in redundant channels in any 12 hour period is extremely low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of CHANNEL OPERABILITY during normal operational use of displays associated with the LCO required channels.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.2

A CHANNEL FUNCTIONAL TEST is performed ~~every 92 days~~ to ensure the entire channel will perform its intended function when needed. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval with applicable extensions~~.

This test is required to be performed ~~each 92 days~~ on ESF input channels provided with on-line testing capability. It is not required for the SIRWT Low Level channels since they have no built in test capability. The CHANNEL FUNCTIONAL TEST for SIRWT Low Level channels is performed ~~each 18 months~~ as part of the required CHANNEL CALIBRATION.

The CHANNEL FUNCTIONAL TEST tests the individual channels using an analog test input to each bistable.

Any setpoint adjustment shall be consistent with the assumptions of the current setpoint analysis.

~~The Frequency of 92 days is based on the reliability analysis presented in topical report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation" (Reference 5).~~

Insert 3

SR 3.3.3.3

CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. The Surveillance verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift between successive calibrations to ensure that the channel remains operational between successive surveillances. CHANNEL CALIBRATIONS must be performed consistent with the setpoint analysis.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.3 (continued)

The as found and as left values must also be recorded and reviewed for consistency with the assumptions of the extension analysis. The requirements for this review are outlined in Reference 5.

~~The Frequency is based upon the assumption of an 18 month calibration interval for the determination of the magnitude of equipment drift in the setpoint analysis.~~

Insert 3

REFERENCES

1. FSAR, Chapter 7
2. 10 CFR 50, Appendix A
3. IEEE Standard 279-1971
4. FSAR, Chapter 14
5. CEN-327, June 2, 1986, including Supplement 1, March 3, 1989

BASES

ACTIONS (continued)

C.1 and C.2

Condition C is entered when one or more Functions have two Manual Initiation or Actuation Logic channels inoperable for Functions 5 or 6, or when the Required Action and associated Completion Time of Condition A are not met for Functions 5 or 6. If Required Action A.1 cannot be met within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to 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 3.3.4.1

A ~~functional test of each~~ SIS actuation functional test of each channel is~~must be performed each 92 days. This test~~ is ~~to be~~ performed using the installed control room test switches and test circuits for both "with standby power" and "without standby power". When testing the "with standby power" circuits, proper operation of the "SIS-X" relays must be verified; when testing the "without standby power" circuits, proper operation of the "DBA sequencer" and the associated logic circuit must be verified. The test circuits are designed to block those SIS functions, such as injection of concentrated boric acid, which would interfere with plant operation.

~~The Frequency of 92 days is based on plant operating experience.~~

Insert 3

SR 3.3.4.2

A CHANNEL FUNCTIONAL TEST of each AFAS Actuation Logic Channel is performed ~~every 92 days~~ to ensure the channel will perform its intended function when needed. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval with applicable extensions~~.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.2 (continued)

Instrumentation channel tests are addressed in LCO 3.3.3.

SR 3.3.4.2 addresses Actuation Logic tests of the AFAS using the installed test circuits.

~~The Frequency of 92 days for SR 3.3.4.2 is in agreement with the conclusions of the reliability analysis presented in topical report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation" (Ref. 2).~~

Insert 3

SR 3.3.4.3

A CHANNEL FUNCTIONAL TEST is performed on the manual ESF initiation channels, Actuation Logic channels, and bypass removal channels for specified ESF Functions. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

This Surveillance verifies that the required channels will perform their intended functions when needed.

~~The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at a Frequency of once every 18 months.~~

Insert 3

REFERENCES

1. FSAR, Chapter 7

2. CEN-327, June 2, 1986, including Supplement 1, March 3, 1989

BASES

ACTIONS (continued)

A.1

Condition A applies if one or more of the three phase UV sensors or relay logic is inoperable for one or more Functions (Degraded Voltage or Loss of Voltage) per DG bus.

The affected DG must be declared inoperable and the appropriate Condition(s) entered. Because of the three-out-of-three logic in both the Loss of Voltage and Degraded Voltage Functions, the appropriate means of addressing channel failure is declaring the DG inoperable, and effecting repair in a manner consistent with other DG failures.

Required Action A.1 ensures that Required Actions for the affected DG inoperabilities are initiated. Depending upon plant MODE, the actions specified in LCO 3.8.1 or LCO 3.8.2, as applicable, are required immediately.

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1

A CHANNEL FUNCTIONAL TEST is performed on each UV Start logic channel ~~every 18 months~~ to ensure that the logic channel will perform its intended function when needed. The Undervoltage sensing relays are tested by SR 3.3.5.2. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications ~~tests at least once per refueling interval with applicable extensions~~.

~~The Frequency of 18 months is based on the plant conditions necessary to perform the test.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.2

A CHANNEL CALIBRATION ~~performed each 18 months~~ verifies the accuracy of each component within the instrument channel. This includes calibration of the undervoltage relays and demonstrates that the equipment falls within the specified operating characteristics defined by the manufacturer.

The Surveillance verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift between successive calibrations to ensure that the channel remains operational between successive tests. CHANNEL CALIBRATIONS must be performed consistent with the setpoint analysis.

~~The Frequency of 18 months is a typical refueling cycle. Operating experience has shown this Frequency is acceptable.~~

Insert 3

REFERENCES

1. 10 CFR 50, Appendix A GDCs 17 and 21
2. FSAR, Section 8.6
3. Analysis EA-ELEC-VOLT-033
4. Analysis EA-ELEC-VOLT-034
5. Analysis EA-ELEC-EDSA-04
6. FSAR, Chapter 14
7. Analysis EA-ELEC-EDSA-03
8. Analysis A-NL-92-111
9. Analysis 0098-0189-CALC-001

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1 (continued)

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or actual differing radiation levels at the two detector locations. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

~~The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.~~

Insert 3

SR 3.3.6.2

A CHANNEL FUNCTIONAL TEST is performed on each Refueling CHR channel to ensure the entire channel will perform its intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests ~~at least once per refueling interval with applicable extensions~~.

~~The Frequency of 31 days is based on plant operating experience with regard to channel OPERABILITY, which demonstrates that failure of more than one channel of a given Function in any 31 day interval is a rare event.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.3

A CHANNEL FUNCTIONAL TEST is performed on each CHR Manual Initiation channel to ensure it will perform its intended function.

~~The Frequency of 18 months is based on plant operating experience with regard to channel OPERABILITY, and is consistent with the testing of other manually actuated functions.~~

Insert 3

SR 3.3.6.4

A CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The Surveillance verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift between successive calibrations to ensure that the channel remains operational between successive tests.

No required setpoint is specified because these instruments are not assumed to function by any of the safety analyses.

~~The Frequency is based upon the assumption of an 18 month calibration interval in the setpoint determination.~~

Insert 3

REFERENCES

1. FSAR, Section 7.3
2. FSAR, Section 14.19

BASES

SURVEILLANCE REQUIREMENTS

A Note at the beginning of the Surveillance Requirements specifies that the following SRs apply to each PAM instrumentation Function in Table 3.3.7-1.

SR 3.3.7.1

Performance of the CHANNEL CHECK ~~once every 31 days~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verify the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. If the channels are normally off scale during times when surveillance is required, the CHANNEL CHECK will only verify that they are off scale in the same direction. Off scale low current loop channels are verified to be reading at the bottom of the range and not failed downscale.

As indicated in the SR, a CHANNEL CHECK is only required for those channels which are normally energized.

~~The Frequency of 31 days is based upon plant operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given Function in any 31 day interval is a rare event. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel during normal operational use of the displays associated with this LCO's required channels.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.2

A ~~CHANNEL CALIBRATION is performed every 18 months or approximately every refueling.~~ CHANNEL CALIBRATION is typically a complete check of the instrument channel including the sensor. Therefore, this SR is modified by a Note, which states that it is not necessary to calibrate neutron detectors because of the difficulty of simulating a meaningful signal. Wide range and source range nuclear instrument channels are not calibrated to indicate the actual power level or the flux in the detector location. The circuitry is adjusted so that wide range and source range readings may be used to determine the approximate reactor flux level for comparative purposes. The Surveillance verifies the channel responds to the measured parameter within the necessary range and accuracy.

For the core exit thermocouples, a CHANNEL CALIBRATION is performed by substituting a known voltage for the thermocouple.

~~The Frequency is based upon operating experience and consistency with the typical industry refueling cycle and is justified by an 18 month calibration interval for the determination of the magnitude of equipment drift.~~ Insert 3

REFERENCES

1. FSAR, Appendix 7C, "Regulatory Guide 1.97 Instrumentation"
2. Regulatory Guide 1.97
3. NUREG-0737, Supplement 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1

This SR applies to the startup range neutron flux monitoring channel. The CHANNEL FUNCTIONAL TEST consists of verifying proper response of the channel to the internal test signals, and verification that a detectable signal is available from the detector. After lengthy shutdown periods flux may be below the range of the channel indication. Signal verification with test equipment is acceptable.

The CHANNEL FUNCTIONAL TEST of the startup range neutron flux monitoring channel is performed once within 7 days prior to reactor startup. The Frequency is based on plant operating experience that demonstrates channel failure is rare.

SR 3.3.8.2

SR 3.3.8.2 verifies that each required Alternate Shutdown System transfer switch and control circuit performs its intended function. This verification is performed from AHSDPs C-150 and C-150A and locally, as appropriate. Operation of the equipment from the AHSDPs C-150 and C-150A is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be maintained in MODE 3 from the auxiliary shutdown panel and the local control stations.

~~The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience demonstrates that Alternate Shutdown System control channels seldom fail to pass the Surveillance when performed at a Frequency of once every 18 months.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.8.3

A CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The Surveillance verifies that the channel responds to the measured parameter within the necessary range and accuracy.

Performance of a CHANNEL CALIBRATION ~~every 18 months~~ on Functions 1 through 15 ensures that the channels are operating accurately and within specified tolerances. This verification is performed from the AHSDPs and locally, as appropriate. A test of the AFW pump suction pressure alarm (Function 15) is included as part of its CHANNEL CALIBRATION. This will ensure that if the control room becomes inaccessible, the plant can be maintained in MODE 3 from the AHSDPs and local control stations.

~~The 18 month Frequency is based upon the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~

Insert 3

~~Operating experience demonstrates that Alternate Shutdown System instrumentation channels seldom fail to pass the Surveillance when performed at a Frequency of once every 18 months. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

This SR is modified by two Notes. Note 1 states that the SR is not required for Functions 16, 17, and 18; Note 2 states that it is not necessary to calibrate neutron detectors because of the difficulty of simulating a meaningful signal. Wide range and source range nuclear instrument channels are not calibrated to indicate the actual power level or the flux in the detector location. The circuitry is adjusted so that wide range and source range readings may be used to determine the approximate reactor flux level for comparative purposes.

REFERENCES

1. FSAR, Section 7.4, "Other Safety Related Protection, Control, and Display Systems"

2. 10 CFR 50, Appendix A, GDC 19 and Appendix R.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.9.1

SR 3.3.9.1 is the performance of a CHANNEL CHECK on each required channel ~~every 12 hours~~. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based upon the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff and should be based on a combination of the channel instrument uncertainties including indication, and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limits. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

~~The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. Since the probability of two random failures in redundant channels in any 12 hour period is extremely low, CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of displays associated with the LCO required channels.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.9.2

SR 3.3.9.2 is the performance of a CHANNEL CALIBRATION. ~~A CHANNEL CALIBRATION is performed every 18 months.~~ The Surveillance is a complete check and readjustment of the neutron flux channel from the preamplifier input through to the remote indicators.

This SR is modified by a Note which states that it is not necessary to calibrate neutron detectors because of the difficulty of simulating a meaningful signal. Wide range and source range nuclear instrument channels are not calibrated to indicate the actual power level or the flux in the detector location. The circuitry is adjusted so that wide range and source range readings may be used to determine the approximate reactor flux level for comparative purposes.

This LCO does not require the OPERABILITY of the High Startup Rate trip function or the Zero Power Mode Bypass removal function. The OPERABILITY of those functions does not have to be verified during performance of this SR. Those functions are addressed in LCO 3.3.1, RPS Instrumentation.

~~This Frequency is the same as that employed for the same channels in the other applicable MODES.~~

Insert 3

REFERENCES

1. 10 CFR 50, Appendix A, GDC 13
2. FSAR, Chapter 7
3. FSAR, Chapter 14

BASES

ACTIONS (continued)

A.1 (continued)

The Completion Time for this Required Action is commensurate with the importance of maintaining the ES pump room atmosphere isolated from the outside environment when the ES pumps are circulating primary coolant.

SURVEILLANCE REQUIREMENTS

SR 3.3.10.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value.

Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the transmitter or the signal processing equipment has drifted outside its limits.

~~The Frequency, about once every shift, is based on operating experience that demonstrates the rarity of channel failure. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.10.2

A CHANNEL FUNCTIONAL TEST is performed on each ESRV Instrumentation channel to ensure the entire channel will perform its intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment must be consistent with the assumptions of the setpoint analyses.

~~The Frequency of 31 days is based on plant operating experience with regard to channel OPERABILITY, which demonstrates that failure of more than one channel of a given Function in any 31 day interval is a rare event.~~ Insert 3

SR 3.3.10.3

CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The Surveillance verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift between successive calibrations to ensure that the channel remains operational between successive tests. CHANNEL CALIBRATIONS must be performed consistent with the setpoint analysis.

~~The Frequency is based upon the assumption of an 18 month calibration interval for the determination of the magnitude of equipment drift in the setpoint analysis.~~ Insert 3

REFERENCES

1. FSAR, Section 7.4.5.2
2. FSAR, Section 14.22

BASES

ACTIONS

A.1

Pressurizer pressure and cold leg temperature are controllable and measurable parameters. PCS flow rate is not a controllable parameter and is not expected to vary during steady state operation. With any of these parameters not within the LCO limits, action must be taken to restore the parameter.

The 2-hour Completion Time for restoration of the parameters provides sufficient time to adjust plant parameters, to determine the cause of the off normal condition, and to restore the readings within limits. The Completion Time is based on plant operating experience.

B.1

If Required Action A.1 is not met within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours. In MODE 2, the reduced power condition eliminates the potential for violation of the accident analysis bounds.

Six hours is a reasonable time that permits the plant power to be reduced at an orderly rate without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1 and SR 3.4.1.2

The Surveillance for monitoring pressurizer pressure and PCS cold leg temperature is performed using installed instrumentation. ~~The 12-hour interval has been shown by operating practice to be sufficient to regularly assess for potential degradation and verify operation is within safety analysis assumptions.~~ Insert 3

SR 3.4.1.3

Measurement of PCS total flow rate verifies that the actual PCS flow rate is within the bounds of the analyses. This verification may be performed by a calorimetric heat balance or other method.

~~The Frequency of 18 months reflects the importance of verifying flow after a refueling outage where the core has been altered, which may have caused an alteration of flow resistance.~~ PCS flow rate must also be verified after plugging of each 10 or more steam generator tubes since plugging 10 or more tubes could result in an increase in PCS flow resistance. Plugging less than 10 steam generator tubes will not have a significant impact on PCS flow resistance and, as such, does not require a verification of PCS flow rate. Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.1.3 (continued)

The SR is modified by a Note that states the SR is only required to be performed 31 EFPD after THERMAL POWER is ≥ 90% RTP. The Note is necessary to allow measurement of the flow rate at normal operating conditions at power in MODE 1. The most common, and perhaps accurate, method used to perform the PCS total flow surveillance is by means of a primary to secondary heat balance (calorimetric) with the plant at or near full rated power. The most accurate results for such a test are obtained with the plant at or near full power when differential temperatures measured across the reactor are the greatest. Consequently, the test should not be performed until reaching near full power (i.e., ≥ 90% RTP) conditions. Similarly, test accuracy is also influenced by plant stability. In order for accurate results to be obtained, steady state plant conditions must exist to permit meaningful data to be gathered during the test. Typically, following an extended shutdown the secondary side of the plant will take up to several days to stabilize after power escalation. It is impracticable to perform a primary to secondary heat balance of the precision required for the PCS flow measurement until stabilization has been achieved. Furthermore, an integral part of the PCS flow heat balance involves the use of Ultrasonic Flow Measurement equipment for measuring steam generator feedwater flow. This equipment requires, stable plant operation at or near full power conditions before it can be used. As such, the Surveillance cannot be performed in MODE 2 or below, and will not yield accurate results if performed below 90% RTP.

REFERENCES

1. FSAR, Section 14.1

BASES

APPLICABILITY

The reactor has been designed and analyzed to be critical in MODES 1 and 2 only and in accordance with this specification. Criticality is not permitted in any other MODE. Therefore, this LCO is applicable in MODE 1, and MODE 2 when $K_{eff} \geq 1.0$.

ACTIONS

A.1

If T_{ave} is below 525°F and cannot be restored in 30 minutes, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 2 with $K_{eff} < 1.0$ within 30 minutes. Rapid reactor shutdown can be readily and practically achieved within a 30 minute period. The allowed time reflects the ability to perform this action and to maintain the plant within the analyzed range.

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1

PCS loop average temperature is required to be verified at or above 525°F ~~every 12 hours~~. ~~The SR to verify PCS loop average temperature every 12 hours takes into account indications and alarms that are continuously available to the operator in the control room.~~

Insert 3

REFERENCES

1. FSAR, Section 14.1.3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

Verification that operation is within the limits of Figure 3.4.3-1 and Figure 3.4.3-2 is required ~~every 30 minutes~~ when PCS pressure and temperature conditions are undergoing planned changes. ~~This Frequency is considered reasonable in view of the control room indication available to monitor PCS status. Also, since temperature rate of change limits are specified in hourly increments, 30 minutes permits assessment and correction for minor deviations within a reasonable time.~~ Calculation of the average hourly cooldown rate must consider changes in reactor vessel inlet temperature caused by initiating shutdown cooling, by starting primary coolant pumps with a temperature difference between the steam generator and PCS, or by stopping primary coolant pumps with shutdown cooling in service. The additional restrictions in Figure 3.4.3-2, required for the reactor vessel head nozzle repairs, use the average core exit temperature to provide the best indication available of the temperature of the head inside material temperature. This indication may be either the average of the core exit thermocouples or the vessel outlet temperature.

Surveillance for heatup and cooldown operations may be discontinued when the definition given in the relevant plant procedure for ending the activity is satisfied.

Insert 3

This SR is modified by a Note that requires this SR be performed only during PCS heatup and cooldown operations. No SR is given for criticality operations because LCO 3.4.2 contains a more restrictive requirement.

REFERENCES

1. Safety Evaluation for Palisades Nuclear Plant License Amendment No. 245, dated January 19, 2012
2. 10 CFR 50, Appendix G
3. Deleted
4. ASTM E 185-82, July 1982
5. 10 CFR 50, Appendix H
6. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E
7. Safety Evaluation for Palisades Nuclear Plant License Amendment No. 218, dated November 8, 2004

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

This SR requires verification ~~every 12 hours~~ of the required number of loops in operation. Verification may include indication of PCS flow, temperature, or pump status, which help to ensure that forced flow is providing heat removal while maintaining the margin to DNB. ~~The Frequency of 12 hours has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions. In addition, control room indication and alarms will normally indicate loop status.~~

Insert 3

REFERENCES

1. FSAR, Section 14.1

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR requires verification ~~every 12 hours~~ that the required number of PCS loops are in operation. Verification include indication of PCS flow, temperature, and pump status, which help ensure that forced flow is providing heat removal and mixing of the soluble boric acid. ~~The Frequency of 12 hours has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within safety analyses assumptions. In addition, control room indication and alarms will normally indicate loop status.~~ Insert 3

SR 3.4.5.2

This SR requires verification ~~every 12 hours~~ that the secondary side water level in each SG is ≥ -84% using the wide range level instrumentation. An adequate SG water level is required in order to have a heat sink for removal of the core decay heat from the primary coolant. ~~The 12 hour interval has been shown by operating practice to be sufficient to regularly assess degradation and verify operation within the safety analyses assumptions.~~ Insert 3

SR 3.4.5.3

Verification that the required PCP is OPERABLE ensures that the single failure criterion is met and that an additional PCS loop can be placed in operation, if needed, to maintain decay heat removal and primary coolant circulation. Verification is performed by verifying proper breaker alignment and power availability to the required PCP that is not in operation such that the PCP is capable of being started and providing forced PCS flow if needed. Proper breaker alignment and power availability means the breaker for the required PCP is racked-in and electrical power is available to energize the PCP motor. ~~The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ Insert 3

REFERENCES None

BASES

ACTIONS (continued)

C.1, C.2.1, and C.2.2

If no PCS loops or SDC trains are OPERABLE, or no PCS loop is in operation and the SDC flow through the reactor core is < 2810 gpm, except during conditions permitted by Note 1 in the LCO section, all operations involving reduction of PCS boron concentration must be suspended. Action to restore one PCS loop or SDC train to OPERABLE status and operation shall be initiated immediately and continue until one loop or train is restored to operation and flow through the reactor core is restored to ≥ 2810 gpm. Boron dilution requires forced circulation for proper mixing, and the margin to criticality must not be reduced in this type of operation. The immediate Completion Times reflect the importance of decay heat removal.

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This SR requires verification ~~every 12 hours~~ that one required loop or train is in operation. This ensures forced flow is providing heat removal and mixing of the soluble boric acid. Verification may include flow rate (SDC only), or indication of flow, temperature, or pump status for the PCP. ~~The 12 hour Frequency has been shown by operating practice to be sufficient to regularly assess PCS loop/SDC train status. In addition, control room indication and alarms will normally indicate loop/train status.~~ Insert 3

SR 3.4.6.2

This SR requires verification ~~every 12 hours~~ of secondary side water level in the required SG(s) ≥ -84% using the wide range level instrumentation. An adequate SG water level is required in order to have a heat sink for removal of the core decay heat from the primary coolant. ~~The 12 hour interval has been shown by operating practice to be sufficient to regularly assess degradation and verify SG status.~~ Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.6.3

Verification that the required pump is OPERABLE ensures that an additional PCS loop or SDC train can be placed in operation, if needed to maintain decay heat removal and primary coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump that is not in operation such that the pump is capable of being started and providing forced PCS flow if needed. Proper breaker alignment and power availability means the breaker for the required pump is racked-in and electrical power is available to energize the pump motor. ~~The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~

Insert 3

REFERENCES

None

BASES (continued)

ACTIONS

A.1 and A.2

If one SDC train is inoperable and any SG has a secondary side water level < -84% (refer to LCO Bases section), redundancy for heat removal is lost. Action must be initiated immediately to restore a second SDC train to OPERABLE status or to restore the water level in the required SGs. Either Required Action A.1 or Required Action A.2 will restore redundant decay heat removal paths. The immediate Completion Times reflect the importance of maintaining the availability of two paths for decay heat removal.

B.1 and B.2

If no SDC trains are OPERABLE or SDC flow through the reactor core is < 2810 gpm, except as permitted in Note 1, all operations involving the reduction of PCS boron concentration must be suspended. Action to restore one SDC train to OPERABLE status and operation shall be initiated immediately and continue until one train is restored to operation and flow through the reactor core is restored to ≥ 2810 gpm. Boron dilution requires forced circulation for proper mixing and the margin to criticality must not be reduced in this type of operation. The immediate Completion Times reflect the importance of maintaining operation for decay heat removal.

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

This SR requires verification ~~every 12 hours~~ that one SDC train is in operation. Verification of the required flow rate ensures forced flow is providing heat removal and mixing of the soluble boric acid. ~~The 12-hour Frequency has been shown by operating practice to be sufficient to regularly assess SDC train status. In addition, control room indication and alarms will normally indicate train status.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.7.2

This SR requires verification ~~every 12 hours~~ of secondary side water level in the required SGs ≥ -84% using the wide range level instrumentation. An adequate SG water level is required in order to have a heat sink for removal of the core decay heat from the primary coolant. The Surveillance is required to be performed when the LCO requirement is being met by use of the SGs. If both SDC trains are OPERABLE, this SR is not needed. ~~The 12-hour Frequency has been shown by operating practice to be sufficient to regularly assess degradation and verify SG status.~~

Insert 3

SR 3.4.7.3

Verification that the second SDC train is OPERABLE ensures that redundant paths for decay heat removal are available. The requirement also ensures that the additional train can be placed in operation, if needed, to maintain decay heat removal and primary coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump that is not in operation such that the SDC pump is capable of being started and providing forced PCS flow if needed. Proper breaker alignment and power availability means the breaker for the required SDC pump is racked-in and electrical power is available to energize the SDC pump motor. The Surveillance is required to be performed when the LCO requirement is being met by one of two SDC trains, e.g., both SGs have < -84% water level. ~~The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~

Insert 3

REFERENCES

1. NRC Information Notice 95-35, "Degraded Ability of Steam Generators to Remove Decay Heat by Natural Circulation"

BASES

ACTIONS (continued)

B.1 and B.2

If no SDC trains are OPERABLE or SDC flow through the reactor core is not within limits, except as provided in Note 1, all operations involving the reduction of PCS boron concentration must be suspended. Action to restore one SDC train to OPERABLE status and operation shall be initiated immediately and continue until one train is restored to operation and flow through the reactor core is restored to within limits. Boron dilution requires forced circulation for proper mixing and the margin to criticality must not be reduced in this type of operation. The immediate Completion Time reflects the importance of maintaining operation for decay heat removal.

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1 and SR 3.4.8.2

These SRs require verification ~~every 12 hours~~ that one SDC train is in operation. Verification of the required flow rate ensures forced circulation is providing heat removal and mixing of the soluble boric acid. ~~The 12 hour Frequency has been shown by operating practice to be sufficient to regularly assess SDC train status. In addition, control room indications and alarms will normally indicate train status.~~

Insert 3

SR 3.4.8.1 and SR 3.4.8.2 are each modified by a Note to indicate the SR is only required to be met when complying with the applicable portion of the LCO. Therefore, it is only necessary to perform either SR 3.4.8.1, or SR 3.4.8.2 based on the method of compliance with the LCO.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.8.3

This SR requires verification ~~every 12 hours~~ that two of the three charging pumps are incapable of reducing the boron concentration in the PCS below the minimum value necessary to maintain the required SHUTDOWN MARGIN. Making the charging pumps incapable reducing the boron concentration in the PCS may be accomplished by electrically disabling the pump motors, blocking potential dilution sources to the pump suction, or by isolating the pumps discharge flow path to the PCS. Verification may include visual inspection of the pumps configuration (e.g., pump breaker position or valve alignment), or the use of other administrative controls. ~~The 12 hour Frequency is based on engineering judgement considering operating practice, administrative control available, and the unlikeness of inadvertently aligning a charging pump for PCS injection during this period.~~ Insert 3

SR 3.4.8.3 is modified by a Note to indicate the SR is only required to be met when complying with LCO 3.4.8.b. When SDC flow through the reactor core is ≥ 2810 gpm, there is no restriction on charging pump operation.

SR 3.4.8.4

Verification that the required number of trains are OPERABLE ensures that redundant paths for heat removal are available and that additional trains can be placed in operation, if needed, to maintain decay heat removal and primary coolant circulation. Verification is performed by verifying proper breaker alignment and indicated power available to the required pump that is not in operation such that the SDC pump is capable of being started and providing forced PCS flow if needed. Proper breaker alignment and power availability means the breaker for the required SDC pump is racked-in and electrical power is available to energize the SDC pump motor. ~~The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ Insert 3

REFERENCES None

BASES

ACTIONS (continued)

D.1 and D.2

If one or more of the electrical buses' required pressurizer heaters cannot be restored to an OPERABLE status within the associated allowed Completion Times, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours and to MODE 4 within 30 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging safety systems. Similarly, the Completion Time of 30 hours is reasonable, based on operating experience, to reach MODE 4 from full power in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

This SR ensures that during steady state operation, pressurizer water level is maintained below the nominal upper limit to provide a minimum space for a steam bubble. The Surveillance is performed by observing the indicated level. SR 3.4.9.1 is modified by a Note which states that verification of the pressurizer water level is not required to be met until 1 hour after a bubble has been established in the pressurizer and the pressurizer water level has been lowered to its normal operating band. The intent of this Note is to prevent an SR 3.0.4 conflict by delaying the performance of this SR until after the water level in the pressurizer is within its normal operating band following a plant heatup. ~~The 12 hour interval has been shown by operating practice to be sufficient to regularly assess the level for any deviation and verify that operation is within safety analyses assumptions. Alarms are also available for early detection of abnormal level indications.~~ Insert 3

SR 3.4.9.2

The SR is satisfied when the power supplies are demonstrated to be capable of producing the minimum power and the capacity of the associated pressurizer heaters are verified to be ≥ 375 kW. (This may be done by testing the power supply output and by performing an electrical check on heater element continuity and resistance.) ~~The Frequency of 18 months is considered adequate to detect heater degradation and has been shown by operating experience to be acceptable.~~ Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.9.3

This SR only applies to the pressurizer heaters normally powered from electrical bus 1E since the pressurizer heaters powered from bus 1D are permanently connected to the engineered safeguards electrical system.

This SR confirms that the pressurizer heaters normally fed from electrical bus 1E are capable of being powered from electrical bus 1C by use of a jumper cable. It is not the intent of this SR to physically install the jumper cable, but to verify the necessary components are available for installation and to ensure the procedures and methods used to install the jumper cable are current. ~~The Frequency of 18 months is based on engineering judgement and is considered acceptable when considering the design reliability of the equipment (the jumper cable is left permanently in place and dedicated to providing the emergency feed function only), and administrative control which govern configuration management and changes to plant procedures.~~

Insert 3

REFERENCES

1. FSAR, Chapter 14
2. FSAR, Section 4.3.7
3. WCAP-16125-NP-A, "Justification for Risk-Informed Modifications to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown," Revision 2, August 2010.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.11.1

Block valve cycling verifies that it can be opened and closed if necessary. The basis for the Frequency of "prior to entering MODE 4 from MODE 5 if not performed in the previous 92 days" reflects the importance of not routinely cycling the block valves during the period when the PCS is pressurized since this practice may result in the associated PORV being opened by the increase inlet pressure to the PORV. The "92 days" portion of the Frequency is consistent with the testing frequency stipulated by ASME Section XI as modified by the Cold Shutdown Testing Basis used in support of the second 120 month interval of the Inservice Valve Testing Program which only requires the block valves to be cycled during Cold Shutdown conditions. If the block valve is closed to isolate a PORV that is capable of being manually cycled, the OPERABILITY of the block valve is of importance because opening the block valve is necessary to permit the PORV to be used for manual control of primary coolant pressure. If a block valve is open and its associated PORV was stuck open, the OPERABILITY of the block valve is of importance because closing the block valve is necessary to isolate the stuck opened PORV.

SR 3.4.11.2

SR 3.4.11.2 requires complete cycling of each PORV. PORV cycling demonstrates its function and is performed when the PCS temperature is > 200°F. Stroke testing of the PORVs above 200°F is desirable since it closer simulates the temperature and pressure environmental effects on the valves and thus represents a better test condition for assessing PORV performance under normal plant conditions. ~~The Frequency of 18 months is based on a typical refueling cycle and industry accepted practice.~~

Insert 3

REFERENCES None

BASES

ACTIONS (continued)

D.1

If two required PORVs are inoperable, or if the Required Actions and the associated Completion Times are not met, or if the LTOP System is inoperable for any reason other than Condition A, B, or C, the PCS must be depressurized and a vent established within 8 hours. The vent must be sized to provide a relieving capability of ≥ 167 gpm at a pressure of 315 psia which ensures the flow capacity is greater than that required for the worst case mass injection transient reasonable during the applicable MODES. This action protects the PCPB from a low temperature overpressure event and a possible brittle failure of the reactor vessel.

The Completion Time of 8 hours to depressurize and vent the PCS is based on the time required to place the plant in this condition and the relatively low probability of an overpressure event during this time period due to operator attention and administrative requirements.

SURVEILLANCE REQUIREMENTS

SR 3.4.12.1

To minimize the potential for a low temperature overpressure event by limiting the mass injection capability, both HPSI pumps are verified to be incapable of injecting into the PCS. The HPSI pumps are rendered incapable of injecting into the PCS by means that assure that a single event cannot cause overpressurization of the PCS due to operation of the pump. Typical methods for accomplishing this are by pulling the HPSI pump breaker control power fuses, racking out the HPSI pump motor circuit breaker, or closing the manual discharge valve.

SR 3.4.12.1 is modified by a Note which only requires the SR to be met when complying with LCO 3.4.12.a. When all PCS cold leg temperature are ≥ 300°F, a start of both HPSI pumps in conjunction with a charging/letdown imbalance will not cause the PCS pressure to exceed the 10 CFR 50 Appendix G limits. Thus, this SR is only required when any PCS cold leg temperature is reduced to less than 300°F.

~~The 12 hour interval considers operating practice to regularly assess potential degradation and to verify operation within the safety analysis.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.12.2

SR 3.4.12.2 requires a verification that the required PCS vent, capable of relieving ≥ 167 gpm at a PCS pressure of 315 psia, is OPERABLE by verifying its open condition ~~either:~~

~~a. Once every 12 hours for a valve that is not locked open; or~~

~~b. Once every 31 days for a valve that is locked open.~~

Insert 3

The passive vent arrangement must only be open to be OPERABLE. This Surveillance need only be performed if vent valves are being used to satisfy the requirements of this LCO. This Surveillance does not need to be performed for vent paths relying on the removal of a steam generator primary manway cover, pressurizer manway cover, safety valve or PORV since their position is adequately addressed using administrative controls and the inadvertent reinstallation of these components is unlikely. The Frequencies consider operating experience with mispositioning of unlocked and locked vent valves, respectively.

SR 3.4.12.3

The PORV block valve must be verified open ~~every 72 hours~~ to provide the flow path for each required PORV to perform its function when actuated. The valve can be remotely verified open in the main control room.

The block valve is a remotely controlled, motor operated valve. The power to the valve motor operator is not required to be removed, and the manual actuator is not required locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure event.

~~The 72 hour Frequency considers operating experience with accidental movement of valves having remote control and position indication capabilities available where easily monitored. These considerations include the administrative controls over main control room access and equipment control.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.12.4

~~Performance of a CHANNEL FUNCTIONAL TEST is required every 31 days.~~ A successful CHANNEL FUNCTIONAL TEST ~~test~~ of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay ~~This is acceptable because all of the Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.~~ PORV actuation could depressurize the PCS and is not required. ~~The 31 day Frequency considers experience with equipment reliability.~~

Insert 3

A Note has been added indicating this SR is required to be performed 12 hours after decreasing any PCS cold leg temperature to < 430°F. This Note allows a discrete period of time to perform the required test without delaying entry into the MODE of Applicability for LTOP. This option may be exercised in cases where an unplanned shutdown below 430°F is necessary as a result of a Required Action specifying a plant shutdown, or other plant evolutions requiring an expedited cooldown of the plant. The test must be performed within 12 hours after entering the LTOP MODES.

SR 3.4.12.5

Performance of a CHANNEL CALIBRATION on each required PORV actuation channel is required ~~every 18 months~~ to adjust the entire channel so that it responds and the valve opens within the required LTOP range and with accuracy to known input.

~~The 18 month Frequency considers operating experience with equipment reliability and is consistent with the typical refueling outage schedule.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.13.1 (continued)

Note 2 states that this SR is not applicable to primary to secondary LEAKAGE because LEAKAGE of 150 gallons per day cannot be measured accurately by an RCS water inventory balance.

~~The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.~~ A Note under the Frequency column states that this SR is required to be performed during steady state operation.

Insert 3

SR 3.4.13.2

This SR verifies that primary to secondary LEAKAGE is less or equal to 150 gallons per day through any one SG. Satisfying the primary to secondary LEAKAGE limit ensures that the operational LEAKAGE performance criterion in the Steam Generator Program is met. If this SR is not met, compliance with LCO 3.4.17, "Steam Generator Tube Integrity," should be evaluated. The 150 gallons per day limit is measured at room temperature as described in Reference 7. The operational LEAKAGE rate limit applies to LEAKAGE through any one SG. If it is not practical to assign the LEAKAGE to an individual SG, all the primary to secondary LEAKAGE should be conservatively assumed to be from one SG.

The Surveillance is modified by a Note which states that the Surveillance is not required to be performed until 12 hours after establishment of steady state operation. For RCS primary to secondary LEAKAGE determination, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows.

~~The Surveillance Frequency of 72 hours is a reasonable interval to trend primary to secondary LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.~~ The primary to secondary LEAKAGE is determined using continuous process radiation monitors or radiochemical grab sampling in accordance with the EPRI guidelines (Ref. 7).

Insert 3

BASES

ACTIONS (continued)

C.1

The inoperability of the SDC suction valve interlocks renders the SDC suction isolation valves incapable of preventing an inadvertent opening of the valves at PCS pressures in excess of the SDC systems design pressure. If the SDC suction valve interlocks are inoperable, operation may continue as long as the suction penetration is closed by at least one closed deactivated valve within 4 hours. This action accomplishes the purpose of the interlock. The 4 hour Completion Time provides time to accomplish the action and restricts operation with an inoperable interlock.

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1

Performance of leakage testing on each PCS PIV or isolation valve used to satisfy Required Action A.1 is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition.

For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

Testing is to be performed every 9 months whenever the plant has been in MODE 5 for 7 days or more, but may be extended up to a maximum of 18 months, a typical refueling cycle, if the plant does not go into MODE 5 for at least 7 days. ~~The 18 month Frequency is consistent with 10 CFR 50.55a(f), as contained in the INSERVICE TESTING PROGRAM, and is within the frequency allowed by the American Society of Mechanical Engineers (ASME) Code (Ref. 3), and is based on the need to perform the Surveillance under conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~

Insert 3

The leakage limit is to be met at the PCS pressure associated with MODES 1 and 2. This permits leakage testing at high differential pressures with stable conditions not possible in the MODES with lower pressures.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1 (continued)

SR 3.4.14.1 is modified by three Notes. Note 1 states that the SR is only required to be performed in MODES 1 and 2. Entry into MODES 3 and 4 is allowed to establish the necessary differential pressure and stable conditions to allow performance of this surveillance.

Note 2 further restricts the PIV leakage rate acceptance criteria by limiting the reduction in margin between the measured leakage rate and the maximum permissible leakage rate by 50% or greater. Reductions in margin by 50% or greater may be indicative of PIV degradation and warrant inspection or additional testing. Thus, leakage rates less than 5.0 gpm are considered acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

Note 3 limits the minimum test differential pressure to 150 psid during performance of PIV leakage testing.

SR 3.4.14.2

Verifying that the SDC suction valve interlocks are OPERABLE ensures that PCS pressure will not pressurize the SDC system beyond 125% of its design pressure of 300 psig. The interlock setpoint that prevents the valves from being opened is set so the actual PCS pressure must be < 280 psia to open the valves. This setpoint ensures the SDC design pressure will not be exceeded and the SDC relief valves will not lift. The narrow range pressure transmitters that provide the SDC suction valve interlocks are sensed from the pressurizer. Due to the elevation differences between these narrow range pressure transmitter calibration points and the SDC suction piping, the pressure in the SDC suction piping will be higher than the indicated pressurizer pressure. Due to this pressure difference, the SDC suction valve interlocks are conservatively set at or below 280 psia to ensure that the 300 psig (315 psia) design pressure of the suction piping is not exceeded. ~~The 18 month Frequency is based on the need to perform these Surveillances under conditions that apply during a plant outage. The 18 month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment.~~

Insert 3

BASES

ACTIONS (continued)

C.1

If all required monitors are inoperable, no automatic means of monitoring leakage are available and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

SR 3.4.15.1, SR 3.4.15.2, and SR 3.4.15.3

These SRs require the performance of a CHANNEL CHECK for each required containment sump level indicator, containment atmosphere gaseous activity monitor, and containment atmosphere humidity monitor. The check gives reasonable confidence the channel is operating properly. ~~The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.~~

Insert 3

SR 3.4.15.4

SR 3.4.15.4 requires the performance of a CHANNEL FUNCTIONAL TEST of the required containment air cooler condensate level switch. Since this instrumentation does not include control room indication of flow rate, a CHANNEL CHECK is not possible. The test ensures that the level switch can perform its function in the desired manner. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. ~~The Frequency of 18 months is a typical refueling cycle (performance of the test is only practical during a plant outage) and considers instrument reliability. Operating experience has shown this Frequency is acceptable for detecting degradation.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.15.5, SR 3.4.15.6, and SR 3.4.15.7

These SRs require the performance of a CHANNEL CALIBRATION for each required containment sump level, containment atmosphere gaseous activity, and containment atmosphere humidity channel. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. ~~The Frequency of 18 months is a typical refueling cycle and considers channel reliability. Operating experience has shown this Frequency is acceptable.~~ Insert 3

REFERENCES

1. FSAR, Section 5.1.5
2. FSAR, Sections 4.7 and 6.3

BASES

ACTIONS (continued)

B.1

If a Required Action and associated Completion Time of Condition A is not met or if the DOSE EQUIVALENT I-131 is 40 μCi/gm or above, or with the gross specific activity in excess of the allowed limit, the plant must be placed in a MODE in which the requirement does not apply.

The change within 6 hours to MODE 3 with PCS average temperature < 500°F lowers the saturation pressure of the primary 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 required to reach MODE 3 below 500°F from full power conditions and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.16.1

The Surveillance requires performing a gamma isotopic analysis as a measure of the gross specific activity of the primary coolant ~~at least once per 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 PCS average temperature at least 500°F. ~~The 7 day Frequency considers the unlikelihood of a gross fuel failure during the time.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.16.2

This Surveillance is performed to ensure iodine remains within limits 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 hours and 6 hours after any power change of ≥ 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. If any (may be more than one) power change ≥ 15% RTP occurs within a 1 hour period, then more than one sample may be required to ensure that an iodine peak sample is obtained between the 2 and 6 hour Frequency requirement. This SR is modified by a Note which states that the SR is only required to be performed in MODE 1. Entrance into a lower MODE does not preclude completion of this surveillance.

Insert 3

SR 3.4.16.3

A radiochemical analysis for Ē determination is required ~~every 184 days (6 months)~~ with the plant operating in MODE 1 equilibrium conditions. The Ē determination directly relates to the LCO and is required to verify plant operation within the specified gross activity LCO limit. The analysis for Ē 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 Ē does not change rapidly.~~

Insert 3

This SR has been modified by a Note that indicates sampling is required to be performed within 31 days after 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 the radioactive materials are at equilibrium so the analysis for Ē is representative and not skewed by a crud burst or other similar abnormal event.

REFERENCES

1. FSAR, Section 14.15

BASES

ACTIONS (continued)

C.1

If the SIT cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power condition in an orderly manner and without challenging plant systems.

D.1

If more than one SIT is inoperable, the plant is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

Verification ~~every 12 hours~~ that each SIT isolation valve is fully open, as indicated in the control room, ensures that SITs are available for injection and ensures timely discovery if a valve should be partially closed. If an isolation valve is not fully open, the rate of injection to the PCS would be reduced. Although a motor operated valve should not change position with power removed, a closed valve could result in not meeting accident analysis assumptions. ~~A 12 hour Frequency is considered reasonable in view of other administrative controls that ensure the unlikelihood of a mispositioned isolation valve.~~

Insert 3

SR 3.5.1.2 and SR 3.5.1.3

SIT borated water volume and nitrogen cover pressure should be verified to be within specified limits ~~every 12 hours~~ in order to ensure adequate injection during a LOCA. ~~Due to the static design of the SITs, a 12 hour Frequency usually allows the operator sufficient time to identify changes before the limits are reached. Operating experience has shown this Frequency to be appropriate for early detection and correction of off normal trends.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.4

~~Thirty-one days is reasonable for verification to determine that each SIT's boron concentration is within the required limits, because the static design of the SITs limits the ways in which the concentration can be changed. The 31 day Frequency is adequate to identify changes that could occur from mechanisms such as stratification or inleakage.~~

Insert 3

SR 3.5.1.5

Verification ~~every 31 days~~ that power is removed from each SIT isolation valve operator ensures that an active failure could not result in the undetected closure of an SIT motor operated isolation valve. If this were to occur, only two SITs would be available for injection, given a single failure coincident with a LOCA. ~~Since installation and removal of power to the SIT isolation valve operators is conducted under administrative control, the 31 day Frequency was chosen to provide additional assurance that power is removed.~~

Insert 3

REFERENCES

1. FSAR, Section 14.17

2. FSAR, Chapter 6.1

3. CE-NPSD-994, "CEOG Joint Applications Report for Safety Injection Tank AOT/STI Extension," May 1995

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1

Verification of proper valve position ensures that the flow path from the ECCS pumps to the PCS is maintained. CV-3027 and CV-3056 are stop valves in the minimum recirculation flow path for the ECCS pumps. If either of these valves were closed when the PCS pressure was above the shutoff head of the ECCS pumps, the pumps could be damaged by running with insufficient flow and thus render both ECCS trains inoperable.

Placing HS-3027A and HS-3027B for CV-3027, and HS-3056A and HS-3056B for CV-3056, in the open position ensures that the valves cannot be inadvertently misaligned or change position as the result of an active failure. These valves are of the type described in Reference 4, which can disable the function of both ECCS trains and invalidate the accident analysis. CV-3027 and CV-3056 are capable of being closed from the control room since the SIRWT must be isolated from the containment during the recirculation phase of a LOCA. ~~A 12 hour Frequency is considered reasonable in view of other administrative controls ensuring that a mispositioned valve is an unlikely possibility.~~

Insert 3

SR 3.5.2.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an actuation signal is allowed to be in a nonaccident position provided the valve automatically repositions within the proper stroke time. This Surveillance does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned are in the correct position.

~~The 31 day Frequency is appropriate because the valves are operated under procedural control and an improper valve position would only affect a single train. This Frequency has been shown to be acceptable through operating experience.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.5.2.3

SR 3.5.2.3 verifies CV-3006 is in the open position and that its air supply is isolated. CV-3006 is the shutdown cooling flow control valve located in the common LPSI flow path. The valve must be verified in the full open position to support the low pressure injection flow assumptions used in the accident analyses. The inadvertent misposition of this valve could result in a loss of low pressure injection flow and thus invalidate these flow assumptions. CV-3006 is designed to be held open by spring force and closed by air pressure. To ensure the valve cannot be inadvertently misaligned or change position as the result of a hot short in the control circuit, the air supply to CV-3006 is isolated. Isolation of the air supply to CV-3006 is acceptable since the valve does not require automatic repositioning during an accident.

~~The 31 day Frequency has been shown to be acceptable through operating practice and the unlikely occurrence of the air supply to CV-3006 being unisolated coincident with a inadvertent valve misalignment event or a hot short in the control circuit.~~

Insert 3

SR 3.5.2.4

Periodic surveillance testing of ECCS pumps to detect gross degradation caused by impeller damage or other hydraulic component problems is required by the ASME Code. This type of testing may be accomplished by measuring the pump developed head at only one point of the pump characteristic curve. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the plant safety analysis. SRs are specified in the INSERVICE TESTING PROGRAM of the ASME Code. The ASME Code provides the activities and Frequencies necessary to satisfy the requirements.

SR 3.5.2.5, SR 3.5.2.6, and SR 3.5.2.7

These SRs demonstrate that each automatic ECCS valve actuates to the required position on an actual or simulated actuation signal, i.e., on an SIS or RAS, that each ECCS pump starts on receipt of an actual or simulated actuation signal, i.e., on an SIS, and that the LPSI pumps stop on receipt of an actual or simulated actuation signal, i.e., on an RAS. RAS opens the HPSI subcooling valve CV-3071, if the associated HPSI pump is operating. After the containment sump valve CV-3030 opens from RAS, HPSI subcooling valve CV-3070 will open, if the associated HPSI pump is operating. RAS will re-position CV-3001 and CV-3002 to a predetermined throttled position. RAS will close

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.5, SR 3.5.2.6, and SR 3.5.2.7

containment spray valve CV-3001, if containment sump valve CV-3030 does not open. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls.

~~The 18 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for unplanned transients if the Surveillances were performed with the reactor at power. The 18 month Frequency is also acceptable based on consideration of the design reliability of the equipment and operating experience.~~ The actuation logic is tested as part of the Engineered Safety Feature (ESF) testing, and equipment performance is monitored as part of the INSERVICE TESTING PROGRAM.

Insert 3

SR 3.5.2.8

The HPSI Hot Leg Injection motor operated valves and the LPSI loop injection valves have position switches which are set at other than the full open position. This surveillance verifies that these position switches are set properly.

The HPSI Hot leg injection valves are manually opened during the post-LOCA long term cooling phase to admit HPSI injection flow to the PCS hot leg. The open position limit switch on each HPSI hot leg isolation valves is set to establish a predetermined flow split between the HPSI injection entering the PCS hot leg and cold legs.

The LPSI loop injection MOVs open automatically on a SIS signal. The open position limit switch on each LPSI loop injection valve is set to establish the maximum possible flow through that valve. The design of these valves is such that excessive turbulence is developed in the valve body when the valve disk is at the full open position. Stopping the valve travel at slightly less than full open reduces the turbulence and results in increased flow. Verifying that the position stops are properly set ensures that a single low pressure safety injection subsystem is capable of delivering the flow rate required in the safety analysis.

~~The 18 month Frequency is based on the same factors as those stated above for SR 3.5.2.5, SR 3.5.2.6, and SR 3.5.2.7.~~

Insert 3

BASES

SR 3.5.2.9

Periodic inspection of the ECCS containment sump passive strainer assemblies ensures that the post-LOCA recirculation flowpath to the ECCS train containment sump suction inlets is unrestricted. Periodic inspection of the containment sump entrance pathways, which include containment sump passive strainer assemblies, containment sump downcomer debris screens, containment floor drain debris screens, containment sump vent debris screens, and reactor cavity corium plug bottom cup support assemblies, ensures that the containment sump stays in proper operating condition. The migration of LOCA-generated debris larger than the strainer perforation diameter through the two one-inch reactor cavity drain line corium plugs is not considered to be credible. ~~The 18-month Frequency is based on the need to perform this Surveillance under outage conditions. This Frequency is sufficient to detect abnormal degradation and is confirmed by operating experience.~~ Insert 3

REFERENCES

1. FSAR, Section 5.1

2. FSAR, Section 14.17

3. NRC Memorandum to V. Stello, Jr., from R. L. Baer, "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975

4. IE Information Notice No. 87-01, January 6, 1987

5. CE-NPSD-994, "CEOG Joint Applications Report for Safety Injection Tank AOT/STI Extension," May 1995

BASES

ACTIONS (continued)

B.1

With SIRWT borated water volume not within limits, it must be returned to within limits within 1 hour. In this condition, neither the ECCS nor Containment Spray System can perform their design functions; therefore, prompt action must be taken to restore the tank to OPERABLE status or to place the plant in a MODE in which these systems are not required. The allowed Completion Time of 1 hour to restore the SIRWT to OPERABLE status is based on this condition simultaneously affecting multiple redundant trains.

C.1 and C.2

If the SIRWT cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to 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 3.5.4.1

~~SIRWT borated water temperature shall be verified every 24 hours to be within the limits assumed in the accident analysis. This Frequency has been shown to be sufficient to identify temperature changes that approach either acceptable limit.~~

Insert 3

SR 3.5.4.2 and SR 3.5.4.3

~~The minimum SIRWT water volume shall be verified every 7 days. This Frequency ensures that a sufficient initial water supply is available for injection and to support continued ESF pump operation on recirculation. Since the SIRWT volume is normally stable and is provided with a Low Level Alarm, a 7 day Frequency is appropriate and has been shown to be acceptable through operating experience.~~

Insert 3

SR 3.5.4.2 is modified by a Note which states that it is only required to be met in MODES 1, 2, and 3.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.4.2 and SR 3.5.4.3 (continued)

SR 3.5.4.3 is modified by a Note which states that it is only required to be met in MODE 4. The required minimum SIRWT water volume is less in MODE 4 since the PCS temperature and pressure are reduced and a significant volume of water is transferred from the SIRWT to the PCS during MODE 4 to account for primary coolant shrinkage.

SR 3.5.4.4

Boron concentration of the SIRWT shall be verified ~~every 31 days~~ to be within the required range. This ~~Frequency~~ ensures that the reactor will remain subcritical following a LOCA. Further, it ensures that the resulting sump pH will be maintained in an acceptable range such that boron precipitation in the core will not occur earlier than predicted and the effect of chloride and caustic stress corrosion on mechanical systems and components will be minimized.

~~Since the SIRWT volume is normally stable, a 31 day sampling Frequency is appropriate and has been shown through operating experience to be acceptable.~~

Insert 3

REFERENCES

1. FSAR, Chapter 6 and Chapter 14
2. Design Basis Document (DBD) 2.02, "High-Pressure Safety Injection System," Section 3.3.1
3. EOP 4.0, Loss of Coolant Accident

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.5.1

Periodic determination of the mass of STB in containment must be performed due to the possibility of leaking valves and components in the containment building that could cause dissolution of the STB during normal operation. ~~A Frequency of 18 months~~ This is required to determine that ≥ 8,186 lbs and ≤ 10,553 lbs of equivalent weight of decahydrate STB are contained in the STB baskets. In the event that the total STB weight is less than the minimum weight, a chemical test is performed to confirm that the weight change is due to the dehydration of the decahydrate form of the STB. It is not necessary to replenish STB if the minimum weight is not met solely due to dehydration of the material. This requirement ensures that there is an adequate mass of STB to adjust the pH of the post LOCA sump solution to a value ≥ 7.0 and ≤ 8.0.

~~The periodic verification is required every 18 months, since determining the mass of the STB baskets is only feasible during outages, and normal fuel cycles are scheduled for 18 months. Operating experience has shown this Surveillance Frequency acceptable due to the margin in the mass of STB placed in the containment building.~~ Insert 3

SR 3.5.5.2

Periodic testing is performed to ensure the solubility and buffering ability of the STB after exposure to the containment environment. Satisfactory completion of this test assures that the STB in the baskets is "active."

Adequate buffering capability is verified by a measured pH of the sample STB in boric acid solution. The quantity of the STB sample and quantity and boron concentration of the water are chosen to be representative of post-LOCA conditions. The pH is measured at 25°C and is verified to be between 7.0 and 8.0.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.5.2 (continued)

~~A sampling Frequency of every 18 months is specified. Operating experience has shown this Surveillance Frequency to be acceptable.~~

Insert 3

REFERENCES

1. FSAR, Section 6.4

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.2

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit into and out of containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur. Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when the airlock is used for entry and exit (procedures require strict adherence to single door opening)~~, this test is only required to be performed every 24 months~~.

~~The 24 month Frequency for the interlock is justified based on generic operating experience. The Frequency is based on engineering judgment and is considered adequate given that the interlock is not normally challenged during use of the airlock.~~

Insert 3

REFERENCES

1. FSAR, Chapter 14
2. FSAR, Section 5.8
3. 10 CFR 50, Appendix J, Option B

BASES

ACTIONS

C.1 and C.2 (continued)

Required Action C.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

D.1

The purge exhaust and air room supply isolation valves have not been qualified to close following a LOCA and are required to be locked closed. If one or more of these valves is found not locked closed, the potential exists for the valves to be inadvertently opened. One hour is provided to lock closed the affected valves. The 1-hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining these valves closed.

E.1 and E.2

If the Required Actions and associated Completion Times are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to 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 3.6.3.1

This SR ensures that the 8-inch purge exhaust and 12 inch air room supply valves are locked closed as required. If a valve is open, or closed but not locked, in violation of this SR, the valve is considered inoperable. Valves may be locked closed electrically, mechanically, or by other physical means. These valves may be unable to close in the environment following a LOCA. Therefore, each of the valves is required to remain closed during MODES 1, 2, 3, and 4. ~~The 31-day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.2.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.2

This SR requires verification that each manual containment isolation valve and blind flange located outside containment, and not locked, sealed, or otherwise secured in position, and required to be closed during accident conditions, is closed. The SR helps to ensure that post accident leakage of fission products outside the containment boundary is within design limits. This SR does not require any testing or device manipulation. Rather, it involves verification that those containment isolation devices outside containment and capable of being mispositioned are in the correct position. ~~Since verification of device position for containment isolation devices outside containment is relatively easy, the 31-day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions~~. Containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open. This SR does not apply to devices that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

The Note applies to valves ar Insert 3 es located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation devices, once they have been verified to be in the proper position, is small.

SR 3.6.3.3

This SR requires verification that each containment isolation manual valve and blind flange located inside containment and not locked, sealed or otherwise secured in position, and required to be closed during accident conditions, is closed. The SR helps to ensure that post accident leakage of fission products outside the containment boundary is within design limits. For containment isolation devices inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate, since these containment isolation devices are operated under administrative controls and the probability of their misalignment is low. Containment isolation valves that are open under administrative controls are not required to meet the SR during the time that they are open. This SR does not apply to devices that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.3 (continued)

The Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation devices, once they have been verified to be in their proper position, is small.

SR 3.6.3.4

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time and Frequency of this SR are in accordance with the INSERVICE TESTING PROGRAM.

SR 3.6.3.5

For containment 8 inch purge exhaust and 12 inch air room supply valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option B (Ref. 3), is required to ensure the valves are physically closed (SR 3.6.3.1 verifies the valves are locked closed). Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. ~~Based on this observation and the importance of maintaining this penetration leak tight (due to the direct path between containment and the environment), a Frequency of 184 days was established as part of the NRC resolution of Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" (Ref. 4) as specified in the Safety Evaluation for Amendment No. 90 to the Facility Operating License.~~ Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.6

Automatic containment isolation valves close on a containment isolation signal to minimize leakage of fission products from containment following a DBA. This SR ensures each automatic containment isolation valve will actuate to its isolation position on an actual or simulated actuation signal, i.e., CHP or CHR. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~The 18 month Frequency was developed considering it is prudent that this SR be performed only during a plant outage, since isolation of penetrations would eliminate cooling water flow and disrupt normal operation of many critical components. Operating experience has shown that these components usually pass this SR when performed on the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

Insert 3

REFERENCES

1. FSAR, Section 5.8
2. FSAR, Section 6.7.2 and Table 6-14
3. 10 CFR 50, Appendix J, Option B
4. Generic Issue B-20
5. FSAR, Chapter 14
6. FSAR, Section 1.4.16

BASES

ACTIONS (continued)

B.1 and B.2

If containment pressure cannot be restored to within limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to 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 3.6.4.1

Verifying that containment pressure is within limits ensures that operation remains within the limits assumed in the accident analyses. ~~The 12 hour Frequency of this SR was developed after taking into consideration operating experience related to trending of containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition.~~ The limit of 1.0 psig for MODES 1 and 2, 1.5 psig for MODES 3 and 4 are the actual limits used in the accident analysis and do not account for instrument inaccuracies.

Insert 3

REFERENCES

1. FSAR, Section 14.18

BASES

ACTIONS (continued)

B.1 and B.2

If the containment average air temperature cannot be restored to within its limit within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to 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 3.6.5.1

Verifying that containment average air temperature is within the LCO limit ensures that containment operation remains within the limit assumed for the containment analyses. The 145°F limit is the actual limit assumed for the accident analyses and does not account for instrument inaccuracies. Instrument uncertainties are accounted for in the surveillance procedure. ~~The 24 hour Frequency of this SR is considered acceptable based on the observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment).~~

Insert 3

REFERENCES

1. FSAR, Section 5.8
2. FSAR, Section 14.18

BASES

ACTIONS

C.1 (continued)

If the Containment Spray side (tube side) of SDC Heat Exchanger E-60B is out of service, 100% of the required post accident cooling capability can be provided, if other equipment outages are limited. One hundred percent of the post accident cooling can be provided with the Containment Spray side of SDC Heat Exchanger E-60B out of service if the following equipment is OPERABLE: three safety related Containment Air Coolers, two Containment Spray Pumps, two spray headers, CCW pumps P-52A and P-52B, two SWS pumps, and both CCW Heat Exchangers, and if

1. One CCW Containment Isolation Valve, CV-0910, CV-0911, or CV-0940, is OPERABLE, and

2. Two CCW isolation valves for the non-safety related loads outside the containment, CV-0944A and CV-0944 (or CV-0977B), are OPERABLE.

With less than 100% of the required post accident containment cooling capability available, the plant is in a condition outside the assumptions of the safety analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.6.6.1

Verifying the correct alignment for manual, power operated, and automatic valves, excluding check valves, in the Containment Spray System provides assurance that the proper flow path exists for Containment Spray System operation. This SR also does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct positions prior to being secured. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment and capable of potentially being mispositioned, are in the correct position.

Insert 3

SR 3.6.6.2

Operating each safety related Containment Air Cooler fan unit for ≥ 15 minutes ensures that all trains are OPERABLE and are functioning properly. ~~The 31-day Frequency was developed considering the known reliability of the fan units, the two train redundancy available, and the low probability of a significant degradation of the containment cooling train occurring between surveillances.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6.3

Verifying the containment spray header is full of water to the 735 ft elevation minimizes the time required to fill the header. This ensures that spray flow will be admitted to the containment atmosphere within the time frame assumed in the containment analysis. ~~The 31-day Frequency is based on the static nature of the fill header and the low probability of a significant degradation of the water level in the piping occurring between surveillances.~~

SR 3.6.6.4 Insert 3

Verifying a total service water flow rate of ≥ 4800 gpm to CACs VHX-1, VHX-2, and VHX-3, when aligned for accident conditions, provides assurance the design flow rate assumed in the safety analyses will be achieved (Ref. 8~~). Also considered in selecting this Frequency were the known reliability of the cooling water system, the two train redundancy, and the low probability of a significant degradation of flow occurring between surveillances.~~

SR 3.6.6.5 Insert 3

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by the ASME Code (Ref. 5).

Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the INSERVICE TESTING PROGRAM.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6.6 and SR 3.6.6.7

SR 3.6.6.6 verifies each automatic containment spray valve actuates to its correct position upon receipt of an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. SR 3.6.6.7 verifies each containment spray pump starts automatically on an actual or simulated actuation signal. ~~The 18-month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power.~~ Insert 3

~~Operating experience has shown that these components usually pass the Surveillances when performed at the 18-month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

Where the surveillance of containment sump isolation valves is also required by SR 3.5.2.5, a single surveillance may be used to satisfy both requirements.

SR 3.6.6.8

This SR verifies each safety related containment cooling fan actuates upon receipt of an actual or simulated actuation signal. ~~The 18-month Frequency is based on engineering judgement and has been shown to be acceptable through operating experience. See SR 3.6.6.6 and SR 3.6.6.7, above, for further discussion of the basis for the 18-month Frequency.~~ Insert 3

SR 3.6.6.9

With the containment spray inlet valves closed and the spray header drained of any solution, an inspection of spray nozzles, or a test that blows low-pressure air or smoke through test connections can be completed. Performance of this SR demonstrates that each spray nozzle is unobstructed and provides assurance that spray coverage of the containment during an accident is not degraded. Verification following maintenance which could result in nozzle blockage is appropriate because this is the only activity that could lead to nozzle blockage.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that the closure time of each MSIV is ≤ 5.0 seconds on an actual or simulated actuation signal from each train under no flow conditions. Specific signals (e.g., Containment High Pressure, Steam Generator Low Pressure, handswitch) are tested under Section 3.3, "Instrumentation." The MSIV closure time is assumed in the MSLB and containment analyses. This SR is normally performed during a refueling outage. The MSIVs are not tested at power since even a part stroke exercise increases the risk of a valve closure with the plant generating power. As the MSIVs are not tested at power, they are exempt from the ASME Code, Section XI (Ref. 5) requirements during operation in MODES 1 and 2.

~~The Frequency for this SR is every 18 months. This 18 month Frequency demonstrates the valve closure time at least once per refueling cycle. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

REFERENCES

1. FSAR, Section 10.2
2. FSAR, Section 14.18
3. FSAR, Section 14.14
4. 10 CFR 50.67
5. ASME, Boiler and Pressure Vessel Code, Section XI, Inservice Inspection, Article IWV-3400

BASES

ACTIONS (continued)

A.1 and A.2 (continued)

Therefore, while Required Action 3.7.3 A.2 must be initially performed within 7 days without any SR 3.0.2 extension, subsequent performances may utilize the 25% SR 3.0.2 extension.

B.1 and B.2

If the MFRVs or MFRV bypass valves cannot be restored to OPERABLE status, closed, or isolated in the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 30 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 3.7.3.1

This SR verifies the closure time for each MFRV and MFRV bypass valve is ≤ 22.0 seconds on an actual or simulated actuation signal. Specific signals (e.g., steam generator low pressure and containment high pressure) are tested under Section 3.3, "Instrumentation." The MFRV and MFRV bypass valves closure times are bounding values assumed in the MSLB containment response and core response (DNB) analyses (Refs. 3 and 4). This SR is normally performed during a refueling outage. The MFRVs and MFRV bypass valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the plant generating power. As these valves are not stroke tested at power, they are exempt from the ASME Code, Section XI (Ref. 2) requirements during operation in MODES 1 and 2.

~~The Frequency is 18 months. The 18 month Frequency for valve closure time is based on the refueling cycle. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

To perform a controlled cooldown of the PCS, the ADVs must be able to be cycled through their full range. This SR ensures the ADVs are tested through a full control cycle ~~at least once per 18 months~~. Performance of inservice testing or use of an ADV during a plant cooldown may satisfy this requirement. ~~Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

REFERENCES

1. FSAR, Section 10.2
2. FSAR, Section 9.5.3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for the required manual, power operated, and automatic valves in the AFW water and steam supply flow path provides assurance that the proper flow paths exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulations; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

This test need not be performed for the steam driven AFW pump for MODE 4 operation.

~~The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

Insert 3

SR 3.7.5.2

Verifying that each required AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of pump performance required by the ASME Code (Ref. 2). This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance.

This SR is modified by a Note indicating that this SR for the turbine driven AFW pump does not have to be met in MODE 3 when steam pressure is below 800 psig. This is because there is insufficient steam pressure and pump discharge pressure to allow the turbine driven pump to reach the normal test conditions.

Performance of inservice testing as discussed in the ASME Code (Ref. 2), and the INSERVICE TESTING PROGRAM satisfies this requirement.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.3

This SR ensures that AFW can be delivered to the appropriate steam generator, in the event of any accident or transient that generates an AFAS, by demonstrating that each automatic valve in the flow path actuates to its correct position on an actual or simulated actuation signal. Specific signals (e.g., AFAS) are tested under Section 3.3, "Instrumentation." This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. ~~The 18 month Frequency is acceptable, based on the design reliability and operating experience of the equipment.~~

Insert 3

This SR is modified by a Note which states the SR is only required to be met in MODES 1, 2, and 3 when AFW is not in operation. With AFW in operation, the required trains are already aligned with the flow control valves in manual control.

SR 3.7.5.4

This SR ensures that the AFW pumps will start in the event of any accident or transient that generates an AFAS by demonstrating that each AFW pump starts automatically on an actual or simulated actuation signal. Specific signals (e.g., AFAS, handswitch) are tested under Section 3.3, "Instrumentation."

This test need not be performed for the steam driven AFW pump for MODE 4 operation.

~~The 18 month Frequency is acceptable, based on the design reliability and operating experience of the equipment.~~

Insert 3

This SR is modified by a Note. The Note states that the SR is only required to be met in MODES 1, 2, and 3. In MODE 4, the required pump is already operating and the autostart function is not required.

REFERENCES

1. FSAR, Section 9.7

2. ASME Code for Operation and Maintenance of Nuclear Power Plants.

3. Palisades Design Basis Document 1.03, Auxiliary Feedwater System, Section 3.4.1.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR verifies that the combination of CST and T-81 contain the required useable volume of cooling water. (This volume ≥ 100,000 gallons.) ~~The 12 hour Frequency is based on operating experience, and the need for operator awareness of plant evolutions that may affect the Condensate Storage and Supply inventory between checks. The 12 hou Frequency is considered adequate in view of other indications in the control room, including alarms, to alert the operator to abnormal CST and T-81 level deviations.~~ Insert 3

REFERENCES

1. FSAR, Section 9.7
2. Analysis EA-GOTHIC-CST-01

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1 (continued)

~~The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~ Insert 3

SR 3.7.7.2

This SR verifies proper automatic operation of the CCW valves on an actual or simulated actuation signal. Specific signals (e.g., safety injection, RAS) are tested under Section 3.3, "Instrumentation." This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. This SR is modified by a Note which states this SR is only required to be met in MODES 1, 2, and 3. The instrumentation providing the input signal is not required in MODE 4, therefore, to keep consistency with Section 3.3, "Instrumentation," the SR is not required to be met in this MODE. ~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

SR 3.7.7.3

This SR verifies proper automatic operation of the CCW pumps on an actual or simulated actuation signal in the "with standby power available" mode which tests the starting of the pumps by the SIS-X relays. The starting of the pumps by the sequencer is performed in Section 3.8, "Electrical Power Systems." This SR is modified by a Note which states this SR is only required to be met in MODES 1, 2, and 3. The instrumentation providing the input signal is not required in MODE 4, therefore, to keep consistency with Section 3.3, "Instrumentation," the SR is not required to be met in this MODE. ~~Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

REFERENCES

1. FSAR, Section 9.3

BASES

ACTIONS (continued)

C.1

1. The non-critical SWS header isolation valve, CV-1359, is OPERABLE, or

2. Plant conditions allow adequate containment cooling to be provided without reliance on CACs and one SWS Containment Isolation Valve, CV-0824 or CV-0847, is OPERABLE.

One hundred percent of the required SWS post accident cooling capability can be provided by three SWS pumps even with SWS flow being provided to both the CACs and the Non-critical SWS header.

With less than 100% of the required SWS post accident cooling capability available, the plant is in a condition outside the assumptions of the safety analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

Verifying the correct alignment for manual, power operated, and automatic valves in the SWS flow path ensures that the proper flow paths exist for SWS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR is modified by a Note indicating that the isolation of SWS to components or systems may render those components inoperable but does not affect the OPERABILITY of the SWS.

~~The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.8.2

This SR verifies proper automatic operation of the SWS valves on an actual or simulated actuation signal. Specific signals (e.g., safety injection) are tested under Section 3.3, "Instrumentation." This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. This SR is modified by a Note which states this SR is only required to be met in MODES 1, 2, and 3. The instrumentation providing the input signal is not required in MODE 4, therefore, to keep consistency with Section 3.3, "Instrumentation," the SR is not required to be met in this MODE. ~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

SR 3.7.8.3

The SR verifies proper automatic operation of the SWS pumps on an actual or simulated actuation signal in the "with standby power available" mode which tests the starting of the pumps by the SIS-X relays. The starting of the pumps by the sequencer is performed in Section 3.8, "Electrical Power Systems." This SR is modified by a Note which states this SR is not required to be met in MODE 4. The instrumentation providing the input signal is not required in MODE 4, therefore, to keep consistency with Section 3.3, "Instrumentation," the SR is not required to be met in this MODE. ~~Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

REFERENCES

1. FSAR, Section 9.1
2. FSAR, Section 6.1

BASES

ACTIONS

A.1 and A.2

If the UHS is inoperable, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours and in 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 3.7.9.1

This SR verifies adequate cooling can be maintained. The level specified also ensures sufficient NPSH is available for operating the SWS pumps. ~~The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during the applicable MODES.~~ This SR verifies that the UHS water level is ≥ 568.25 ft above mean sea level as measured within the boundaries of the intake structure.

Insert 3

SR 3.7.9.2

This SR verifies that the SWS is available to provide adequate cooling for normal design heat loads and maximum accident conditions following a DBA. ~~The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during the applicable MODES.~~ This SR verifies that the water temperature from the UHS is ≤ 85°F.

Insert 3

REFERENCES

1. FSAR, Section 9.1
2. FSAR, Section 14.18
3. Design Basis Document (DBD) 1.02, "Service Water System"

BASES

ACTIONS (continued)

E.1, E.2, and E.3 (continued)

trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the CRE. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

F.1 and F.2

If an inoperable CRV Filtration or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time in MODE 1, 2, 3, or 4, the plant must be placed in a MODE that minimizes the accident risk. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours, and in 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 3.7.10.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train ~~once every month~~ periodically provides an adequate check on this system.

~~Monthly h~~Heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. Each train must be operated for ≥ 10 continuous hours with the associated heater, VHX-26A or VHX-26B, energized. ~~The 31 day Frequency is based on the known reliability of the equipment, and the two train redundancy available.~~

Insert 3

SR 3.7.10.2

This SR verifies that the required CRV Filtration testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CRV Filtration filter tests are in accordance with the VFTP. The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test Frequencies and additional information are discussed in detail in the VFTP.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.10.3

This SR verifies that each CRV Filtration train starts and operates on an actual or simulated actuation signal. Specific signals (e.g., containment high pressure, containment high radiation) are tested under Section 3.3, "Instrumentation." This SR is modified by a Note which states this SR is only required to be met in MODES 1, 2, 3 and 4 and during movement of irradiated fuel assemblies in containment. The instrumentation providing the input signal is not required in other plant conditions, therefore, to keep consistency with Section 3.3, "Instrumentation," the SR is not required to be met. ~~The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle.~~

Insert 3

SR 3.7.10.4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 4) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 5). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 6). Options for restoring the CRE boundary to OPERABLE status include changing the DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to meet design requirements. This SR consists of a combination of testing and calculations. ~~An 18 month Frequency is appropriate, since significant degradation of the CRV Cooling is slow and is not expected over this time period.~~ Insert 3

REFERENCES

1. FSAR, Section 9.8
2. WCAP-16125-NP-A, "Justification for Risk-Informed Modification to Selected Technical Specifications for Conditions Leading to Exigent Plant Shutdown," Revision 2, August 2010.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

This SR verifies the performance of Fuel Handling Area Ventilation System filter testing in accordance with the Ventilation Filter Testing Program. The Fuel Handling Area Ventilation System filter tests are in accordance with the Regulatory Guide 1.52 (Ref. 6) as described in Ventilation Filter Testing Program. The Ventilation Filter Testing Program includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the Ventilation Filter Testing Program.

SR 3.7.12.2

This SR verifies the Fuel Handling Area Ventilation System has not degraded and is operating as assumed in the safety analysis. The flow rate is periodically tested to verify proper function of the Fuel Handling Ventilation System. When aligned to the "emergency filter bank", the Fuel Handling Area Ventilation System is designed to reduce the amount of unfiltered leakage from the fuel handling building which, in the event of a fuel handling accident, lowers the dose at the site boundary to within the applicable limits of 10 CFR 50.67. The Fuel Handling Area Ventilation System is designed to lower the dose to these levels at a flow rate of ≥ 5840 cfm and ≤ 8760 cfm. ~~The Frequency of 18 months is consistent with the test for filter performance and other filtration SRs.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.13.1

This SR verifies that each ESRV Damper train closes on an actual or simulated actuation signal. ~~The 31 day Frequency is based on operating experience which has shown that these components usually pass the SR when tested at this Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~ Insert 3

REFERENCES

1. 10 CFR 50.67
2. FSAR, Section 7.4.5.2
3. FSAR, Section 14.22

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.14.1

This SR verifies sufficient SFP water is available in the event of a fuel handling or fuel cask drop accident. The water level in the SFP must be checked periodically. ~~The 7 day Frequency is appropriate because the volume in the pool is normally stable. Water level changes are controlled by plant procedures and are acceptable, based on operating experience.~~ Insert 3

During refueling operations, the level in the SFP is at equilibrium with that of the refueling cavity, and the level in the refueling cavity is checked ~~daily~~ periodically in accordance with LCO 3.9.6, "Refueling Cavity Water Level."

REFERENCES

1. FSAR, Section 9.11
2. FSAR, Section 9.4
3. FSAR, Section 14.19
4. FSAR, Section 14.11
5. Regulatory Guide 1.183
6. 10 CFR 50.67

BASES

ACTIONS

The ACTIONS are modified by a Note indicating that LCO 3.0.3 does not apply.

If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operation. Therefore, inability to suspend movement of fuel assemblies is not sufficient reason to require a reactor shutdown.

A.1. and A.2

When the concentration of boron in the spent fuel pool is less than required, immediate action must be taken to preclude an accident from happening or to mitigate the consequences of an accident in progress. This is most efficiently achieved by immediately suspending the movement of fuel assemblies. This does not preclude the movement of fuel assemblies to a safe position. In addition, action must be immediately initiated to restore boron concentration to within limit.

SURVEILLANCE REQUIREMENTS

SR 3.7.15.1

This SR verifies that the concentration of boron in the spent fuel pool is within the required limit. As long as this SR is met, the analyzed incidents are fully addressed. ~~The 7 day Frequency is appropriate because no major replenishment of pool water is expected to take place over a short period of time.~~

Insert 3

REFERENCES

None

BASES

ACTIONS

A.1 and A.2

DOSE EQUIVALENT I-131 exceeding the allowable value in the secondary coolant is an indication of a problem in the PCS and contributes to increased post accident doses. If secondary specific activity cannot be restored to within limits in the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours, and in 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 3.7.17.1

This SR ensures that the secondary specific activity is within the limits of the accident analysis. A gamma isotope analysis of the secondary coolant, which determines DOSE EQUIVALENT I-131, confirms the validity of the safety analysis assumptions as to the source terms in post accident releases. It also serves to identify and trend any unusual isotopic concentrations that might indicate changes in primary coolant activity or LEAKAGE. ~~The 31 day Frequency is based on the detection of increasing trends of the level of DOSE EQUIVALENT I-131, and allows for appropriate action to be taken to maintain levels below the LCO limit.~~ Insert 3

REFERENCES

1. 10 CFR 50.67
2. FSAR, Section 14.14

SURVEILLANCE REQUIREMENTS

SR 3.8.1.1 (continued)

~~The 7 day Frequency is adequate because disconnect switch positions cannot change without operator action and because their status is displayed in the control room.~~

Insert 3

SR 3.8.1.2

This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and to maintain the plant in a safe shutdown condition.

The ~~monthly~~ test starting of the DG provides assurance that the DG would start and be ready for loading in the time period assumed in the safety analyses. The ~~monthly~~ test, however does not, and is not intended to, test all portions of the circuitry necessary for automatic starting and loading. The operation of the bus undervoltage relays and their auxiliary relays which initiate DG starting, the control relay, which initiates DG breaker closure, and the DG breaker closure itself are not verified by this test. Verification of automatic operation of these components requires de-energizing the associated 2400 V bus and cannot be done during plant operation. For this test, the 10-second timing is started when the DG receives a start signal, and ends when the DG voltage sensing relays actuate. For the purposes of SR 3.8.1.2, the DGs are manually started from standby conditions. Standby conditions for a DG mean the diesel engine is not running, its coolant and oil temperatures are being maintained consistent with manufacturer recommendations, and ≥ 20 minutes have elapsed since the last DG air roll.

Three relays sense the terminal voltage on each DG. These relays, in conjunction with a load shedding relay actuated by bus undervoltage, initiate automatic closing of the DG breaker. During ~~monthly~~ testing, the actuation of the three voltage sensing relays is used as the timing point to determine when the DG is ready for loading.

~~The 31-day Frequency for performance of SR 3.8.1.2 agrees with the original licensing basis for the Palisades plant.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.3

This Surveillance verifies that the DGs are capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to the equivalent of the maximum expected accident loads for at least 15 minutes. A minimum total run time of 60 minutes is required to stabilize engine temperatures.

During the period when the DG is paralleled to the grid, it must be considered inoperable. This is because there are no provisions to automatically shift the DG controls from parallel mode to unit mode. Additionally, when paralleled, there are certain conditions where the protection schemes may not prevent DG overloading and subsequent breaker trip and lockout.

~~The 31-day Frequency for this Surveillance is consistent with the original Palisades licensing basis.~~

Insert 3

The SR is modified by three Notes. Note 1 states that momentary transients outside the required band do not invalidate this test. This is to assure that a minor change in grid conditions and the resultant change in DG load, or a similar event, does not result in a surveillance being unnecessarily repeated. Note 2 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations. Note 3 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank is at or above the level at which fuel oil is automatically added. The specified level is adequate for a minimum of 13.5 hours of DG operation at full load.

~~The 31-day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low-level alarms are provided and plant operators would be aware of any uses of the DG during this period.~~

Insert 3

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.5

Each DG is provided with an engine overspeed trip to prevent damage to the engine. The loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. This Surveillance may be accomplished with the DG in the "Parallel" mode.

An acceptable method is to parallel the DG with the grid and load the DG to a load equal to or greater than its single largest post-accident load. The DG breaker is tripped while its voltage and frequency (or speed) are being recorded. The time, voltage, and frequency tolerances specified in this SR are derived from the recommendations of RG 1.9, Revision 3 (Ref. 5).

RG 1.9 (Ref. 5) recommends that the increase in diesel speed during the transient does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. The Palisades DGs have a synchronous speed of 900 rpm and an overspeed trip setting range of 1060 to 1105 rpm. Therefore, the maximum acceptable transient frequency for this SR is 68 Hz.

The minimum steady state voltage is specified to provide adequate margin for the switchgear and for both the 2400 and 480 V safeguards motors; the maximum steady state voltage is 2400 +10% V as recommended by RG 1.9 (Ref. 5).

The minimum acceptable frequency is specified to assure that the safeguards pumps powered from the DG would supply adequate flow to meet the safety analyses. The maximum acceptable steady state frequency is slightly higher than the +2% (61.2 Hz) recommended by RG 1.9 (Ref. 5) because the test must be performed with the DG controls in the Parallel mode. The increased frequency allowance of 0.3 Hz is based on the expected speed differential associated with performance of the test while in the "Parallel" mode.

~~The 18-month surveillance Frequency is consistent with the recommendation of RG 1.9 (Ref. 5).~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.6

This Surveillance demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine and generator load response under a complete loss of load. These acceptance criteria provide DG damage protection. The 4000 V limitation is based on generator rating of 2400/4160V and the ratings of those components (connecting cables and switchgear) that would experience the voltage transient. While the DG is not expected to experience this transient during an event and continue to be available, this response ensures that the DG is not degraded for future application, including re-connection to the bus if the trip initiator can be corrected or isolated.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, yet still provide adequate testing margin between the specified power factor limit and the DG design power factor limit of 0.8, testing must be performed using a power factor ≤ 0.9. This is consistent with RG 1.9 (Ref. 5).

~~The 18-month Frequency is consistent with the recommendation of RG 1.9 (Ref. 5) and is intended to be consistent with expected fuel cycle lengths.~~

Insert 3

SR 3.8.1.7

As recommended by RG 1.9 (Ref. 5) this Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies all actions encountered from the loss of offsite power, including shedding of the nonessential loads and re-energizing of the emergency buses and respective loads from the DG.

The requirement to energize permanently connected loads is met when the DG breaker closes, energizing its associated 2400 V bus. Permanently connected loads are those that are not disconnected from the bus by load shedding relays. They are energized when the DG breaker closes. It is not necessary to monitor each permanently connected load.

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

The DG auto-start and breaker closure time of 10 seconds is derived from requirements of the accident analysis to respond to a design basis large break LOCA. For this test, the 10-second timing is started when the DG receives a start signal, and ends when the DG breaker closes. The safety analyses assume 11 seconds from the loss of power until the bus is re-energized.

The requirement to verify that auto-connected shutdown loads are energized refers to those loads that are actuated by the Normal Shutdown Sequencer. Each load should be started to assure that the DG is capable of accelerating these loads at the intervals programmed for the Normal Shutdown Sequence. The sequenced pumps may be operating on recirculation flow.

The requirements to maintain steady state voltage and frequency apply to the "steady state" period after all sequenced loads have been started. This period need only be long enough to achieve and measure steady voltage and frequency.

The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved. The requirement to supply permanently connected loads for ≥ 5 minutes, refers to the duration of the DG connection to the associated safeguards bus. It is not intended to require that sequenced loads be operated throughout the 5-minute period. It is not necessary to monitor each permanently connected load.

The requirement to verify the connection and supply of permanently and automatically connected loads is intended to demonstrate the DG loading logic. This testing may be accomplished in any series of sequential, overlapping, or total steps so that the required connection and loading sequence is verified.

~~The Frequency of 18 months is consistent with the recommendations of RG 1.9 (Ref. 5).~~

Insert 3

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.8

RG 1.9 (Ref. 5) recommends demonstration ~~once per 18 months~~ that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours, ≥ 120 minutes of which is at a load above its analyzed peak accident loading and the remainder of the time at a load equivalent to the continuous duty rating of the DG. SR 3.8.1.8 only requires ≥ 100 minutes at a load above the DG analyzed peak accident loading. The 100 minutes required by the SR satisfies the intent of the recommendations of the RG, but allows some tolerance between the time requirement and the DG rating. Without this tolerance, the load would have to be reduced at precisely 2 hours to satisfy the SR without exceeding the manufacturer's rating of the DG.

The DG starts for this Surveillance can be performed either from standby or hot conditions.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, yet still provide adequate testing margin between the specified power factor limit and the DG design power factor limit of 0.8, testing must be performed using a power factor of ≤ 0.9. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

In addition, a Note to the SR states that momentary transients outside the required band do not invalidate this test. This is to assure that a minor change in grid conditions and the resultant change in DG load, or a similar event, does not result in a surveillance being unnecessarily repeated.

During the period when the DG is paralleled to the grid, it must be considered inoperable. This is because there are no provisions to automatically shift the DG controls from parallel mode to unit mode. Additionally, when paralleled, there are certain conditions where the protection schemes may not prevent DG overloading and subsequent breaker trip and lockout.

~~The 18-month Frequency is consistent with the recommendations of RG 1.9 (Ref. 5).~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.9

As recommended by RG 1.9 (Ref. 5), this Surveillance ensures that the manual synchronization and load transfer from the DG to the offsite source can be made and that the DG can be returned to ready to load status when offsite power is restored. The test is performed while the DG is supplying its associated 2400 V bus, but not necessarily carrying the sequenced accident loads. The DG is considered to be in ready to load status when the DG is at rated speed and voltage, the output breaker is open, the automatic load sequencer is reset, and the DG controls are returned to "Unit."

During the period when the DG is paralleled to the grid, it must be considered inoperable. This is because there are no provisions to automatically shift the DG controls from parallel mode to unit mode. Additionally, when paralleled, there are certain conditions where the protection schemes may not prevent DG overloading and subsequent breaker trip and lockout.

~~The Frequency of 18 months is consistent with the recommendations of RG 1.9 (Ref. 5).~~

Insert 3

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.10

If power is lost to bus 1C or 1D, loads are sequentially connected to the bus by the automatic load sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs by concurrent motor starting currents. The 0.3-second load sequence time tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and ensures that safety analysis assumptions regarding ESF equipment time delays are met. Logic Drawing E-17 Sheet 4 (Ref. 7) provides a summary of the automatic loading of safety related buses.

~~The Frequency of 18 months is consistent with the recommendations of RG 1.9 (Ref. 5), takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

Insert 3

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

SR 3.8.1.11

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, PCS, and containment design limits are not exceeded.

The requirement to energize permanently connected loads is met when the DG breaker closes, energizing its associated 2400 V bus. Permanently connected loads are those that are not disconnected from the bus by load shedding relays. They are energized when the DG breaker closes. It is not necessary to monitor each permanently connected load. The DG auto-start and breaker closure time of 10 seconds is derived from requirements of the accident analysis to respond to a design basis large break LOCA. For this test, the 10-second timing is started when the DG receives a start signal, and ends when the DG breaker closes. The safety analyses assume 11 seconds from the loss of power until the bus is re-energized.

SURVEILLANCE REQUIREMENTS

SR 3.8.1.11 (continued)

In addition, a Note to the SR states that momentary transients outside the required band do not invalidate this test. This is to assure that a minor change in grid conditions and the resultant change in DG load, or a similar event, does not result in a surveillance being unnecessarily repeated.

The requirement to verify that auto-connected shutdown loads are energized refers to those loads that are actuated by the DBA Sequencer. Each load should be started to assure that the DG is capable of accelerating these loads at the intervals programmed for the DBA Sequence. Since the containment spray pumps do not actuate on SIS generated by Pressure Low Pressure, the test should be performed such that spray pump starting by the sequencer is also verified along with the other SIS loads. The sequenced pumps may be operating on recirculation flow or in other testing modes. The requirements to maintain steady state voltage and frequency apply to the "steady state" period after all sequenced loads have been started. This period need only be long enough to achieve and measure steady voltage and frequency.

The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved. The requirement to supply permanently connected loads for ≥ 5 minutes, refers to the duration of the DG connection to the associated 2400 V bus. It is not intended to require that sequenced loads be operated throughout the 5-minute period. It is not necessary to monitor each permanently connected load.

~~The Frequency of 18 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 18 months.~~

Insert 3

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage subsystem to support either DG's operation for 7 days at full post-accident load. The fuel oil inventory equivalent to a 7 day supply is 33,054 gallons (Ref. 5) when calculated in accordance with References 1 and 2. This inventory is conservatively based on an uprated 2600 kW DG capacity. The required fuel storage volume is determined using the most limiting energy content of the stored fuel. Using the known correlation of diesel fuel oil absolute specific gravity or API gravity to energy content, the required diesel generator output, and the corresponding fuel consumption rate, the onsite fuel storage volume required for 7 days of operation can be determined. SR 3.8.3.3 requires new fuel to be tested to verify that the absolute specific gravity or API gravity is not less than the value assumed in the diesel fuel oil consumption calculations. The 7 day period is sufficient time to place the plant in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

~~The 24 hour Frequency is specified to ensure that a sufficient supply of fuel oil is available, since the Fuel Oil Storage Tank is the fuel oil supply for the diesel fire pumps, heating and evaporator boilers, in addition to the DGs.~~

Insert 3

SR 3.8.3.2

This Surveillance ensures that sufficient stored lube oil inventory is available to support at least 7 days of full accident load operation for one DG. The lube oil inventory equivalent to a 7 day supply is 313 gallons and is based on an estimated consumption of 1.0% of fuel oil consumption (Ref. 5). This inventory is also conservatively based on an uprated 2600 kW DG capacity.

~~A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run times are closely monitored by the plant staff.~~

Insert 3

SR 3.8.3.3

The tests listed below are a means of determining whether new fuel oil and stored fuel oil are of the appropriate grade and have not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion.

Testing for viscosity, specific gravity, and water and sediment is completed for fuel oil delivered to the plant prior to its being added to the Fuel Oil Storage Tank. Fuel oil which fails the test, but has not been

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

added to the Fuel Oil Storage Tank does not imply failure of this SR and requires no specific action. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tank without concern for contaminating the entire volume of fuel oil in the storage tank.

Fuel oil is tested for other of the parameters specified in ASTM D975 (Ref. 3) in accordance with the Fuel Oil Testing Program required by Specification 5.5.11. Fuel oil determined to have one or more measured parameters, other than viscosity or water and sediment, outside acceptable limits will be evaluated for its effect on DG operation. Fuel oil which is determined to be acceptable for short term DG operation, but outside limits will be restored to within limits in accordance with LCO 3.8.3 Condition F.

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The pressure specified in this SR is intended to reflect the acceptable margin from which successful starts can be accomplished.

~~The 31-day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.~~

Insert 3

SR 3.8.3.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the Fuel Oil Storage Tank ~~once every 92 days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it reduces the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. ~~The Surveillance Frequencies and acceptance criteria are established in the Fuel Oil Testing Program based, in part, on those recommended by RG 1.137 (Ref. 1). This SR is for preventative maintenance.~~

Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.5 (continued)

The presence of water does not necessarily represent failure of this SR provided the accumulated water is removed in accordance with the requirements of the Fuel Oil Testing Program.

SR 3.8.3.6

This SR demonstrates that the fuel transfer systems can, as applicable, automatically and manually transfer fuel from the Fuel Oil Storage Tank to each day tank, and automatically from each day tank to each engine mounted tank. Automatic or manual transfer of fuel oil is required to support continuous operation of standby power sources.

This SR provides assurance that the following portions of the fuel transfer system are OPERABLE:

a. Fuel transfer pumps;

b. Day and engine mounted tank filling solenoid valves;

c. Day tank fill via automatic level controls or manual operation; and

d. Engine mounted tank fill via automatic level controls.

~~The 92 day Frequency corresponds to the testing requirements for pumps in the ASME Code, Section XI (Ref. 4). Additional assurance of fuel transfer system OPERABILITY is provided during the monthly starting and loading tests for each DG when the fuel oil system will function to maintain level in the day and engine mounted tanks.~~

Insert 3

REFERENCES

1. Regulatory Guide 1.137
2. ANSI N195-1976
3. ASTM Standards, D975, Table 1
4. ASME, Boiler and Pressure Vessel Code, Section XI
5. Engineering Analysis EA-EC6432-01

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous current required to overcome the internal losses of a battery and maintain the battery in a fully charged state. The specified voltage is the nominal rating of the battery. Surveillance voltage measurements may be adjusted for cable losses and for installed plant instrumentation to ensure that battery terminal voltage requirements are satisfied. At that terminal voltage, the battery has sufficient charge to provide the analyzed capacity for either accident loading or station blackout loading. ~~The 7 day Frequency is consistent with manufacturer and IEEE-450 (Ref. 4) recommendations.~~

Insert 3

SR 3.8.4.2

Visual inspection to detect corrosion of the battery terminals and connectors, or measurement of the resistance of each inter-cell and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The specified limits of ≤ 50 μohm for inter-cell connections and terminal connections, and ≤ 360 μohms for inter-tier and inter-rack connections are in accordance with the manufacturers recommendations. The 50 μohm value is based on the minimum battery design voltage. Battery sizing calculations show the first minute load on the ED-02 battery as the load that determines battery size, hence, battery voltage will be at its lowest value while the battery supplies this current. Calculations also show that at a minimum temperature and end of life (80% battery performance), battery voltage during this first minute load will be about 1.815 V per cell, assuming nominal connection resistance. But if all the connections were at the ceiling value of 50 μohms, the battery manufacturer indicates that the additional voltage drop would result in a battery voltage of about 1.79 V per cell, which is still above the minimum design voltage (Ref. 5).

The 360 μohm value is based on 120% of the nominal cumulative resistance of the components which make up the connections: resistance of the connecting cable, and for each end of the cable, the battery post to cable lug connection, the cable lug itself, and the lug to cable connection.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 (continued)

The resistance values determined during initial battery installation are recorded with the battery replacement specifications, FES 95-206-ED-01 and FES 95-206-ED-02.

~~The Surveillance Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.~~

Insert 3

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance. The presence of physical damage or deterioration does not necessarily represent a failure of this SR, provided an evaluation determines that the physical damage or deterioration does not affect the OPERABILITY of the battery (its ability to perform its design function).

~~The 12 month Frequency for this SR is consistent with IEEE-450 (Ref. 4), which recommends detailed visual inspection of cell condition and rack integrity on a yearly basis.~~

Insert 3

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of inter-cell and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anticorrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection. The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR provided visible corrosion is removed during performance of SR 3.8.4.4.

The specified limits for connection resistance are discussed in the Bases for SR 3.8.4.2.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.4 and SR 3.8.4.5 (continued)

~~The Surveillance Frequencies of 12 months is consistent with IEEE-450 (Ref. 4), which recommends cell to cell and terminal connection resistance measurement on a yearly basis.~~

Insert 3

SR 3.8.4.6

This SR requires that each required battery charger be capable of supplying 180 amps at 125 V for ≥ 8 hours. These requirements are based on the design capacity of the chargers. The chargers are rated at 200 amps; the specified 180 amps provides margin between the charger rating and the test requirement.

~~The specified Frequency requires each required battery charger to be tested each 18 months. The Surveillance Frequency is acceptable, given the other administrative controls existing to ensure adequate charger performance during these 18 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~

Insert 3

SR 3.8.4.7

A battery service test is a special test of battery capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length should correspond to the design duty cycle requirements as specified in FSAR Chapter 8 (Ref. 2).

~~The Surveillance Frequency of 18 months is consistent with the recommendations of RG 1.32 (Ref. 6) and RG 1.129 (Ref. 7), which state that the battery service test should be performed during refueling operations, or at some other outage, with intervals between tests not to exceed 18 months.~~

Insert 3

Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.8; however, only the modified performance discharge test may be used to satisfy SR 3.8.4.8 while satisfying the requirements of SR 3.8.4.7 at the same time.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.8 (continued)

The acceptance criteria for this Surveillance are consistent with the recommendations of IEEE-450 (Ref. 4) and IEEE-485 (Ref. 3). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer rating. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements.

~~The Surveillance Frequency for this test is normally 60 months.~~ If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's ra Surveillance Frequency is reduced to 12 months. However, battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 4), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is ≥ 10% below the manufacturer's rating. These Frequencies are consistent with the recommendations in IEEE-450 (Ref. 4).

Insert 3

The reason for the restriction that the plant be outside of MODES 1, 2, 3, and 4 is that performing the Surveillance requires disconnecting the battery from the DC distribution buses and connecting it to a test load resistor bank. This action makes the battery inoperable and completely unavailable for use.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17
2. FSAR, Chapter 8
3. IEEE-485-1983, June 1983
4. IEEE-450-1995
5. Letter; Graham Walker, C&D Charter Power Systems, Inc to John Slinkard, Consumers Power Company, 12 July 1996
6. Regulatory Guide 1.32, February 1977
7. Regulatory Guide 1.129, December 1974

BASES

ACTIONS (continued)

B.1

With the temperature of representative cells below the design temperature, or with one or more battery cells with parameters outside the Category C limits, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding battery must be declared inoperable.

Additionally, if battery cells cannot be restored to meeting Category A or B limits within 31 days, a serious difficulty with the battery is indicated and the battery must be declared to be inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 1), which recommends regular battery inspections ~~(at least one per month)~~ including voltage, specific gravity, and electrolyte temperature of pilot cells.

Insert 3

SR 3.8.6.2

This Surveillance verification that the average temperature of representative cells is ≥ 70°F is consistent with a recommendation of IEEE-450 (Ref. 1)~~, which states that the temperature of electrolytes in representative cells should be determined on a quarterly basis. The monthly frequency specified is a feature of the initial Palisades license, and is the same as those other pilot cell tests specified in SR 3.8.6.1~~.

Insert 3

Lower than normal temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range. This limit is based on manufacturer recommendations.

SR 3.8.6.3

The quarterly inspection of specific gravity and voltage is consistent with the recommendations of IEEE-450 (Ref. 1).

Insert 3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the inverters are functioning properly and energizing the Preferred AC buses. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation of the RPS and ESF connected to the Preferred AC buses. ~~The 7 day Frequency takes into account indications available in the control room that alert the operator to inverter malfunctions.~~

Insert 3

REFERENCES

None

BASES

ACTIONS

A.2.1, A.2.2, A.2.3, and A.2.4 (continued)

These ACTIONS minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverters (and to continue this action until restoration is accomplished) in order to provide the required inverter supplied Preferred AC power to the plant instrument and control systems.

The Completion Time of "immediately" is consistent with the required times for actions requiring prompt attention. The restoration of the required inverters should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without inverter supplied Preferred AC power.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

A description of the basis for this SR is provided in the Bases for SR 3.8.7.1.

Insert 3

REFERENCES

None

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This surveillance verifies that the required AC, DC, and Preferred AC bus electrical power distribution subsystems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained.

For those buses which have undervoltage alarms in the control room, correct voltage may be verified by the absence of an undervoltage alarm.

For those buses which have only one possible power source and have undervoltage alarms in the control room, correct breaker alignment may be verified by the absence of an undervoltage alarm.

A Preferred AC Bus may be considered correctly aligned when powered from either the associated inverter or from the bypass regulator. A mechanical interlock prevents connecting two or more Preferred AC Buses to the Bypass Regulator. LCO 3.8.7 and LCO 3.8.8 address the condition of supplying a Preferred AC Bus from the bypass regulator.

~~The 7 day Frequency takes into account the redundant capability of the AC, DC, and Preferred AC bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.~~

Insert 3

REFERENCES None

BASES

ACTIONS

A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5 (continued)

The Completion Time of "immediately" is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

A description of the basis for this SR is provided in the Bases for SR 3.8.9.1.

Insert 3

REFERENCES

None

BASES

ACTIONS

A.3 (continued)

Once boration is initiated, it must be continued until the boron concentration is restored. The restoration time depends on the amount of boron that must be injected to reach the required concentration.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

This SR ensures the coolant boron concentration in the PCS and the refueling cavity is within the limit. The boron concentration of the coolant in each volume is determined periodically by chemical analysis.

~~A minimum Frequency of once every 72 hours is therefore a reasonable amount of time to verify the boron concentration of representative samples. The Frequency is based on operating experience, which has shown 72 hours to be adequate.~~

Insert 3

REFERENCES

1. FSAR, Section 5.1
2. FSAR, Section 14.3

BASES

ACTIONS B.2 (continued)

As stated in SR 3.0.2, the 25% extension allowed by SR 3.0.2 may be applied to Required Actions whose Completion Time is stated as "once per . . ." . . .however, the 25% extension does not apply to the initial performance of a Required Action with a periodic Completion Time that requires performance on a "once per . . ." basis. The 25% extension applies to each performance of the Required Action after the initial performance. . . .Therefore, while Required Action 3.9.2 B.2 must be initially performed within 12 hours without any SR 3.0.2 extension, subsequent performances may utilize the 25% SR 3.0.2 extension.

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1

SR 3.9.2.1 is the performance of a CHANNEL CHECK, which is a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that the two indication channels should be consistent with core conditions, but does not require the two source range channels to have the same reading. Changes in fuel loading and core geometry can result in significant differences between source range channels, but each channel should be consistent with its local conditions. ~~The Frequency of 12 hours is consistent with the CHANNEL CHECK Frequency specified similarly for the same instruments in LCO 3.3.9.~~

Insert 3

SR 3.9.2.2

~~SR 3.9.2.2 is the performance of a CHANNEL CALIBRATION every 18 months.~~ The CHANNEL CALIBRATION for the source range neutron flux monitors consists of obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. ~~The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage. Operating experience has shown these components usually pass the Surveillance when performed on the 18 month Frequency.~~

Insert 3

REFERENCES

1. FSAR, Section 7.6
2. FSAR, Section 14.3

BASES

ACTIONS (continued)

A.1 and A.2 (continued)

This is accomplished by immediately suspending CORE ALTERATIONS and movement of irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

This Surveillance demonstrates that each of the containment penetrations required to be in its closed position is in that position. The Surveillance on the valves in unisolated penetrations which provide a direct path from the containment atmosphere to the outside atmosphere will demonstrate that the valves are not blocked from closing. Also, the Surveillance will demonstrate that each valve operator has motive power, which will ensure each valve is capable of being closed by an OPERABLE Refueling Containment High Radiation signal.

~~The Surveillance is performed every 7 days during CORE ALTERATIONS or during movement of irradiated fuel assemblies within the containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. As such, this Surveillance provides assurance that a postulated fuel handling accident that releases fission product radioactivity within the containment will not result in an excessive release of fission product radioactivity to the environment.~~

Insert 3

SR 3.9.3.2

This Surveillance demonstrates that each automatic isolation valve providing direct access from the containment atmosphere to the outside atmosphere valve actuates to its isolation position on an actual or simulated high radiation signal.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.9.3.2 (continued)

The SR is modified by a Note which requires only the valves in unisolated penetrations to be tested. ~~The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. LCO 3.3.6, "Refueling Containment High Radiation Instrumentation," requires a CHANNEL CHECK every 7 days, a CHANNEL FUNCTIONAL TEST every 31 days and a CHANNEL CALIBRATION every 18 months to ensure the channel OPERABILITY during refueling operations. These surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.~~

Insert 3

REFERENCES

1. FSAR, Section 14.19

BASES

ACTIONS (continued)

A.3

If SDC train requirements are not met, actions shall be taken immediately to suspend loading irradiated fuel assemblies in the core. With no forced circulation cooling, decay heat removal from the core occurs by natural circulation to the heat sink provided by the water above the core. A minimum refueling cavity water level equivalent to the 647 ft elevation provides an adequate available heat sink. Suspending any operation that would increase the decay heat load, such as loading a fuel assembly, is a prudent action under this condition.

A.4

If SDC train requirements are not met, all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere must be closed to prevent fission products, if released by a loss of decay heat removal event, from escaping to the environment. The 4 hour Completion Time is based on the low probability of the coolant boiling in that time and allows time for fixing most SDC problems.

SURVEILLANCE REQUIREMENTS

SR 3.9.4.1

This Surveillance demonstrates that the SDC train is in operation and circulating primary coolant. The flow rate is sufficient to provide decay heat removal capability and to prevent thermal and boron stratification in the core. The 1000 gpm flow rate has been determined by operating experience rather than analysis. ~~The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator in the control room for monitoring the SDC System.~~

Insert 3

REFERENCES

1. FSAR, Sections 6.1 and 14.3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1

This Surveillance demonstrates that one SDC train is operating and circulating primary coolant. The flow rate is sufficient to provide decay heat removal capability and to prevent thermal and boron stratification in the core.

In addition, during operation of the SDC train with the water level in the vicinity of the reactor vessel nozzles, the SDC train flow rate determination must also consider the SDC pump suction requirements. The 1000 gpm flow rate has been determined by operating experience rather than analysis. ~~The Frequency of 12 hours is sufficient, considering the flow, temperature, pump control, and alarm indications available to the operator to monitor the SDC System in the control room.~~ Insert 3

SR 3.9.5.2

Verification that the required pump is OPERABLE ensures that an additional SDC pump can be placed in operation, if needed, to maintain decay heat removal and primary coolant circulation. Verification is performed by verifying proper breaker alignment and power available to the required pump. ~~The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.~~ Insert 3

REFERENCES

1. FSAR, Sections 6.1 and 14.3

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

Verification of a minimum water level corresponding to the 647 ft elevation ensures that the design basis for the postulated fuel handling accident analysis during refueling operations is met. Water at the required elevation limits the consequences of damaged fuel rods that are postulated to result from a fuel handling accident inside containment (Ref. 2).

~~The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls of valve positions, which make significant unplanned level changes unlikely.~~

Insert 3

REFERENCES

1. Regulatory Guide 1.183
2. FSAR, Section 14.19

Enclosure Attachment 5 to

PNP 2019-004

No Significant Hazards Consideration

Two Pages Follow

NO SIGNIFICANT HAZARDS CONSIDERATION

1.0 DESCRIPTION OF AMENDMENT REQUEST

The proposed change requests the adoption of an approved change to the standard technical specifications (STS) for Combustion Engineering Plants (NUREG-1432), to allow relocation of specific technical specification surveillance frequencies to a licensee controlled program. The proposed change is described in Technical Specification Task Force (TSTF) Traveler TSTF-425, Revision 3 (ADAMS Accession No. ML090850642) related to the Relocation of Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b and was described in the Notice of Availability published in the Federal Register on July 6, 2009 (74 FR 31996).

The proposed changes are consistent with NRC-approved Industry/Technical Specification Task Force (TSTF) Traveler TSTF-425, Revision 3, *Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b.* The proposed change relocates surveillance frequencies to a licensee-controlled program, the Surveillance Frequency Control Program (SFCP). This change is applicable to licensees using probabilistic risk guidelines contained in NRC-approved NEI 04-10, *Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies* (ADAMS Accession Number ML071360456).

2.0 BASIS FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION

As required by 10 CFR 50.91(a), Entergy Nuclear Operations, Inc. (Entergy) analysis of the issue of no significant hazards consideration is presented below:

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

   Response: No

   The proposed change relocates the specified frequencies for periodic surveillance requirements to licensee control under a new Surveillance Frequency Control Program. Surveillance frequencies are not an initiator to any accident previously evaluated. As a result, the probability of any accident previously evaluated is not significantly increased. The systems and components required by the technical specifications for which the surveillance frequencies are relocated are still required to be operable, meet the acceptance criteria for the surveillance requirements, and be capable of performing any mitigation function assumed in the accident analysis. 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 change create the possibility of a new or different kind of accident from any previously evaluated?

   Response: No

   No new or different accidents result from utilizing the proposed change. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements. The changes do

not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.

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

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

Response: No

The design, operation, testing methods, and acceptance criteria for systems, structures, and components (SSCs), specified in applicable codes and standards (or alternatives approved for use by the NRC) will continue to be met as described in the plant licensing basis (including the Final Safety Analysis Report and Bases to TS), since these are not affected by changes to the surveillance frequencies. Similarly, there is no impact to safety analysis acceptance criteria as described in the plant licensing basis. To evaluate a change in the relocated surveillance frequency, Entergy will perform a probabilistic risk evaluation using the guidance contained in NRC approved NEI 04-10, Revision 1 in accordance with the TS SFCP. NEI 04-10, Revision 1, methodology provides reasonable acceptance guidelines and methods for evaluating the risk increase of proposed changes to surveillance frequencies consistent with Regulatory Guide 1.177.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above, Entergy concludes that the requested change does not involve a significant hazards consideration as set forth in Title 10 of the Code of Federal Regulations, Part 50, Section 92 (10 CFR 50.92), *Issuance of amendment,* paragraph *(c)*.

Enclosure Attachment 6 to

PNP 2019-004

Traveler TSTF-425

Versus

Palisades Nuclear Plant (PNP)

Renewed Facility Operating License (RFOL)

Surveillance Requirement (SR)

Applicability Cross Reference Table

11 Pages Follow

Traveler TSTF-425 Versus PNP RFOL SR
Applicability Cross Reference Table

The below TSTF-425 applicability cross reference table is provided as a reviewers aid for the application of TSTF-425 to Entergy's PNP RFOL TS. The table contains the following information.

1. Column one, labeled **TSTF-425 SR**, contains the TSTF-425 NUREG-1432 STS surveillance requirement reference in the same sequence as listed in TSTF-425. A blank cell in this column denotes that a PNP SR included in the LAR does not have a corresponding TSTF-425 SR and as such is identified as a variance to TSTF-425.
2. Column two, labeled **TSTF-425 TS Section Title**, contains the TSTF-425 NUREG STS section title as written in TSTF-425.
3. Column three, labeled **PNP SR**, contains the PNP surveillance requirement number as listed in PNP's RFOL TS through license amendment number 266. A blank cell in this column denotes that a TSTF-425 SR does not have a corresponding PNP SR and therefore relocation of its frequency to the PNP surveillance frequency control program is not included in the LAR.
4. Column four, labeled **PNP SR Frequency**, contains the current PNP TS SR frequency that is proposed to be relocated to a surveillance frequency control program.
5. Column five, labeled **Var.**, identifies if the listed SR is a variation to TSTF-425.
6. Column six, labeled **Var. Just. Ref. (Enc. Tbl.)**, lists the table number in the enclosure that addresses the variances with respect to TSTF-425. For reference when using the below table the following is provided.

Table 1	PNP SITE SPECFIC TS SURVEILLANCE REQUIREMENTS
Table 2	PNP TS SECTION NUMBER DIFFERENCES
Table 3	TSTF-425 (CEOG STS) CHANGES NOT IN PNP TS
Table 4	TSTF-425 (CEOG STS) CHANGES NOT APPLICABLE DUE TO PNP DESIGN

Abbreviations used that are specific to the table below are:

- N/A — Not Applicable
- Y — Yes
- N — No
- h — hours
- EFPD — effective full power days
- m — months
- d — days
- min — minutes

Traveler TSTF-425 Versus PNP RFOL SR Applicability Cross Reference Table

TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
1.1	Definitions	1.1	N/A	Y	3
3.1.1.1	Shutdown Margin (SDM) (Analog)	3.1.1.1	24 h	N	N/A
3.1.2.1	Reactivity Balance (Analog)	3.1.2.1	31 EFPD	N	N/A
3.1.4.1	CEA Alignment (Analog)	3.1.4.1	12 h	N	1
3.1.4.2					3
		3.1.4.2	12 h	Y	1
3.1.4.3		3.1.4.4	18 m	Y	1
3.1.4.4		3.1.4.3	92 d	Y	2
3.1.4.5		3.1.4.5	18 m	Y	1
3.1.5.1	Shutdown CEA Insertion Limits (Analog)	3.1.5.1	12 h	N	N/A
3.1.6.1	Regulating CEA Insertion Limits (Analog)	3.1.6.1	12 h	Y	1
3.1.6.2					3
3.1.6.3		3.1.6.2	31 d	Y	2
		3.1.6.3	31 d	Y	1
3.1.7.1	STE-SDM (Analog)				3
3.1.8.1	STE- MODES 1 and 2 (Analog)	3.1.7.1	1 h	Y	1
		3.1.7.2	1 h	Y	1
		3.1.7.3	24 h	Y	1
3.1.1.1	(SDM) (Digital)				4
3.1.2.1	Reactivity Balance (Digital)				4
3.1.4.1	CEA Alignment (Digital)				4
3.1.4.2					4
3.1.4.3					4
3.1.4.4					4
3.1.5.1	Shutdown CEA Insertion Limits (Digital)				4
3.1.6.1	Regulating CEA Insertion Limits (Digital)				4
3.1.6.2					4
3.1.6.3					4
3.1.7.1	Part Length CEA Insertion Limits (Digital)				4
3.1.8.1	STE-SDM (Digital)				4
3.1.9.1	STE- MODES 1 and 2 (Digital)				4
3.2.1.1	LHR (Analog)				3
		3.2.1.1	12 h	Y	1
3.2.1.2		3.2.1.2	31 EFPD	Y	1
3.2.1.3					3
		3.2.1.4	1 h	Y	1
		3.2.1.5	1 h	Y	1
		3.2.1.6	24 h	Y	1

Traveler TSTF-425 Versus PNP RFOL SR Applicability Cross Reference Table

TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.2.2.1	F^T_{xy} (Analog)				3
3.2.3.1	F_r^T (Analog)	3.2.2.1	31 EFPD	Y	1
3.2.4.1	F_q (Analog)	3.2.3.1	12 h	Y	1
3.2.5.1	ASI (Analog)	3.2.4.1	12 h	N	2
3.2.1.1	LHR (Digital)				4
3.2.1.2					4
3.2.2.1	F_{xy} (Digital)				4
3.2.3.1	F_q (Digital)				4
3.2.3.2					4
3.2.3.3					4
3.2.4.1	DNBR (Digital)				4
3.2.4.2					4
3.2.5.1	ASI (Digital)				4
3.3.1.1	RPS Instrumentation – Operating (Analog)	3.3.1.1	12 h	Y	1
3.3.1.2		3.3.1.3	24 h	N	2
		3.3.1.2	12 h	Y	1
3.3.1.3		3.3.1.4	31 d	N	2
3.3.1.4		3.3.1.5	92 d	Y	1
3.3.1.5		3.3.1.6	92 d	Y	1
3.3.1.8		3.3.1.8	18 m	Y	1
3.3.1.9					3
3.3.2.1	RPS Instrumentation – Shutdown (Analog)				3
3.3.2.2					3
3.3.2.3					3
3.3.2.4					3
3.3.3.1	RPS Logic and Trip Initiation (Analog)				3
3.3.3.2		3.3.2.1	92 d	Y	1
3.3.3.4					3
3.3.4.1	ESFAS Instrumentation (Analog)	3.3.3.1	12 h	Y	1
3.3.4.2		3.3.3.2	92 d	Y	1
3.3.4.4		3.3.3.3	18 m	Y	1
3.3.4.5					3
3.3.5.1	ESFAS Logic and Manual Trip (Analog)	3.3.4.1 3.3.4.2 3.3.4.3	92 d	Y	1
3.3.5.2		3.3.4.1 3.3.4.2 3.3.4.3	92 d	Y	1
3.3.6.1	DG – LOVS (Analog)				3
3.3.6.2		3.3.5.1	18 m	Y	1

Traveler TSTF-425 Versus PNP RFOL SR Applicability Cross Reference Table

TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.3.6.3		3.3.5.2	18 m	Y	1
3.3.7.1	CPIS (Analog)				4
3.3.7.2					4
3.3.7.3					4
3.3.7.4					4
3.3.7.5					4
3.3.7.6					4
3.3.8.1	CRIS (Analog)	3.3.6.1	12 h	Y	1
3.3.8.2					3
3.3.8.3		3.3.6.2	31 d	Y	1
3.3.8.4		3.3.6.4	18 m	Y	1
3.3.8.5		3.3.6.3	18 m	Y	1
3.3.8.6					3
3.3.9.1	CVCS Isolation Signal (Analog)				4
3.3.9.2					4
3.3.9.3					4
3.3.10.1	SBFAS (Analog)				4
		3.3.10.1	12 h	Y	1
		3.3.10.2	31 d	Y	1
		3.3.10.3	18 m	Y	1
3.3.10.2					4
3.3.11.1	PAM Instrumentation (Analog)	3.3.7.1	31 d	N	2
3.3.11.2		3.3.7.2	18 m	N	2
3.3.12.1	Remote Shutdown System (Analog)				3
3.3.12.2		3.3.8.2	18 m	N	2
3.3.12.3		3.3.8.3	18 m	N	2
3.3.12.4					4
3.3.13.1	[Logarithmic] Power Monitoring Channels (Analog)	3.3.9.1	12 h	N	2
3.3.13.2					3
3.3.13.3		3.3.9.2	18 m	N	2
3.3.1.1	RPS Instrumentation – Operating (Digital)				4
3.3.1.2					4
3.3.1.3					4
3.3.1.4					4
3.3.1.5					4
3.3.1.6					4
3.3.1.7					4
3.3.1.8					4
3.3.1.9					4
3.3.1.10					4
3.3.1.11					4

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.3.1.14					4
3.3.2.1	RPS Instrumentation – Shutdown (Digital)				4
3.3.2.2					4
3.3.2.4					4
3.3.2.5					4
3.3.3.1	CEACs (Digital)				4
3.3.3.2					4
3.3.3.3					4
3.3.3.4					4
3.3.3.5					4
3.3.3.6					4
3.3.4.1	RPS Logic and Trip Initiation (Digital)				4
3.3.4.2					4
3.3.4.3					4
3.3.5.1	ESFAS Instrumentation (Digital)				4
3.3.5.2					4
3.3.5.3					4
3.3.5.4					4
3.3.6.1	ESFAS Logic and Manual Trip (Digital)				4
3.3.6.2					4
3.3.6.3					4
3.3.7.1	DG – LOVS (Digital)				4
3.3.7.2					4
3.3.7.3					4
3.3.8.1	CPIS (Digital)				4
3.3.8.2					4
3.3.8.3					4
3.3.8.4					4
3.3.8.5					4
3.3.8.6					4
3.3.8.7					4
3.3.8.8					4
3.3.9.1	CRIS (Digital)				4
3.3.9.2					4
3.3.9.3					4
3.3.9.4					4
3.3.9.5					4
3.3.9.6					4
3.3.10.1	FHIS (Digital)				4
3.3.10.2					4
3.3.10.3					4

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.3.10.4					4
3.3.10.5					4
3.3.10.6					4
3.3.11.1	PAM Instrumentation (Digital)				4
3.3.11.2					4
3.3.12.1	Remote Shutdown System (Digital)				4
3.3.12.2					4
3.3.12.3					4
3.3.12.4					4
3.3.13.1	[Logarithmic] Power Monitoring Channels (Digital)				4
3.3.13.2					4
3.3.13.3					4
3.4.1.1	RCS Pressure, Temperature, and Flow [DNB] Limits	3.4.1.1	12 h	Y	1
3.4.1.2		3.4.1.2	12 h	Y	1
3.4.1.3					3
3.4.1.4		3.4.1.3	18 m	Y	1
3.4.2.1	RCS Minimum Temperature for Criticality	3.4.2.1	12 h	N	N/A
3.4.3.1	RCS P/T Limits	3.4.3.1	30 min	Y	1
3.4.4.1	RCS Loops – MODES 1 and 2	3.4.4.1	12 h	N	N/A
3.4.5.1	RCS Loops – MODE 3	3.4.5.1	12 h	Y	1
3.4.5.2		3.4.5.2	12 h	N	N/A
3.4.5.3		3.4.5.3	7 d	Y	1
3.4.6.1	RCS Loops – MODE 4	3.4.6.1	12 h	Y	1
3.4.6.2		3.4.6.2	12 h	N	N/A
3.4.6.3		3.4.6.3	7 d	Y	1
3.4.7.1	RCS Loops – MODE 5, Loops Filled	3.4.7.1	12 h	Y	1
3.4.7.2		3.4.7.2	12 h	N	N/A
3.4.7.3		3.4.7.3	7 d	Y	1
3.4.8.1	RCS Loops – MODE 5, Loops Not Filled	3.4.8.1	12 h	Y	1
		3.4.8.2	12 h	Y	1
		3.4.8.3	12 h	Y	1
3.4.8.2		3.4.8.4	7 d	Y	1
3.4.9.1	Pressurizer	3.4.9.1	12 h	N	N/A
3.4.9.2		3.4.9.2	18 m	Y	1
3.4.9.3		3.4.9.3	18 m	Y	1
3.4.11.1	Pressurizer POVRs				3
3.4.11.2		3.4.11.2	18 m	Y	1
3.4.11.3					3

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.4.11.4					3
3.4.12.1	LTOP System	3.4.12.1	12 h	Y	1
3.4.12.2					4
3.4.12.3					3
3.4.12.4		3.4.12.2	12 h and 31 d	Y	1
3.4.12.5		3.4.12.3	72 h	N	2
3.4.12.6		3.4.12.4	31 d	N	2
3.4.12.7		3.4.12.5	18 m	N	2
3.4.13.1	RCS Operational LEAKAGE	3.4.13.1	72 h	N	N/A
3.4.13.2		3.4.13.2	72 h	N	N/A
3.4.14.1	RCS PIV Leakage	3.4.14.1	18 m	Y	1
3.4.14.2		3.4.14.2	18 m	Y	1
3.4.14.3					4
	RCS Leakage Detection Instrumentation	3.4.15.1	12 h	Y	1
3.4.15.1		3.4.15.2	12 h	Y	1
3.4.15.2					3
		3.4.15.3	12 h	Y	1
		3.4.15.4	18 m	Y	1
3.4.15.3		3.4.15.5	18 m	Y	1
3.4.15.4		3.4.15.6	18 m	Y	1
3.4.15.5					3
		3.4.15.7	18 m	Y	1
3.4.16.1	RCS Specific Activity	3.4.16.1	7 d	N	N/A
3.4.16.2		3.4.16.2	14 d	N	N/A
3.4.16.3		3.4.16.3	184 d	N	N/A
3.4.17.1	STE-RCS Loops				3
3.5.1.1	SITs	3.5.1.1	12 h	N	N/A
3.5.1.2		3.5.1.2	12 h	N	N/A
3.5.1.3		3.5.1.3	12 h	Y	1
3.5.1.4		3.5.1.4	31 d	N	N/A
3.5.1.5		3.5.1.5	31 d	Y	1
3.5.2.1	ECCS - Operating	3.5.2.1	12 h	N	N/A
3.5.2.2		3.5.2.2	31 d	N	N/A
3.5.2.3					3
		3.5.2.3	31 d	Y	1
3.5.2.6		3.5.2.5	18 m	N	2
3.5.2.7		3.5.2.6	18 m	N	2
3.5.2.8		3.5.2.7	18 m	N	2
3.5.2.9		3.5.2.8	18 m	N	2
3.5.2.10		3.5.2.9	18 m	Y	1
3.5.4.1	RWT	3.5.4.1	24 h	N	N/A
3.5.4.2		3.5.4.2	7 d	Y	1

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
		3.5.4.3	7 d	Y	1
3.5.4.3		3.5.4.4	31 d	Y	1
3.5.5.1	TSP	3.5.5.1	18 m	Y	1
3.5.5.2		3.5.5.2	18 m	Y	1
3.6.2.2	Containment Air Locks (Atmospheric and Dual)	3.6.2.2	24 m	N	N/A
3.6.3.1	Containment Isolation Valves (Atmospheric and Dual)				4
3.6.3.2		3.6.3.1	31 d	Y	1
3.6.3.3		3.6.3.2	31 d	Y	1
3.6.3.5					3
3.6.3.6		3.6.3.5	184	Y	1
3.6.3.7		3.6.3.6	18 m	N	2
3.6.3.8					4
3.6.4.1	Containment Pressure (Atmospheric and Dual)	3.6.4.1	12 h	N	N/A
3.6.5.1	Containment Air Temperature (Atmospheric and Dual)	3.6.5.1	24 h	N	N/A
3.6.6A.1	Containment Spray and Cooling Systems (Atmospheric and Dual)	3.6.6.1	31 d	N	N/A
3.6.6A.2		3.6.6.2	31 d	Y	1
3.6.6A.3		3.6.6.4	18 m	Y	1
3.6.6A.4		3.6.6.3	31 d	N	2
3.6.6A.6		3.6.6.6	18 m	N	N/A
3.6.6A.7		3.6.6.7	18 m	N	N/A
3.6.6A.8		3.6.6.8	18 m	Y	1
3.6.6A.9		3.6.6.9			3
3.6.6B.1	Containment Spray and Cooling Systems (Atmospheric and Dual)				4
3.6.6B.2					4
3.6.6B.3					4
3.6.6B.4					4
3.6.6B.6					4
3.6.6B.7					4
3.6.6B.8					4
3.6.6B.9					4
3.6.7.1	Spray Additive System (Atmospheric and Dual)				4
3.6.7.2					4
3.6.7.3					4
3.6.7.5					4
3.6.7.6					4

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.6.8.1	SBEACS (Dual)				4
3.6.8.3					4
3.6.8.4					4
3.6.8.5					4
3.6.9.1	HMS (Atmospheric and Dual)				4
3.6.9.2					4
3.6.9.3					4
3.6.10.1	ICS (Atmospheric and Dual)				4
3.6.10.3					4
3.6.10.4					4
3.6.11.1	Shield Building (Dual)				4
3.6.11.2					4
3.6.11.4					4
3.7.2.2	MSIVs	3.7.2.1	18 m	Y	1
3.7.3.2	MFIVs [and [MFIV] Bypass Valves]	3.7.3.1	18 m	Y	1
3.7.4.1	ADVs	3.7.4.1	18 m	N	N/A
3.7.4.2					4
3.7.5.1	AFW System	3.7.5.1	31 d	Y	1
3.7.5.3		3.7.5.3	18 m	N	N/A
3.7.5.4		3.7.5.4	18 m	Y	1
3.7.6.1	CST	3.7.6.1	12 h	Y	1
3.7.7.1	CCW System	3.7.7.1	31 d	N	N/A
3.7.7.2		3.7.7.2	18 m	N	N/A
3.7.7.3		3.7.7.3	18 m	Y	1
3.7.8.1	SWS	3.7.8.1	31 d	N	N/A
3.7.8.2		3.7.8.2	18 m	N	N/A
3.7.8.3		3.7.8.3	18 m	Y	1
3.7.9.1	UHS	3.7.9.1	24 h	N	N/A
3.7.9.2		3.7.9.2	24 h	N	N/A
3.7.9.3					3
3.7.10.1	ECW				4
3.7.10.2					4
3.7.11.1	CREACS	3.7.10.1	31 d	N	2
3.7.11.3		3.7.10.3	18 m	N	2
3.7.11.4					3
3.7.12.1	CREATCS	3.7.11.1	18 m	N	2
3.7.13.1	ECCS PREACS				4
		3.7.13.1	31 d	Y	1
3.7.13.3					4
3.7.13.4					4
3.7.13.5					4
3.7.14.1	FBACS				4
		3.7.12.2	18 m	Y	1

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.7.14.3					4
3.7.14.4					4
3.7.14.5					4
3.7.15.1	PREACS				4
3.7.15.3					4
3.7.15.4					4
3.7.15.5					4
3.7.16.1	Fuel Storage Pool Water Level	3.7.14.1	7 d	Y	1
3.7.17.1	Fuel Storage Pool Boron Concentration	3.7.15.1	7 d	N	2
3.7.19.1	Secondary Specific Activity	3.7.17.1	31 d	N	2
3.8.1.1	AC Sources - Operating	3.8.1.1	7 d	Y	1
3.8.1.2		3.8.1.2	31 d	Y	1
3.8.1.3		3.8.1.3	31 d	Y	1
3.8.1.4		3.8.1.4	31 d	N	N/A
3.8.1.5					3
3.8.1.6		3.8.3.6	92 d	N	2
3.8.1.7					3
3.8.1.8					3
3.8.1.9		3.8.1.5	18 m	N	2
3.8.1.10		3.8.1.6	18 m	Y	1
3.8.1.11		3.8.1.7	18 m	N	2
3.8.1.12					3
3.8.1.13					3
3.8.1.14		3.8.1.8	18 m	Y	1
3.8.1.15					3
3.8.1.16		3.8.1.9	18 m	Y	1
3.8.1.17					3
3.8.1.18		3.8.1.10	18 m	Y	1
3.8.1.19		3.8.1.11	18 m	N	2
3.8.1.20					3
3.8.3.1	Diesel Fuel Oil, Lube Oil, and Starting Air	3.8.3.1	24 h	Y	1
3.8.3.2		3.8.3.2	31 d	Y	1
3.8.3.4		3.8.3.4	31 d	N	N/A
3.8.3.5		3.8.3.5	92 d	Y	1
3.8.4.1	DC Sources - Operating	3.8.4.1	7 d	Y	1
		3.8.4.2	92 d	Y	1
		3.8.4.3	12 m	Y	1
		3.8.4.4	12 m	Y	1
		3.8.4.5	12 m	Y	1
3.8.4.2		3.8.4.6	18 m	Y	1
3.8.4.3		3.8.4.7	18 m	NA	2
3.8.6.1	Battery Parameters				3

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TSTF-425 SR	TSTF-425 TS Section Title	PNP SR	PNP SR Frequency	Var.	Var. Just. Ref. (Enc. Tbl.)
3.8.6.2		3.8.6.1	31 d	Y	1
3.8.6.3		3.8.6.3	92 d	Y	1
3.8.6.4		3.8.6.2	31 d	Y	1
3.8.6.5		3.8.6.3	92 d	Y	1
3.8.6.6		3.8.4.8	60 m	N	2
3.8.7.1	Inverters - Operating	3.8.7.1	7 d	Y	1
3.8.8.1	Inverters - Shutdown	3.8.8.1	7 d	Y	1
3.8.9.1	Distribution Systems - Operating	3.8.9.1	7 d	Y	1
3.8.10.1	Distribution Systems - Shutdown	3.8.10.1	7 d	Y	1
3.9.1.1	Boron Concentration	3.9.1.1	72 h	Y	1
3.9.2.1	Nuclear Instrumentation	3.9.2.1	12 h	N	N/A
3.9.2.2		3.9.2.2	18 m	N	N/A
3.9.3.1	Containment Penetrations	3.9.3.1	7 d	Y	1
3.9.3.2		3.9.3.2	18 m	Y	1
3.9.4.1	SDC and Coolant Circulation – High Water Level	3.9.4.1	12 h	Y	1
3.9.5.1	SDC and Coolant Circulation – Low Water Level	3.9.5.1	12 h	Y	1
3.9.5.2		3.9.5.2	7 d	N	N/A
3.9.6.1	Refueling Water Level	3.9.6.1	24 h	Y	1
5.5.17	Battery Monitoring and Maintenance Program				3
5.5.18	Surveillance Frequency Control Program	5.5.17	N/A	N	2