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JAFP-11-0088
July 22, 2011

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

Subject: Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program in Accordance with TSTF-425, Revision 3
Entergy Nuclear Operations, Inc
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

Reference: TSTF-425, Revision 3, Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b

Dear Sir or Madam:

In accordance with the provision of Title 10 of the Code of Federal Regulations (10 CFR Part 50.90), "Application for Amendment of License, Construction Permit, or Early Site Permit," Entergy Nuclear Operations, Inc, (Entergy) is submitting a request for an amendment to the Technical Specifications (TS) for the James A. FitzPatrick Nuclear Power Plant (JAF).

The proposed amendment would modify the JAF 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."

The changes are consistent with NRC approved Technical Specification Task Force (TSTF) TSTF-425, Revision 3 (Accession No. ML090850642). The Federal Register notice published on July 6, 2009 (74 FR 31996), announced the availability of this TS improvement.

Attachment 1 provides a description and assessment of the proposed TS changes, the requested confirmation of applicability, and plant-specific verifications. Attachment 2 provides documentation of Probabilistic Risk Assessment (PRA) technical adequacy. Attachment 3 provides the existing TS marked up to show the proposed change. Attachment 4 provides the revised (clean) TS changes. Attachment 5 provides the proposed TS Bases changes. Attachment 6 provides the proposed No Significant Hazards Consideration.

Entergy requests approval of the proposed license amendment by July 23, 2012, with the amendment being implemented within 120 days.

In accordance with 10 CFR 50.91, "Notice for Public Comment; State Consultation," a copy of this application, with attachments, is being provided to the designated New York State official.

There are no commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. Joseph Pechacek at 315-349-6766.

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

Executed on July 22nd, 2011.

Sincerely,

Kevin Bronson

Kevin Bronson
Site Vice President

KB/JP/jo

Attachments:
1. Description and Assessment
2. Documentation of PRA Technical Adequacy
3. Proposed Technical Specification Changes (Mark-Up)
4. Revised Technical Specification Pages (Clean)
5. Proposed Changes to Technical Specification Bases Pages
6. Proposed No Significant Hazards Consideration.

cc:

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Attachment 1

Description and Assessment

1.0 Description

The proposed amendment would modify the 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 5.’’

The existing Bases information describing the basis for the Surveillance Frequency will be relocated to the licensee-controlled Surveillance Frequency Control Program. Additionally, the change would add a new program, the Surveillance Frequency Control Program, to TS Section [5], Administrative Controls.

The changes are consistent with NRC approved Industry/TSTF STS change TSTF–425, Revision 3, (Rev. 3) (ADAMS Accession No. ML080280275). The Federal Register notice published on July 6, 2009 announced the availability of this TS improvement.

2.0 Assessment

2.1 Applicability of Published Safety Evaluation

Entergy Nuclear Operations, Inc. (Entergy) has reviewed the safety evaluation dated July 6, 2009. This review included a review of the NRC staff’s evaluation, TSTF–425, Revision 3, and the requirements specified in NEI 04-10, Rev. 1 (ADAMS Accession No. ML071360456).

Attachment 2 includes the James A. FitzPatrick Nuclear Power Plant (JAF) documentation with regard to PRA technical adequacy consistent with the requirements of Regulatory Guide 1.200, Revision 1 (ADAMS Accession No. ML070240001), 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 is applicable to JAF, and justify this amendment to incorporate the changes to the JAF TS.

2.2 Optional Changes and Variations

The proposed amendment is consistent with the STS changes described in TSTF–425, Revision 3 with variations or deviations from TSTF–425, as identified below and may include differing TS Surveillance numbers.

2.2.1

After NRC approval of TSTF-425, it was recognized that Frequencies that have not been changed under the Surveillance Frequency Control Program may not be based on operating experience, equipment reliability, or plant risk. Therefore, the TSTF and the NRC agreed that the Bases insert to be used by plants adopting TSTF-425 should be as stated below:

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

2.2.2

JAF Surveillances that have Surveillance numbers identical to the corresponding NUREG-1433 Surveillances are not deviations from TSTF-425.

JAF Surveillances with Surveillance numbers that differ from the corresponding NUREG-1433 Surveillances are administrative deviations from TSTF-425 with no impact on the NRC staff's model safety evaluation dated July 6, 2009 (74 FR 31996 - 20006).

For NUREG-1433 Surveillances that are not contained in the JAF TS, the corresponding NUREG-1 433 mark-ups included in TSTF-425 for these Surveillances are not applicable to JAF. This is an administrative deviation from TSTF-425 with no impact on the NRC staff's model safety evaluation dated July 6, 2009 (74 FR 31996).

For JAF plant-specific Surveillances that are not contained in NUREG-1433, and therefore, are not included in the NUREG-1433 mark-ups provided in TSTF-425, Entergy has determined that the relocation of the Frequencies for these JAF plant-specific Surveillances is consistent with TSTF-425, Revision 3, and with the NRC staff's model safety evaluation dated July 6, 2009 (74 FR 31996 - 20006), including the scope exclusions identified in Section 1.0, "Introduction," of the model safety evaluation, since the plant specific Surveillances involve fixed periodic Frequencies. In accordance with TSTF-425, changes to the Frequencies for these Surveillances would be controlled under the Surveillance Frequency Control Program (SFCP).

2.2.3

The definition for Staggered Test Basis was retained in the TS because it is used in Section 5.5.14 for the Control Room Envelope Habitability Program by the implementation of TSTF-448 in TS Amendment 289.

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration

Entergy has reviewed the proposed No Significant Hazards Consideration determination (NSHC) published in the Federal Register July 6, 2009 (74 FR 31996-32006). Entergy has concluded that the proposed NSHC presented in the Federal Register notice is applicable to JAF and is provided as an attachment to this amendment request which satisfies the requirements of 10 CFR 50.91(a).

3.2 Conclusion

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

4.0 Environmental Consideration

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 31996-32006). Entergy has concluded that the NRC’s findings presented therein are applicable to JAF, and the determination is hereby incorporated by reference for this application.

5.0 Precedent

This submittal is similar to a license amendment that was approved by the NRC for Point Beach Atomic Power Stations Units 2 and 3 (ADAMS Accession No. ML102100388) on August 27, 2010 and is consistent with NRC approved TSTF–425, Revision 3, (Rev. 3) (ADAMS Accession No. ML080280275).

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ATTACHMENT 2

Documentation of PRA Technical Adequacy

(16 Pages including Table of Contents)

Documentation of PRA Technical Adequacy

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Table

Acronyms and Abbreviations

AOV	Air Operated Valve
AS	Accident Sequence Analysis
ASME	American Society of Mechanical Engineers
BWROG	Boiling Water Reactors Owners Group
BWR	Boiling Water Reactor
CDF	Core Damage Frequency
DA	Data Analysis
EOOS	Equipment out of Service
EPRI	Electric Power Research Institute
F&Os	Facts and Observations
FIVE	Fire Induced Vulnerability Evaluation
HEP	Human Error Probability
HFE	Human Failure Event
HFO	High Winds, Floods, and Other External
HRA	Human Reliability Analysis
IDP	Integrated Decision making Panel
IE	Initiating Events Analysis
IF	Internal Flooding
IPEEE	Individual Plant Examination of External Events
JAF	James A. Fitzpatrick Nuclear Power Plant
LE	LERF Analysis
LERF	Large Early Release Frequency
MCR	Model Change Request
MSPI	Mitigating System Performance Index
MU	Maintenance and Update Process
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PRA	Probabilistic Risk Assessment
PSA	Probabilistic Safety Assessment
PWR	Pressurized Water Reactor
QU	Quantification
RAW	Risk Achievement Worth
SC	Success Criteria
SMA	Seismic Margins Analysis
SRP	Standard Review Plan
SSCs	Systems, Structures and Components
STI	Surveillance Test Interval
SY	System Analysis

Documentation of PRA Technical Adequacy

2.1 Overview

The implementation of the Surveillance Frequency Control Program (also referred to as Technical Specifications Initiative 5b) at the James A. Fitzpatrick Nuclear Power Plant (JAF) will follow the guidance provided in NEI 04-10, Revision 1 [Reference 1] in evaluating proposed surveillance test interval (STI; also referred to as "surveillance frequency") changes.

The following steps of the risk-informed STI revision process are common to the proposed changes to all STIs within the proposed licensee-controlled program.

- Each STI revision will be reviewed to determine whether there are any commitments made to the NRC that may prohibit changing the interval. If there are no related commitments, or the commitments may be changed using a commitment change process based on NRC endorsed guidance, then evaluation of the STI revision would proceed. If a commitment exists and the commitment change process does not permit the change, then the STI revision would not be implemented.

- A qualitative analysis will be performed for each STI revision that involves several considerations as explained in NEI 04-10, Revision 1.

- Each STI revision will be reviewed by an Expert Panel, referred to as the Integrated Decision making Panel (IDP), which is normally the same panel as is used for Maintenance Rule implementation, but with the addition of specialists with experience in surveillance tests and system or component reliability. If the IDP approves the STI revision, the change is documented and implemented, and available for audit by the NRC. If the IDP does not approve the STI revision, the STI value is left unchanged.

- Performance monitoring will be conducted as recommended by the IDP. In some cases, no additional monitoring may be necessary beyond that already conducted under the Maintenance Rule. The performance monitoring will help to confirm that no failure mechanisms related to the revised test interval become important enough to alter the information provided for the justification of the interval changes.

- The IDP will be responsible for periodic review of performance monitoring results. If it is determined that the time interval between successive performances of a surveillance test is a factor in the unsatisfactory performances of the surveillance, the IDP will return the STI back to the previously acceptable STI.

- In addition to the above steps, the Probabilistic Risk Assessment (PRA), also referred to as Probabilistic Safety Assessment (PSA), will be used when possible to quantify the effect of a proposed individual STI revision compared to acceptance criteria in NEI 04-10. Also, the cumulative impact of all risk-informed STI revisions on all PRAs (i.e., internal events, external events and shutdown) is also compared to the risk acceptance criteria as delineated in NEI 04-10.

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 will be performed to provide justification for the acceptability of the proposed test interval change.

The NEI 04-10 methodology is consistent with the guidance provided in Regulatory Guide 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" [Reference 2]. The guidance in Regulatory Guide 1.200 indicates that the following steps should be followed when performing PRA assessments (Note: Because of the broad scope of potential Initiative 5b applications and the fact that the risk assessment details will differ from application to application, each of the issues encompassed in Items 1 through 3 below will be covered in the PRA assessment made in support of the individual STI interval requests. Item 3 satisfies one of the requirements of Section 4.2 of Regulatory Guide 1.200. The remaining requirements of Section 4.2 are addressed by Item 4 below.):

1. Identify the parts of the PRA used to support the application

   - Systems, Structures and Components (SSCs), operational characteristics affected by the application and how these are implemented in the PRA model

   - A definition of the acceptance criteria (e.g., change in CDF and LERF) used for the application

2. Identify the scope of risk contributors addressed by the PRA model

   - If not full scope (i.e., internal and external), identify appropriate compensatory measures or provide bounding arguments to address the risk contributors not addressed by the model.

3. Summarize the risk assessment methodology used to address the risk of the application

   - Include how the PRA model was modified to appropriately model the risk impact of the change request.

4. Demonstrate the Technical Adequacy of the PRA

   - Identify plant changes (design or operational practices) that have been incorporated at the site, but are not yet in the PRA model and justify why the change does not impact the PRA results used to support the application.

- Document peer review findings and observations that are applicable to the parts of the PRA required for the application, and for those that have not yet been addressed, justify why the significant contributors would not be impacted.

- Document that the parts of the PRA used in the decision are consistent with the ASME standard endorsed by Regulatory Guide 1.200, Revision 2. Provide justification to show that where specific requirements in the standard are not adequately met, it will not unduly impact the results.

- Identify key assumptions and approximations relevant to the results used in the decision-making process.

The purpose of the remaining portion of this attachment is to address the requirements identified in Item 4 above.

2.2 Technical Adequacy of the PRA Model

The JAF Probabilistic Risk Assessment (PRA) model is the most recent evaluation of the JAF risk profile for internal event challenges [Reference 3]. The JAF PRA modeling is highly detailed, including a wide variety of initiating events, modeled systems, operator actions, and common cause failure events. The PRA model quantification process used for the JAF PRA is based on the event tree and fault tree methodology, which is a well-known methodology in the industry.

Entergy employs a multi-faceted approach to establishing and maintaining the technical adequacy and plant fidelity of the PRA models for all operating Entergy nuclear power plants. This approach includes both a proceduralized PRA maintenance and update process, and the use of self-assessments and independent peer reviews. The following information describes this approach as it applies to the JAF PRA model.

<u>PRA Maintenance and Update</u>

The Entergy risk management process ensures that the applicable PRA model is an accurate reflection of the as-built and as-operated plant. This process is defined in the procedure EN-DC-151, "PSA Maintenance and Update". This procedure delineates the responsibilities and guidelines for updating the full power internal events PRA models at all operating Entergy nuclear power plants. In addition, the procedure also defines the process for implementing regularly scheduled and interim PRA model updates, and for tracking issues identified as potentially affecting the PRA models (e.g., due to changes in the plant, industry operating experience, etc.). To ensure that the current PRA model remains an accurate reflection of the as-built, as-operated plant, the following activities are routinely performed:

- Design changes and procedure changes are reviewed for their impact on the PRA model. Potential PRA model changes resulting from these reviews are entered into the Model Change Request (MCR) database, and a determination is made regarding the significance of the change with respect to current PRA model.

- New engineering calculations and revisions to existing calculations are reviewed for their impact on the PRA model.

- Plant specific initiating event frequencies, failure rates, and maintenance unavailabilities are updated approximately every four years, and

- Industry standards, experience, and technologies are periodically reviewed to ensure that any changes are appropriately incorporated into the models.

In addition, following each periodic PRA model update, Entergy performs a self assessment to assure that the PRA quality and expectations for all current applications are met. The Entergy PRA maintenance and update procedure requires updating of all risk informed applications that may have been impacted by the update including but not limited to:

- System/component risk significance rankings
- PRA training materials
- AOV / MOV Risk Rankings
- Online Risk Model (EOOS)
- Mitigating System Performance Index input (MSPI)

2.2.1 Plant Changes Not Yet Incorporated into the JAF PRA Model

As part of the PRA evaluation for each STI change request, a review of open items in the MCR database for JAF will be performed and an assessment of the impact of the open items on the results of the PRA evaluation of the STI change request will be made prior to presenting the results of the risk analysis to the IDP. If the impact is not expected to be negligible, then this may include the performance of additional sensitivity studies or PRA model changes to confirm the impact on the risk analysis and justify why the change does not impact the PRA results used to support the application.

2.2.2 Regulatory Guide 1.200 BWROG Peer Review of the JAF PRA Model

The JAF PRA internal events model went through Regulatory Guide 1.200 BWROG peer review in September 2009. The NEI 05-04 process [Reference 4], the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) PRA Standard [Reference 5], and Regulatory Guide 1.200, Rev. 2 [Reference 2]) were used for the peer review.

The 2009 JAF PRA Peer Review was a full-scope review of all the Technical Elements of the internal events, at-power PRA:

- Initiating Events Analysis (IE)
- Accident Sequence Analysis (AS)
- Success Criteria (SC)
- Systems Analysis (SY)
- Human Reliability Analysis (HR)
- Data Analysis (DA)
- Internal Flooding (IF)
- Quantification (QU)
- LERF Analysis (LE)
- Maintenance and Update Process (MU)

The JAF PRA Peer Review process uses capability categories to assess the relative technical merits and capabilities of each technical supporting requirement reviewed. Three capability category levels are used to indicate the relative quality level of each supporting requirement. Capability category assignments are made based on the judgment of the Peer Review Team after reviewing: (1) the PRA model, (2) the documentation; and, (3) the prior PRA Peer Review results (for historical background).

During the JAF PRA model Peer Review, the technical elements identified above were assessed with respect to Capability Category II criteria to better focus the Supporting Requirement assessments. The ASME/ANS PRA Standard has 326 individual Supporting Requirements; 310 Supporting Requirements are applicable to the JAF PRA model. Sixteen (16) of the ASME/ANS PRA Standard Supporting Requirements are not applicable to JAF (e.g., PWR related, multi-site related). Of the 310 ASME/ANS PRA Standard Supporting Requirements applicable to the JAF PRA model, approximately 94% satisfied Capability Category II criteria or greater. The Facts and Observations (F&Os) for the JAF PRA peer review are provided in Appendix B of the report, entitled, “James A. FitzPatrick Nuclear Power Plant PRA Peer Review Report Using ASME PRA Standard Requirements” [Reference 6]. Of the 53 Facts and Observations (F&Os) generated by the Peer Review Team, 24 were considered Findings, 27 were Suggestions, and 2 were Best Practices.

2.2.3 Consistency with Applicable PRA Standards

As a result of the Regulatory Guide 1.200 BWROG peer review, 51 F&Os have been identified for potential improvement to the JAF PRA model. These F&Os are tracked in the Entergy Model Change Request (MCR) database. Of the identified 51 F&Os, 21 were considered not meeting at least the Capability Category II criteria. Table 2-1 summarizes the open F&Os along with an initial assessment of the impact for this application. For each F&O in Table 2-1, JAF will perform an additional assessment of its impact on the results of the PRA evaluation of the STI change request prior to presenting the results to the IDP. If an impact is not expected to be negligible, then this assessment may include the performance of additional sensitivity studies or PRA model changes to confirm the impact on the risk analysis and justify why the change does not impact the PRA results used to support the application.

2.2.4 Identification of Key Assumptions

The overall Initiative 5b process is a risk-informed process with the PRA model results providing one of the inputs to the IDP to determine if an 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.

The results of the standby failure rate sensitivity study plus the results of any additional sensitivity studies identified during the performance of the reviews as outlined in 2.2.1 and 2.2.3 above (including a review of identified sources of uncertainty that were developed for JAF based on the EPRI 1016737 guidance [Reference 7]) will be documented for each STI change assessment and included in the results of the risk analysis that goes to the IDP.

2.3 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. 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 1996 in the JAF Individual Plant Examination of External Events (IPEEE) submittal in response to the NRC IPEEE Program (Generic Letter 88-20, Supplement 4) [Reference 8]. 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.

The results of the JAF IPEEE study are documented in the JAF IPEEE Report [Reference 9]. The primary areas of external event evaluation at JAF were internal fire, seismic, high winds, floods, and other external hazards.

Fire Analysis

The JAF IPEEE fire analysis was performed using EPRI's Fire PRA Implementation Guide [Reference 10]. The EPRI Fire Induced Vulnerability Evaluation method was used for the initial screening, for treatment of transient combustibles, and as the source of fire frequency data [Reference 11].

The fire analysis was revised after the original IPEEE submittal in response to NRC requests for additional information (RAIs) regarding fire-modeling progression, developed during their review of the IPEEE. The updated results are reflected in NUREG-1742, “Perspectives Gained from the Individual Plant Examination of External Events (IPEEE) Program” [Reference 12] for JAF. In addition, as noted in that NUREG, a number of plant and procedural changes (including strict limitations on storage and use of combustible and flammable material in plant areas) were made as a result of the IPEEE fire analysis. The impact of these enhancements is not reflected in the IPEEE fire results.

Other changes to the plant configuration, procedures and equipment performance have also taken place since completion of the IPEEE. These changes would tend to reduce the overall CDF as well as the fire risk contribution found in the IPEEE. The significant reduction in the internal events CDF since the original JAF IPEEE submittal bears this out. These changes include the following:

- Service, instrument, and breathing air compressors were replaced.
- Operators are directed to maximize CRD flow in certain accident sequences.
- SRV Electric Lift mod to install an SRV alternate actuation system.
- A new procedure (EP-10) directs operators to align the fire protection system to the tube side of the RHR heat exchanger in loss of containment heat removal accident sequences.
- Revised station blackout procedures to explicitly address bus recovery.
- Provision of a back-up battery charger that can be aligned to either station battery.
- Proceduralized RCIC operation without DC power.
- Proceduralized starting EDG without DC power, as well as field flashing without station batteries.

Thus, although the JAF IPEEE fire risk model has not been updated since its original issuance, use of the IPEEE model would tend to give conservative results. Given that, and the fact that dominant cutsets from the IPEEE for each significant fire zone are still available, the existing IPEEE fire results can reasonably be used to perform sensitivities, when required, to determine the impact on fire risk of proposed STI changes.

Seismic Analysis

The seismic portion of the IPEEE was completed in conjunction with the SQUG program [Reference 13]. JAF performed a seismic margin assessment (SMA) following the guidance of NUREG-1407, “Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities”, June, 1991 [Reference 14] and EPRI NP-6041-SL, Revision 1,”A

Methodology for Assessment of Nuclear Power Plant Seismic Margin", August 1991 [Reference 15]. The SMA approach is a deterministic and conservative evaluation that does not calculate risk on a probabilistic basis. Therefore, its results cannot be compared directly with the best-estimate internal events results.

A number of plant improvements (including strengthening the block walls in the EDG Building) were identified and, as described in NUREG-1742,"Perspectives Gained from the IPEEE Program," Final Report, April 2002 [Reference 12], these improvements were implemented.

High Winds, Floods, and Other External Hazards (HFO)

In addition to internal fires and seismic events, the JAF IPEEE analysis of HFO external hazards was accomplished by reviewing the plant environs against regulatory requirements regarding these hazards. Since JAF was designed (with construction started) prior to the issuance of the 1975 Standard Review Plan (SRP) criteria, JAF performed a plant hazard and design information review for conformance with the SRP criteria. For HFO events that were not screened out by compliance with the 1975 SRP criteria, additional analyses were performed to determine whether or not the hazard frequency was acceptably low. Based on those analyses, these hazards were determined in the JAF IPEEE to be negligible contributors to overall plant risk.

As stated earlier, the NEI 04-10 methodology allows for STI change evaluations to be performed in the absence of PRA models for fires, seismic, and HFOs as follows:

- For fire risk impacts, if the SSC is explicitly modeled and evaluated in the Fire PRA analyses, then the Fire PRA may be utilized to determine the acceptability of the STI change. If the SSC is determined to be implicitly modeled; then there is a choice of performing either a bounding analysis or a qualitative analysis. If the SSC is not modeled, (either explicitly or implicitly), the proposed STI change may still be justified if it is judged to have no impact on the PRA fire results. Where the SSC is qualitatively screened, the supporting information is summarized for presentation to the IDP.

- For seismic risk impacts, if the SSC is included in the SMA, then qualitative information may be developed that supports the acceptability of the STI change with respect to the seismic risk. If the SSC is not evaluated in the SMA, the proposed STI change may still be justified if it is judged that the SSC has no impact on the PRA seismic risk. In either case, the supporting information is summarized for presentation to the IDP.

- For HFOs, if the SSC is evaluated in the HFO external hazards analysis, then qualitative information may be developed that supports the acceptability of the STI change with respect to the external hazards risk. If the SSC is not evaluated in the external hazards screening evaluation, the proposed STI change may still be justified if it is judged that the SSC has no impact on the PRA external hazards risk. In either case, the supporting information is summarized for presentation to the IDP.

Therefore, in performing the assessments for the fire, seismic, and other external hazard groups, a Fire PRA/SMA evaluation, qualitative or a bounding approach will be utilized on case-by-case basis.

2.4 Summary

The JAF PRA technical capability evaluations and the maintenance and update processes described above provide a robust basis for concluding that the JAF PRA model and associated external event risk analysis results are suitable for use in the risk-informed process proposed for the implementation of a Surveillance Frequency Control Program. In addition to the standard set of sensitivity studies required per the NEI 04-10 methodology, any open MCR items related to changes at the site that may impact the PRA model but have not yet been incorporated or otherwise resolved, and any open F&Os not meeting Capability Category II from the Regulatory Guide 1.200 BWROG peer review will be reviewed to determine which, if any, would merit specific sensitivity studies to justify why the open items do not impact the PRA results used to support the STI change prior to presenting the results of the risk analysis to the IDP.

2.5 References

[1] Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies, Industry Guidance Document, NEI 04-10, Revision 1, April 2007.

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

[3] Engineering Report, JAF-NE-09-00001, Rev.0, “Fitzpatrick Probabilistic Safety Assessment (PSA), Rev 4”, August, 2009.

[4] NEI 05-04, Process for Performing Follow-on PRA Peer Reviews Using the ASME PRA Standard, Nuclear Energy Institute, Rev. 2, November 2008.

[5] American Society of Mechanical Engineers/American Nuclear Society, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications, (ASME RA-Sa-2009), February 2009.

[6] James A. FitzPatrick Nuclear Power Plant PRA Peer Review Report Using ASME PRA Standard Requirements, April 2010.

[7] Treatment of Parameter and Model Uncertainty for Probabilistic Risk Assessments, EPRI, Palo Alto, CA: November 2008 (Final). 1016737.

[8] NRC Generic Letter 88-20, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities -10 CFR 50.54(f), Supplement 4," June 28, 1991.

[9] James A. Fitzpatrick Nuclear Power Plant, Individual Plant Examination of External Events (IPEEE) Report, June 1996.

[10] Parkinson, W. J., “EPRI Fire PRA Implementation Guide”, prepared by Science Applications International Corporation for Electric Power Research Institute, EPRI TR-105928, December 1995.

[11] Professional Loss Control, Inc., Fire-Induced Vulnerability Evaluation (FIVE) Methodology Plant Screening Guide, EPRI TR-100370, Electric Power Research Institute, Final Report, April 1992.

[12] U.S. Nuclear Regulatory Commission, NUREG-1742 “Perspectives Gained From the Individual Plant Examination of External Events (IPEEE) Program,” Volume 1 & 2, Final Report, April 2002.

[13] SQUG, “Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment”, Revision 2, Corrected, February 14, 1992.

[14] United States Nuclear Regulatory Commission, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," NUREG-1407, June 1991.

[15] Electric Power Research Institute, "A Methodology for Assessment of Nuclear Power Plant Seismic Margin," EPRI NP-6041-SL, Revision 1, August 1991.

Table 2-1 Summary of Identified Gaps to Capability Category II of the ASME/ANS PRA Standard

F&O Significance	DESCRIPTION OF F&O	APPLICABLE SRs	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
Finding	The use of CRD for makeup does not account for time dependency. Gate U3 is used after containment heat removal fails and venting is a success. The success criteria for CRD indicate that it is not a valid source of makeup immediately after a transient. It is implicit that HPCI or RCIC work until containment is vented.	AS-B7	Open. Although success of early injection (from HPCI, RCIC, LPCI, core spray) is not explicitly modeled in the event trees, CRD is only credited on the success branch, because early injection sequences (if initially successful) fail long-term due to the accident phenomena cause by the loss of containment heat removal. In addition, the random failure of early injection based on past event tree development is truncated out during accident sequence quantification.	None. Changes in STIs are not relevant to the modeling of the long-term use of the CRD system as a source of RPV injection during a loss of containment decay heat event.
Finding	Appendix H4 states that 'When applying the dependency model, the dependency was generally applied to the HEP with the higher HEP (versus assigning the dependency to the action which occurs later in time). This does not conform to the established calculation method. In general, it is more appropriate to choose the event that would occur first in the accident sequence. The reason for this is that if the operators failed on the first action, then they are more likely to fail on subsequent actions (unless there is an intervening success). If the events occur relatively close in time, then it may be acceptable to choose the one with the lowest probability. The reason for this is that the lower probability is usually the easier action to perform or the one with more time available.	HR-G7	Open. The HRA guidance on assessing dependency between post-initiator HFEs has been modified to incorporate this peer review comment. However, the new HRA guidance has not yet been incorporated into the JAF PRA model.	Not significant. This change does not have a significant impact on the results because 1) the HFEs with the lowest HEPs are generally the ones which occur earlier in the accident sequence and 2) the assigned dependencies are often conservative because they are based on the overall HEP value (whereas dependency between the execution portion of the HEPs can frequently be justified as being low or zero).

Table 2-1 Summary of Identified Gaps to Capability Category II of the ASME/ANS PRA Standard

F&O Significance	DESCRIPTION OF F&O	APPLICABLE SRs	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
Finding	The JAF PRA determined a point estimate for core damage and documented an analysis for parametric uncertainty. However, the state of knowledge correlation was not fully accounted for due to the manner in which the JAF basic event data base is constructed.	QU-A3	Open. As future updates are performed, the state of knowledge correlation (SOKC) will be re-examined as part of the quantification process.	Not significant. A sensitivity performed at the time of the RG 1.200 BWROG peer review demonstrated that the state of knowledge correlation is not a significant issue for the current JAF PRA model. This is evidenced by the fact that the mean and point estimate CDF and LERF values are very close in value.
Finding	Ranking of components by RAW and RRW is presented in tables I.3-1 and I.3-2. However, no discussion was found with respect to the reasonableness of the ranking.	QU-D7	Open. Reasonableness of the SSC rankings was verified through a review of the results, which was performed prior to issuing the PSA report.	None. This is a documentation issue only.
Finding	The level 2 model uses point estimates for success branches while the failure logic is modeled for the failure branch	LE-C4	Open. For Level 2 top events that include severe accident phenomena, those phenomena dominate and use of point estimate values is typical and appropriate. Where phenomena are not involved, system related success terms do not influence the outcome of the sequence quantification.	Not significant. Since use of point estimates is reasonable for top events that include phenomena, and system related success probabilities are approximately equal to 1.0, no impact on the application is expected.
Finding	The definition of 'Early' is inconsistent within the document and may classify some LERF sequences as non-LERF.	LE-E3	Open. Resolution of this F&O entails defining an ‘Early’ release based on the time to declare a ‘General Emergency’ and subsequent linking of each accident progression sequence to a declaration time for comparison to the 'Early' criterion.	Limited. Changes in STIs are not expected to significantly impact the time available to implement effective protective actions prior to the occurrence of a radionuclide release. This will be evaluated as part of the case-by case STI assessment

Table 2-1 Summary of Identified Gaps to Capability Category II of the ASME/ANS PRA Standard

F&O Significance	DESCRIPTION OF F&O	APPLICABLE SRs	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
Finding	Spray-induced and submergence induced failures appear to have been addressed in the analysis. No documentation of a systematic assessment of the effects of jet impingement, pipe whip, humidity, temperature, etc., on SSCs could be identified. No evaluation of the specific equipment evaluated in the PRA compared to equipment considered in the design analyses, e.g., EQ lists, was documented. Since the PRA can credit non-safety-related equipment, relying on design basis evaluations to dismiss these dynamic effects may credit equipment that cannot withstand the effects considered in the design analysis. In addition, failure in a system containing high temperature fluid can actuate fire systems and impact additional equipment. Also, the PRA models may evaluate breaks beyond those of the design basis.	IFSN-A6	Open. The additional impacts noted in the F&O are only required for Capability Category III. The only requirement to meet Capability Category II is to document that those mechanisms are not included in the scope. This will be documented in a future update.	None. This is a documentation issue only.
Finding	Although the corresponding initiating event group is identified for several of the internal flooding scenarios, there is no such information provided in the internal flooding documentation for the vast majority of the scenarios.	IFEV-A1	Open. Although not specifically provided in the internal flooding analysis documentation, the link to the initiating event utilized and the impacted equipment is provided in the flag file for each flooding initiator.	None. This is a documentation enhancement issue.

Table 2-1 Summary of Identified Gaps to Capability Category II of the ASME/ANS PRA Standard

F&O Significance	DESCRIPTION OF F&O	APPLICABLE SRs	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
Finding	Quantification of initiating event frequency is not documented in the Internal Flooding Analysis. A series of spreadsheets that were used to quantify internal flooding initiating event frequency values were provided. The documentation does not allow a reviewer to correlate the piping and areas considered for each initiating event without recourse to the author and spreadsheets that are maintained outside of the approved documentation.	IFEV-A5	Open. As noted, the required information is provided in a series of spreadsheets. These spreadsheets will be integrated in a single easily reviewed format in a future update.	None. This is a documentation enhancement issue.
Finding	Review and consideration of plant-specific information is required by the SR to meet Capability Category II.	IFEV-A6	Open. A search of the JAF condition reporting system was performed for a period of 15 years for the Internal Flooding Analysis. No significant internal flooding events were identified which would significantly alter the generic data.	Not significant. Since plant specific data was reviewed for applicability and determined not change the input, this is considered a documentation enhancement issue.
Finding	Appendix C does not contain evidence of a review of initiating events for applicability during flood scenarios. The development of event trees and selection of initiating events is only briefly discussed in Section C3.3.	IFQU-A1	Open. Although not specifically provided in the internal flooding analysis documentation, evidence of the initiating event utilized and the impacted equipment is provided in the flag file for each flooding initiator.	None. This is a documentation enhancement issue.

JAFP-11-0088
Attachment 3

Proposed Technical Specification Changes
(Mark-Up)

Pages

3.1.3-4	3.3.3.1-3	3.4.9-5	3.6.2.3-2	3.8.4-3
3.1.4-2	3.3.3.2-2	3.4.9-6	3.6.2.4-2	3.8.4-4
3.1.5-3	3.3.4.1-3	3.5.1-3	3.6.3.1-1	3.8.6-2
3.1.6-2	3.3.5.1-7	3.5.1-4	3.6.3.2-2	3.8.6-3
3.1.7-2	3.3.5.2-3	3.5.1-5	3.6.4.1-2	3.8.7-2
3.1.7-3	3.3.6.1-4	3.5.1-6	3.6.4.2-4	3.8.8-2
3.1.7-4	3.3.6.1-5	3.5.2-2	3.6.4.3-3	3.9.1-2
3.1.8-2	3.3.6.2-2	3.5.2-3	3.7.1-2	3.9.2-1
3.2.1-1	3.3.6.2-3	3.5.2-4	3.7.2-2	3.9.2-2 delete
3.2.2-1	3.3.7.1-2	3.5.3-2	3.7.2-3	3.9.3-1
3.2.3-1	3.3.7.2-2	3.5.3-3	3.7.2-4	3.9.5-1
3.3.1.1-3	3.3.7.2-3	3.6.1.1-2	3.7.3-3	3.9.6-1
3.3.1.1-4	3.3.7.3-2	3.6.1.2-4	3.7.4-3	3.9.7-2
3.3.1.1-5	3.3.8.1-2	3.6.1.3-7	3.7.5-2	3.9.8-2
3.3.1.2-2	3.3.8.2-2	3.6.1.3-8	3.7.6-2	3.10.2-2
3.3.1.2-3	3.3.8.2-3	3.6.1.3-9	3.7.7-1	3.10.3-3
3.3.1.2-4	3.4.1-3	3.6.1.4-1	3.8.1-4	3.10.4-3
3.3.2.1-3	3.4.2-2	3.6.1.5-1	3.8.1-5	3.10.4-4
3.3.2.1-4	3.4.4-2	3.6.1.6-2	3.8.1-6	3.10.5-2
3.3.2.1-5	3.4.5-3	3.6.1.6-3	3.8.1-7	3.10.5-3 delete
3.3.2.2-1	3.4.6-2	3.6.1.7-2	3.8.1-8	3.10.6-2
3.3.2.2-2	3.4.7-2	3.6.1.8-2	3.8.1-9	3.10.8-3
3.3.2.2-3 delete	3.4.8-1	3.6.1.9-2	3.8.1-10	3.10.8-4
3.3.3.1-2	3.4.8-2 delete	3.6.2.1-3	3.8.1-11 delete	5.5-15
	3.4.9-3	3.6.2.2-1	3.8.3-2	
			3.8.3-3	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	~~24 hours~~In accordance with the Surveillance Frequency Control Program
SR 3.1.3.2	------------------------------NOTE------------------------------ Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. --- Insert each withdrawn control rod at least one notch.	 ~~31 days~~In accordance with the Surveillance Frequency Control Program
SR 3.1.3.3	Verify each control rod scram time from fully withdrawn to notch position 04 is ≤ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.4	Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position <u>AND</u> Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	~~200 days cumulative operation in MODE 1~~In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Declare the associated control rod inoperable.	1 hour
D. Required Action B.1 or C.1 and associated Completion Time not met.	D.1	------- NOTE-------- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. -------------------- Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is ≥ 940 psig.	~~7 days~~In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Nine or more OPERABLE control rods not in compliance with BPWS.	B.1	-------- NOTE ---------- Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1. ------------------------- Suspend withdrawal of control rods.	Immediately
	AND		
	B.2	Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify all OPERABLE control rods comply with BPWS.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	~~24 hours~~In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-2.	~~24 hours~~In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	Verify temperature of pump suction piping is within the limits of Figure 3.1.7-2.	~~24 hours~~In accordance with the Surveillance Frequency Control Program
SR 3.1.7.4	Verify continuity of explosive charge.	~~31 days~~In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the limits of Figure 3.1.7-1.	~~31 days~~In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	~~31 days~~In accordance with the Surveillance Frequency Control Program
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 50 gpm at a discharge pressure ≥ 1275 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	~~24 months on a STAGGERED TEST BASIS~~In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	In accordance with the Surveillance Frequency Control Program~~24 months~~ AND Once within 24 hours after piping temperature is restored within the limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 34.7 atom percent B-10.	Prior to addition to SLC tank
SR 3.1.7.11	Verify sodium pentaborate enrichment in solution in the SLC tank is ≥ 34.7 atom percent B-10.	In accordance with the Surveillance Frequency Control Program~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-----------------NOTE------------------ Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. --- Verify each SDV vent and drain valve is open.	In accordance with the Surveillance Frequency Control Program~~31 days~~
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	In accordance with the Inservice Testing Program
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 30 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	In accordance with the Surveillance Frequency Control Program~~24 months~~

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

LCO 3.2.1 All APLHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any APLHGR not within limits.	A.1	Restore APLHGR(s) 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 3.2.1.1	Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program~~24 hours thereafter~~

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LCO 3.2.2 All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any MCPR not within limits.	A.1	Restore MCPR(s) 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 3.2.2.1	Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND ~~24 hours thereafter~~In accordance with the Surveillance Frequency Control Program

(continued)

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

LCO 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any LHGR not within limits.	A.1	Restore LHGR(s) 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 3.2.3.1	Verify all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program~~24 hours thereafter~~

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.3.1.1.2	-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER ≥ 25% RTP. ----- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP while operating at ≥ 25% RTP.	In accordance with the Surveillance Frequency Control Program ~~7 days~~
SR 3.3.1.1.3	-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ----- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~7 days~~
SR 3.3.1.1.4	Perform a functional test of each RPS automatic scram contactor.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.5	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to fully withdrawing SRMs
SR 3.3.1.1.6	----------------- NOTE ------------------ Only required to be met during entry into MODE 2 from MODE 1. -------------------------------------- Verify the IRM and APRM channels overlap.	In accordance with the Surveillance Frequency Control Program~~7 days~~
SR 3.3.1.1.7	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program~~2000 MW D/T average core exposure~~
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.3.1.1.9	----------------- NOTE ------------------ 1. Neutron detectors are excluded. 2. For Functions 1.a and 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Function 2.b, the recirculation loop flow signal portion of the channel is excluded. -------------------------------------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~92 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program~~184 days~~
SR 3.3.1.1.11	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.1.1.12	---------- NOTE ---------- For Function 2.b, all portions of the channel except the recirculation loop flow signal portion are excluded. -------------------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.1.1.13	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.1.1.14	Verify Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure—Low Functions are not bypassed when THERMAL POWER is ≥ 29% RTP.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.1.1.15	---------- NOTE ---------- 1. Neutron detectors are excluded. 2. "n" equals 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. -------------------- Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program~~24 months~~

	~~on a STAGGERED TEST BASIS~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1	Fully insert all insertable control rods.	1 hour
	AND		
	D.2	Place reactor mode switch in the shutdown position.	1 hour
E. One or more required SRMs inoperable in MODE 5.	E.1	Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	AND		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

------------------------------------- NOTE -------------------------------------
Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified condition.

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program~~12 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.2.2	------------------------------ NOTE ------------------------------ 1. Only required to be met during CORE ALTERATIONS. 2. One SRM may be used to satisfy more than one of the following. -- Verify an OPERABLE SRM detector is located in: a. The fueled region; b. The core quadrant where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region; and c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.	In accordance with the Surveillance Frequency Control Program~~12 hours~~
SR 3.3.1.2.3	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.3.1.2.4	------------------------------ NOTE ------------------------------ Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. -- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	In accordance with the Surveillance Frequency Control Program~~12 hours during CORE ALTERATIONS~~ ~~AND~~ ~~24 hours~~

(continued)

SURVEILLANCE REQUIRMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.5	---------------------- NOTE --------------------- The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. -- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program~~7 days~~
SR 3.3.1.2.6	---------------------- NOTE --------------------- Not required to be performed until 12 hours after IRMs on Range 2 or below. -- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program~~31 days~~
SR 3.3.1.2.7	---------------------- NOTE --------------------- 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~92 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One or more Reactor Mode Switch—Shutdown Position channels inoperable.	E.1	Suspend control rod withdrawal.	Immediately
	AND		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-- NOTE --

1. Refer to Table 3.3.2.1-1 to determine which SRs apply for each Control Rod Block Function.

2. When an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.2.1.2	---------------------- NOTE ---------------------- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.3	---------------------- NOTE --------------------- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.2.1.4	---------------------- NOTE --------------------- Neutron detectors are excluded. --- Verify the RBM is not bypassed: a. When THERMAL POWER is ≥ 30% RTP; and b. When a peripheral control rod is not selected.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.2.1.5	---------------------- NOTE --------------------- 1. Neutron detectors are excluded. 2. For Function 1.a, the recirculation loop flow signal portion of the channel is excluded. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.2.1.6	Verify the RWM is not bypassed when THERMAL POWER is ≤ 10% RTP.	In accordance with the Surveillance Frequency Control Program~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.7	---------------------- NOTE ---------------------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.2.1.8	---------------------- NOTE ---------------------- For Function 1.a, all portions of the channel except the recirculation loop flow signal portion are excluded. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.2.1.9	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

LCO 3.3.2.2 Three channels of feedwater and main turbine high water level trip instrumentation shall be OPERABLE.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1	Place channel in trip.	7 days
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1	Restore feedwater and main turbine high water level trip capability.	2 hours
C. Required Action and associated Completion Time not met.	C.1	-------- NOTE ---------- Only applicable if inoperable channel is the result of inoperable feedwater pump turbine or main turbine stop valve. ----------------------- Remove affected stop valve(s) from service.	4 hours
	<u>OR</u>		
	C.2	Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

----- NOTE -----
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

	SURVEILLANCE	FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program~~24 hours~~
SR 3.3.2.2.2	----- NOTE ----- Only required to be performed when in MODE 4 for > 24 hours. ----- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 222.5 inches.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	In accordance with the Surveillance Frequency Control Program~~24 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

------------------------------------- NOTE -------------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel in the associated Function is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK of each required PAM instrument channel.	In accordance with the Surveillance Frequency Control Program~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION of each required PAM instrumentation channel.	In accordance with the Surveillance Frequency Control Program~~24 months~~

SURVEILLANCE REQUIREMENTS

-NOTE-

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program~~31 days~~
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	In accordance with the Surveillance Frequency Control Program~~24 months~~

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.3.4.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.3.4.1.3	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program ~~184 days~~
SR 3.3.4.1.4	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level—Low Low (Level 2): ≥ 105.4 inches; and b. Reactor Pressure—High: ≤ 1153 psig.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.3.4.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c, 3.f, and 3.g; and (b) for up to 6 hours for Functions other than 3.c, 3.f, and 3.g provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program~~12 hours~~
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.5.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.5.1.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program~~184 days~~
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~24 months~~

SURVEILLANCE REQUIREMENTS

------------------------------------NOTES------------------------------------

1. Refer to Table 3.3.5.2-1 to determine which SRs apply for each RCIC Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 4; and (b) for up to 6 hours for Functions 1 and 3 provided the associated Function maintains RCIC initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program~~12 hours~~
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.5.2.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program~~184 days~~
SR 3.3.5.2.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.5.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~24 months~~

SURVEILLANCE REQUIREMENTS

-- NOTES --

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2.d, 2.g, 7.a, and 7.b; and (b) for up to 6 hours for Functions other than 2.d, 2.g, 7.a, and 7.b provided the associated Function maintains isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program~~12 hours~~
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~92 days~~
SR 3.3.6.1.3	------------------------------ NOTE ------------------------------ For Functions 1.f and 2.f, radiation detectors are excluded. --- Perform CHANNEL CALIBRATION.	 In accordance with the Surveillance Frequency Control Program~~92 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program~~184 days~~
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.6.1.6	Calibrate the radiation detectors.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.6.1.7	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program~~24 months~~
SR 3.3.6.1.8	------------------NOTE----------------- "n" equals 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. --------------------------------------- Verify the ISOLATION INSTRUMENTATION RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control

	Program~~24 months on a STAGGERED TEST BASIS~~

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C.(continued)	C.1.2	Declare associated secondary containment isolation valves inoperable.	1 hour
	AND		
	C.2.1	Place the associated standby gas treatment (SGT) subsystem(s) in operation.	1 hour
	OR		
	C.2.2	Declare associated SGT subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

------------------------------------- NOTES -------------------------------------

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.3.6.2.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program ~~184 days~~
SR 3.3.6.2.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.3.6.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

---------------------------------- NOTE ----------------------------------
When the channel is placed in an inoperable status solely for performance of required Surveillances, entry into the Condition and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.3.7.1.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 4000 cpm.	In accordance with the Surveillance Frequency Control Program ~~92 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Condenser air removal pump isolation capability not maintained.	B.1	Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Isolate the condenser air removal pumps.	12 hours
	OR		
	C.2	Isolate the main steam lines.	12 hours
	OR		
	C.3	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

------------------------------------- NOTE -------------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser air removal pump isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.7.2.2	-------------------------------NOTE------------------------------ Radiation detectors are excluded. --- Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 3 times Normal Full Power Background.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.3.7.2.3	Calibrate the radiation detectors.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.3.7.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including isolation valve actuation.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

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

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the ESW pressure instrumentation maintains initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.3.1	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≥ 40 psig and ≤ 50 psig.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.3.7.3.2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

- NOTE -

Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.

- -

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.3.8.1.2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 3, 4, or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-------------------- NOTE -------------------- Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 for ≥ 24 hours. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~184 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice RPS motor generator sets. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 112.5 V for RPS bus A and ≥ 113.9 V for RPS bus B, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.3.8.2.3	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice alternate power supplies. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 109.9 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR .3.8.2.4	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	------------------NOTE------------------ Only required to be performed in MODE 1. --- Verify reactor operating at core flow and THERMAL POWER conditions outside the Exclusion Region of the power-to-flow map specified in the COLR.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.4.1.2	------------------NOTE------------------ Not required to be performed until 24 hours after both recirculation loops are in operation. --- Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. 10% of rated core flow when operating at < 70% of rated core flow; and b. 5% of rated core flow when operating at ≥ 70% of rated core flow.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	------------------NOTE------------------ 1. Not required to be performed until 4 hours after associated recirculation loop is in operation. 2. Not required to be performed until 24 hours after > 25% RTP. --- Verify at least one of the following criteria (a or b) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and recirculation loop jet pump flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met. OR Pressure boundary LEAKAGE exists.	C.1 AND C.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	In accordance with the Surveillance Frequency Control Program ~~4 hours~~

SURVEILLANCE REQUIREMENTS

------------------------------------ NOTE ------------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required leakage detection instrumentation is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of drywell continuous atmospheric monitoring systems.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program ~~92 days~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2.1 Be in MODE 3. <u>AND</u> B.2.2.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	---------------------NOTE------------------ Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is $\leq$ 0.2 μCi/gm.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	------------------- NOTE- ------------------ Not required to be met until 2 hours after reactor steam dome pressure is less than the RHR cut in permissive pressure. --------------------------------------- Verify each required RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System — Cold Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE.

------------------------------ NOTE ------------------------------
One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 4.

ACTIONS

-------------------------------------- NOTE --------------------------------------
Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1	Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify each RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	-------------- NOTE -------------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -------------------------------- Verify: a. RCS pressure and RCS temperature are within the limits specified in the curves in the PTLR as applicable; and b. RCS temperature change averaged over a one hour period is: 1. ≤ 100°F when the RCS pressure and RCS temperature are on or to the right of curve C in the PTLR as applicable, during inservice leak and hydrostatic testing; 2. ≤ 20°F when the RCS pressure and RCS temperature are to the left of curve C in the PTLR as applicable, during inservice leak and hydrostatic testing; and 3. ≤ 100°F during other heatup and cooldown operations.	In accordance with the Surveillance Frequency Control Program ~~30 minutes~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.9.5	------------------------- NOTES ------------------------- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. --- Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is within the limits specified in the PTLR.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.9.6	------------------------- NOTES ------------------------- Only required to be performed when tensioning the reactor vessel head bolting studs. --- Verify, when the reactor vessel head bolting studs are under tension, reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program ~~30 Minutes~~
SR 3.4.9.7	------------------------- NOTES ------------------------- Not required to be performed until 30 minutes after RCS temperature ≤ 80°F with any reactor vessel head bolting stud tensioned. --- Verify, when the reactor vessel head bolting studs are under tension, reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program ~~30 minutes~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.9.8	-------- ----- NOTES ------------- Not required to be performed until 12 hours after RCS temperature ≤ 100°F with any reactor vessel head bolting stud tensioned. ------------------------------- Verify, when the reactor vessel head bolting studs are under tension, reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time of Condition C, D, E, or F not met. OR Two or more required ADS valves inoperable.	G.1 Be in MODE 3. AND G.2 Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours
H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A. OR HPCI System and one or more required ADS valves inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	------------------------------NOTE------------------------------ Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. -- Verify each ECCS injection/spray subsystem 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 ~~31 days~~
SR 3.5.1.3	Verify ADS pneumatic supply header pressure is ≥ 95 psig.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.5.1.4	Verify the RHR System cross tie valves are closed and power is removed from the electrical valve operator.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.5.1.5	Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input breaker and verify each LPCI inverter output voltage is ≥ 576 V and ≤ 624 V while supplying the respective bus.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th></th><th>SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.1.6</td><td>-----------------------------NOTE-----------------------------
Not required to be performed if performed within the previous 31 days.

Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.</td><td>Once each startup prior to exceeding 25% RTP</td></tr>
<tr><td>SR 3.5.1.7</td><td>Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure above primary containment pressure.

<table>
<tr><th><u>SYSTEM</u></th><th><u>FLOW RATE</u></th><th>NO. OF <u>PUMPS</u></th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE ABOVE PRIMARY CONTAINMENT <u>PRESSURE OF</u></th></tr>
<tr><td>Core Spray</td><td>≥ 4265 gpm</td><td>1</td><td>≥ 113 psi</td></tr>
<tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psi</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.1.8</td><td>-----------------------------NOTE-----------------------------
Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.

Verify, with reactor pressure ≤ 1040 psig and ≥ 970 psig, the HPCI pump can develop a flow rate ≥ 3400 gpm against a system head corresponding to reactor pressure.</td><td>In accordance with the Inservice Testing Program</td></tr>
</table>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 3400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program ~~24 Months~~
SR 3.5.1.10	-----NOTE----- 1. For the HPCI System, not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. 2. Vessel injection/spray may be excluded. ----- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.5.1.11	-----NOTE----- Valve actuation may be excluded. ----- Verify the ADS actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.5.1.12	Verify each LPCI motor operated valve independent power supply inverter capacity is adequate to supply and maintain in OPERABLE status the required emergency loads for the design duty cycle.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action C.2 and associated Completion Time not met.	D.1	Initiate action to restore secondary containment to OPERABLE status.	Immediately
	AND		
	D.2	Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	AND		
	D.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 10.33 ft.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, the: a. Suppression pool water level is ≥ 10.33 ft; or b. ------------------------------NOTE------------------------------ Only one required CS subsystem may take credit for this option during OPDRVs. -- The water level in each condensate storage tank is ≥ 324 inches.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.5.2.3	Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.5.2.4	------------------------------NOTE------------------------------ One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. -- Verify each required ECCS injection/spray subsystem 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 ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure above primary containment pressure.	In accordance with the Inservice Testing Program
	<table><tr><th><u>SYSTEM</u></th><th><u>FLOW RATE</u></th><th>NO. OF <u>PUMPS</u></th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE ABOVE PRIMARY CONTAINMENT <u>PRESSURE OF</u></th></tr><tr><td>CS</td><td>≥ 4265 gpm</td><td>1</td><td>≥ 113 psi</td></tr><tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psi</td></tr></table>	
SR 3.5.2.6	-------------------------------NOTE------------------------------- Vessel injection/spray may be excluded. Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.5.3.2	Verify each RCIC System 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 ~~31 days~~
SR 3.5.3.3	------------------ NOTE ------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 1040 psig and ≥ 970 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.5.3.4	------------------ NOTE ------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.5	------------------- NOTE ------------------- 1. Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. 2. Vessel injection may be excluded. --- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify suppression chamber pressure increase is ≤ 0.25 in. water gauge per minute over a 10 minute period with a drywell to suppression chamber differential pressure of ≥ 1 psi.	In accordance with the Surveillance Frequency Control Program ~~24 months~~ AND ---------NOTE--------- Only required after two consecutive tests fail and continues until two consecutive tests pass --------------------------- 12 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	D.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.2.1	-----------------------------------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 criteria applicable to SR 3.6.1.1.1. --- Perform required primary containment air lock leakage rate testing in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.2.2	Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	-------------------------------NOTE------------------------------- Not required to be met when the 20 inch and 24 inch primary containment vent and purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open, provided the full-flow line to Standby Gas Treatment (SGT) System is closed and one or more SGT System reactor building suction valves are open. --	
	Verify each 20 inch and 24 inch primary containment vent and purge valve is closed.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.1.3.2	-------------------------------NOTE------------------------------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. --	
	Verify each primary containment isolation manual valve and blind flange that is located outside primary containment and not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.3	-------------------------------NOTE------------------------------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. --- Verify each primary containment manual isolation valve and blind flange that is located inside primary containment and not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on a simulated instrument line break.	In accordance with the Inservice Testing Program
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	In accordance with the Surveillance Frequency Control Program ~~24 months on a STAGGERED TEST BASIS~~
SR 3.6.1.3.10	Verify combined main steam line leakage rate is ≤ 46 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify the leakage rate of each air operated testable check valve associated with the LPCI and CS Systems vessel injection penetrations is within limits.	In accordance with the Primary Containment Leakage Rate Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be ≤ 1.95 psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell pressure not within limit.	A.1	Restore drywell pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.4.1	Verify drywell pressure is within limit.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Drywell Air Temperature

LCO 3.6.1.5 Drywell average air temperature shall be ≤ 135°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1	Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify drywell average air temperature is within limit.	**In accordance with the Surveillance Frequency Control Program** ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	D.1	Restore all vacuum breakers in one line to OPERABLE status.	1 hour
E. Required Action and Associated Completion Time not met.	E.1	Be in MODE 3.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	-----NOTES----- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ----- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program ~~14 days~~
SR 3.6.1.6.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.3	Perform a CHANNEL CALIBRATION of each air operated vacuum breaker differential pressure instrument channel and verify the setpoint is ≤ 0.5 psid.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.6.1.6.4	Verify the opening setpoint of each self actuating vacuum breaker is ≤ 0.5 psid.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	-----NOTES----- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ----- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program ~~14 days~~
SR 3.6.1.7.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is $\leq$ 0.5 psid.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	Verify each MSLC subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.1.8.2	Perform a system functional test of each MSLC subsystem.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Verify each RHR containment spray subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.1.9.2	Verify each required RHR pump develops a flow rate of $\geq$ 7750 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program
SR 3.6.1.9.3	Verify each spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program ~~10 years~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Suppression pool average temperature > 120°F.	E.1	Depressurize the reactor vessel to < 200 psig.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~ AND 5 minutes when performing testing that adds heat to the suppression pool

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 13.88 ft and ≤ 14 ft.

-----------------------------NOTE-----------------------------
Not required to be met for up to 4 hours during Surveillances that cause suppression pool water level to be outside the limit.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Suppression pool water level not within limits.	A.1	Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.2.1	Verify suppression pool water level is within limits.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.2.3.2	Verify each required RHR pump develops a flow rate ≥ 7700 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify drywell-to-suppression chamber differential pressure is within limit.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

3.6 CONTAINMENT SYSTEMS

3.6.3.1 Primary Containment Oxygen Concentration

LCO 3.6.3.1 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to

b. 24 hours prior to reducing THERMAL POWER to < 15% RTP prior to the next scheduled reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to ≤ 15% RTP.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.1.1 Verify primary containment oxygen concentration is within limits.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.2.1	Verify ≥ 1400 gal of liquid nitrogen are contained in each CAD subsystem.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.3.2.2	Verify each CAD subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.4.1.3	Verify one secondary containment access door in each access opening is closed.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.4.1.4	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 6000 cfm.	In accordance with the Surveillance Frequency Control Program ~~24 months on a STAGGERED TEST BASIS for each SGT subsystem~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	----------NOTES---------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. ----------------------------- Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.6.4.3.4	Manually cycle each SGT subsystem filter cooling cross-tie valve.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Both RHRSW subsystems inoperable for reasons other than Condition B.	----------------------NOTE---------------------- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System. -- D.1 Restore one RHRSW subsystem to OPERABLE status.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time not met. OR Both ESW subsystems inoperable for reasons other than Condition A. OR UHS inoperable for reasons other than Condition B.	C.1 AND C.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in the ESW pump screenwell is ≥ 236.5 ft mean sea level.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.7.2.2	Verify the average water temperature of UHS is ≤ 85°F.	In accordance with the Surveillance Frequency Control Program~~24 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.3	-----NOTE----- Not required to be met if UHS temperature is > 37°F. ---------- Verify the required deicing heater feeder current is within limits for each division of deicing heaters.	In accordance with the Surveillance Frequency Control Program ~~7 days~~
SR 3.7.2.4	-----NOTE----- Isolation of flow to individual components does not necessarily render ESW System inoperable. ---------- Verify each ESW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.7.2.5	-----NOTE----- Not required to be met if UHS temperature is > 37°F. ---------- Verify the required deicing heater power is within limits for each division of deicing heaters.	In accordance with the Surveillance Frequency Control Program ~~6 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.6	-----NOTE----- Not required to be met if UHS temperature is > 37°F. ----- Verify the required deicing heater resistance to ground is within limits for each division of deicing heaters.	In accordance with the Surveillance Frequency Control Program ~~12 months~~
SR 3.7.2.7	Verify each ESW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREVAS subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. OR One or more CREVAS subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel in the secondary containment or during OPDRVs.	-------- NOTE --------- LCO 3.0.3 is not applicable. --------------------- F.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment.	 Immediately
	AND	
	F.2 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREVAS subsystem for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.7.3.2	Perform required CREVAS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	------------------NOTE------------------- Not required to be performed until 31 days after any main steam line not isolated and SJAE in operation. --------------------------------------- Verify the gross gamma activity rate of the noble gases is ≤ 600,000 μCi/second.	In accordance with the Surveillance Frequency Control Program ~~31 days~~ AND -----NOTE----- Only required when gross gamma activity rate is ≥ 5,000 μCi/second --------------- Once within 4 hours after a ≥ 50% increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify one complete cycle of each required main turbine bypass valve.	Prior to entering MODE 2 or 3 from MODE 4
SR 3.7.6.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.7.6.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

3.7 PLANT SYSTEMS

3.7.7 Spent Fuel Storage Pool Water Level

LCO 3.7.7 The spent fuel storage pool water level shall be ≥ 21 ft 7 inches over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the spent fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Spent fuel storage pool water level not within limit.	A.1	- - - - - - - - NOTE - - - - - - - - - LCO 3.0.3 is not applicable. - Suspend movement of irradiated fuel assemblies in the spent fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify the spent fuel storage pool water level is ≥ 21 ft 7 inches over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	Restore EDG subsystem to OPERABLE status.	12 hours
E. Two EDG subsystems inoperable.	E.1	Restore one EDG subsystem to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 AND F.2	Be in MODE 3. Be in MODE 4.	12 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 indicated power availability for each offsite circuit.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.2	-------------------NOTE------------------- All EDG subsystem starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. -- Verify each EDG subsystem starts from standby conditions, force parallels, and achieves: a. In ≤ 10 seconds, voltage ≥ 3900 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 3900 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.8.1.3	-------------------NOTE------------------- 1. EDG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one EDG subsystem at a time. 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. -- Verify each EDG subsystem is paralleled with normal, reserve, or backfeed power and each EDG is loaded and operates for ≥ 60 minutes at a load ≥ 2340 kW and ≤ 2600 kW.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.4	Verify each day tank contains ≥ 327 gal of fuel oil.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.8.1.6	Verify that each EDG fuel oil transfer system operates to automatically transfer fuel oil from its storage tank to the associated day tank.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.8.1.7	-------------------- NOTE -------------------- Only required to be met for each offsite circuit that is not energizing its respective 4.16 kV emergency bus. --- Verify automatic and manual transfer of plant power supply from the normal station service transformer to each offsite circuit.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.8.1.8	-------------------- NOTE -------------------- If performed with the EDG subsystem paralleled with normal, reserve, or backfeed power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. --- Verify each EDG subsystem rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is ≤ 66.75 Hz.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	--------------------NOTE------------------- All EDG subsystem starts may be preceded by an engine prelube period. ---	
	Verify on an actual or simulated loss of power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. EDG subsystem auto-starts from standby condition, force parallels, and: 1. energizes permanently connected loads in $\leq$ 11 seconds, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage $\geq$ 3900 V and $\leq$ 4400 V, 4. maintains steady state frequency $\geq$ 58.8 Hz and $\leq$ 61.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for $\geq$ 5 minutes.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-------------------NOTE------------------- All EDG subsystem starts may be preceded by an engine prelube period. --	
	Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each EDG subsystem auto-starts from standby condition, force parallels, and: a. In ≤ 10 seconds after auto-start and during tests, achieves voltage ≥ 3900 V, frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 3900 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are auto-connected in the prescribed sequence from the offsite power system.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-------------------- NOTE -------------------- Momentary transients outside the load and power factor ranges do not invalidate this test. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. --- Verify each EDG subsystem operating within the power factor limit operates for ≥ 8 hours: a. For ≥ 2 hours each EDG loaded ≥ 2730 kW and ≤ 2860 kW; and b. For the remaining hours of the test each EDG loaded ≥ 2340 kW and ≤ 2600 kW.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	--------------------NOTE-------------------- All EDG subsystem starts may be preceded by an engine prelube period. --- Verify, on an actual or simulated loss of power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. EDG subsystem auto-starts from standby condition, force parallels, and: 1. energizes permanently connected loads in $\leq$ 11 seconds, 2. energizes auto-connected emergency loads in the prescribed sequence, 3. achieves steady state voltage $\geq$ 3900 V and $\leq$ 4400 V, 4. achieves steady state frequency $\geq$ 58.8 Hz and $\leq$ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for $\geq$ 5 minutes.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.8.1.13	Verify interval between each sequenced load block is greater than or equal to the minimum design load interval.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more EDGs with new fuel oil properties not within limits.	D.1	Restore stored fuel oil properties to within limit.	30 days
E. One or more EDGs with required starting air receiver pressure < 150 psig and ≥ 110 psig.	E.1	Restore required starting air receiver pressure to within limits.	48 hours
F. Requires Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One or more EDGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other then condition A, B, C, D, or E.	F.1	Declare associated EDG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.2	Verify lube oil inventory of each EDG is ≥ a 7 day supply.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
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 diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify Each EDG required air start receiver pressure is ≥ 150 psig.	In accordance with the Surveillance Frequency Control Program ~~31 days~~
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage on float charge is: a. ≥ 127.8 VDC for 125 VDC batteries, and b. ≥ 396.2 VDC for 419 VDC LPCI MOV independent power supply batteries.	In accordance with the Surveillance Frequency Control Program ~~7 days~~
SR 3.8.4.2	Verify each 125 VDC battery charger supplies ≥ 270 amps at ≥ 128 VDC for ≥ 4 hours. <u>OR</u> Verify each 125 VDC battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	In accordance with the Surveillance Frequency Control Program ~~24 months~~
SR 3.8.4.3	---------------- NOTE ---------------- This Surveillance shall not normally be performed in MODE 1, 2, or 3 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --------------------------------------- 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 or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	---------------- NOTE ---------------- This Surveillance shall not normally be performed in MODE 1, 2, or 3 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --------------------------------------	
	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 ~~60 months~~ AND 12 months when battery shows degradation or has reached 85% of 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 (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days
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 not within limits. 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 ~~7 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program ~~92 days~~
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each 125 VDC battery, and ≥ 50°F for each 419 VDC LPCI MOV independent power supply battery.	In accordance with the Surveillance Frequency Control Program ~~92 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and voltage to required AC and 125 VDC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A.(continued)		
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC and 125 VDC electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and voltage to required AC and 125 VDC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple not fully up, e. Refuel platform frame mounted hoist, fuel loaded, and f. Refuel platform trolley mounted (monorail) hoist, fuel loaded.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LCO 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Refuel position one-rod-out interlock inoperable.	A.1	Suspend control rod withdrawal.	Immediately
	AND		
	A.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify reactor mode switch locked in refuel position.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.9.2.2	-------------------NOTE------------------- Not required to be performed until 1 hour after any control rod is withdrawn. ---	
	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify all control rods are fully inserted.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY — Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1	Initiate action to fully insert inoperable withdrawn control rods.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	-------------------NOTE------------------- Not required to be performed until 7 days after the control rod is withdrawn. -- Insert each withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program ~~7 days~~
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 22 ft 2 inches above the top of the RPV flange.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV,
During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RPV water level not within limit.	A.1	Suspend movement of fuel assemblies and handling of control rods within the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 22 ft 2 inches above the top of the RPV flange.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	AND		
	B.4	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify each required RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify each RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program ~~31 days~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Place the reactor mode switch in the shutdown position.	1 hour
	OR	
	A.3.2 --------- NOTE ---------- Only applicable in MODE 5. ------------------------ Place the reactor mode switch in the refuel position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~
SR 3.10.2.2	Verify no CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.3.2	------------------ NOTE------------------ Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements. -- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.3.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more of the above requirements not met with the affected control rod not insertable.	B.1 Suspend withdrawal of the control rod and removal of associated CRD.	Immediately
	AND	
	B.2.1 Initiate action to fully insert all control rods.	Immediately
	OR	
	B.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	------------------- NOTE --------------------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. -- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.4.4	------------------ NOTE ------------------ Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. -- Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Initiate action to fully insert all control rods.	Immediately
	OR	
	A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.5.1	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.5.2	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, in a five by five array centered on the control rod withdrawn for the removal of the associated CRD, are disarmed.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.5.3	Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.5.4	Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.5.5	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3.1	Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>OR</u>		
	A.3.2	Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.6.1	Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.6.2	Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~
SR 3.10.6.3	-------------------NOTE-------------------- Only required to be met during fuel loading. -- Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.	In accordance with the Surveillance Frequency Control Program ~~24 hours~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.2	------------------NOTE------------------ Not required to be met if SR 3.10.8.3 satisfied. -- Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 2 of Table 3.3.2.1-1.	According to the applicable SRs
SR 3.10.8.3	------------------NOTE------------------ Not required to be met if SR 3.10.8.2 satisfied. -- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program ~~12 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full-out" position AND Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure ≥ 940 psig.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

5.5.14 Control Room Envelope Habitability Program (continued)

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.15 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 the 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.

JAFP-11-0088
Attachment 4

Revised Technical Specification Pages
(Clean)

Pages

3.1.3-4	3.3.3.1-3	3.4.9-6	3.6.2.3-2	3.8.4-3
3.1.4-2	3.3.3.2-2	3.5.1-3	3.6.2.4-2	3.8.4-4
3.1.5-3	3.3.4.1-3	3.5.1-4	3.6.3.1-1	3.8.6-2
3.1.6-2	3.3.5.1-7	3.5.1-5	3.6.3.2-2	3.8.6-3
3.1.7-2	3.3.5.2-3	3.5.1-6	3.6.4.1-2	3.8.7-2
3.1.7-3	3.3.6.1-4	3.5.2-2	3.6.4.2-4	3.8.8-2
3.1.7-4	3.3.6.1-5	3.5.2-3	3.6.4.3-3	3.9.1-2
3.1.8-2	3.3.6.2-2	3.5.2-4	3.7.1-2	3.9.2-1
3.2.1-1	3.3.6.2-3	3.5.3-2	3.7.2-2	3.9.3-1
3.2.2-1	3.3.7.1-2	3.5.3-3	3.7.2-3	3.9.5-1
3.2.3-1	3.3.7.2-2	3.6.1.1-2	3.7.2-4	3.9.6-1
3.3.1.1-3	3.3.7.2-3	3.6.1.2-4	3.7.3-3	3.9.7-2
3.3.1.1-4	3.3.7.3-2	3.6.1.3-7	3.7.4-3	3.9.8-2
3.3.1.1-5	3.3.8.1-2	3.6.1.3-8	3.7.5-2	3.10.2-2
3.3.1.2-2	3.3.8.2-2	3.6.1.3-9	3.7.6-2	3.10.3-3
3.3.1.2-3	3.3.8.2-3	3.6.1.4-1	3.7.7-1	3.10.4-3
3.3.1.2-4	3.4.1-3	3.6.1.5-1	3.8.1-4	3.10.4-4
3.3.2.1-3	3.4.2-2	3.6.1.6-2	3.8.1-5	3.10.5-2
3.3.2.1-4	3.4.4-2	3.6.1.6-3	3.8.1-6	3.10.6-2
3.3.2.1-5	3.4.5-3	3.6.1.7-2	3.8.1-7	3.10.8-3
3.3.2.2-1	3.4.6-2	3.6.1.8-2	3.8.1-8	3.10.8-4
3.3.2.2-2	3.4.7-2	3.6.1.9-2	3.8.1-9	5.5-15
3.3.3.1-2	3.4.8-1	3.6.2.1-3	3.8.1-10	
	3.4.9-3	3.6.2.2-1	3.8.3-2	
	3.4.9-5		3.8.3-3	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.2	------------------------NOTE------------------------ Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. --- Insert each withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.3	Verify each control rod scram time from fully withdrawn to notch position 04 is $\leq$ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.4	Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position <u>AND</u> Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell <u>AND</u> Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Declare the associated control rod inoperable.	1 hour
D. Required Action B.1 or C.1 and associated Completion Time not met.	D.1	------- NOTE-------- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. -------------------- Place the reactor mode switch in the shutdown position.	 Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is ≥ 940 psig.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Nine or more OPERABLE control rods not in compliance with BPWS.	B.1	- - - - - - - - NOTE - - - - - - - - - - Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1. - Suspend withdrawal of control rods.	Immediately
	<u>AND</u>		
	B.2	Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify all OPERABLE control rods comply with BPWS.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-2.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	Verify temperature of pump suction piping is within the limits of Figure 3.1.7-2.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.4	Verify continuity of explosive charge.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.7	Verify each pump develops a flow rate $\geq$ 50 gpm at a discharge pressure $\geq$ 1275 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after piping temperature is restored within the limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 34.7 atom percent B-10.	Prior to addition to SLC tank
SR 3.1.7.11	Verify sodium pentaborate enrichment in solution in the SLC tank is ≥ 34.7 atom percent B-10.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-------------------NOTE------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. --- Verify each SDV vent and drain valve is open.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	In accordance with the Inservice Testing Program
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 30 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

LCO 3.2.1 All APLHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any APLHGR not within limits.	A.1	Restore APLHGR(s) 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 3.2.1.1	Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LCO 3.2.2 All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any MCPR not within limits.	A.1	Restore MCPR(s) 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 3.2.2.1	Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP <u>AND</u> In accordance with the Surveillance Frequency Control Program

(continued)

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

LCO 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Any LHGR not within limits.	A.1	Restore LHGR(s) 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 3.2.3.1	Verify all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTES-----------------------------------

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.2	----------------NOTE---------------- Not required to be performed until 12 hours after THERMAL POWER ≥ 25% RTP. ------------------------------------ Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP while operating at ≥ 25% RTP.	 In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	---------------NOTE---------------- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ----------------------------------- Perform CHANNEL FUNCTIONAL TEST.	 In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.4	Perform a functional test of each RPS automatic scram contactor.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.5	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to fully withdrawing SRMs
SR 3.3.1.1.6	---------------- NOTE ------------------ Only required to be met during entry into MODE 2 from MODE 1. -------------------------------------- Verify the IRM and APRM channels overlap.	 In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.7	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.9	---------------- NOTE ------------------ 1. Neutron detectors are excluded. 2. For Functions 1.a and 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Function 2.b, the recirculation loop flow signal portion of the channel is excluded. -------------------------------------- Perform CHANNEL CALIBRATION.	 In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	------------------ NOTE ------------------ For Function 2.b, all portions of the channel except the recirculation loop flow signal portion are excluded. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.13	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.14	Verify Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure—Low Functions are not bypassed when THERMAL POWER is ≥ 29% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.15	------------------ NOTE ------------------ Neutron detectors are excluded. -- Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1	Fully insert all insertable control rods.	1 hour
	AND		
	D.2	Place reactor mode switch in the shutdown position.	1 hour
E. One or more required SRMs inoperable in MODE 5.	E.1	Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	AND		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

--- NOTE ---

Refer to Table 3.3.1.2-1 to determine which SRs apply for each applicable MODE or other specified condition.

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.2	---------- NOTE ---------- 1. Only required to be met during CORE ALTERATIONS. 2. One SRM may be used to satisfy more than one of the following. -------------------------------- Verify an OPERABLE SRM detector is located in: a. The fueled region; b. The core quadrant where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region; and c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.3	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.4	---------- NOTE ---------- Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. -------------------------------- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIRMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.5	---------------------NOTE--------------------- The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. --- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.6	---------------------NOTE--------------------- Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.7	---------------------NOTE--------------------- 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One or more Reactor Mode Switch—Shutdown Position channels inoperable.	E.1	Suspend control rod withdrawal.	Immediately
	AND		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-- NOTE --

1. Refer to Table 3.3.2.1-1 to determine which SRs apply for each Control Rod Block Function.

2. When an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.2	-------------------- NOTE -------------------- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.3	---------- NOTE ---------- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. ------------------------------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.4	---------- NOTE ---------- Neutron detectors are excluded. ------------------------------- Verify the RBM is not bypassed: a. When THERMAL POWER is ≥ 30% RTP; and b. When a peripheral control rod is not selected.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.5	---------- NOTE ---------- 1. Neutron detectors are excluded. 2. For Function 1.a, the recirculation loop flow signal portion of the channel is excluded. ------------------------------- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.6	Verify the RWM is not bypassed when THERMAL POWER is ≤ 10% RTP.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.7	---------------------NOTE--------------------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.8	---------------------NOTE--------------------- For Function 1.a, all portions of the channel except the recirculation loop flow signal portion are excluded. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.9	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

LCO 3.3.2.2 Three channels of feedwater and main turbine high water level trip instrumentation shall be OPERABLE.

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1	Place channel in trip.	7 days
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1	Restore feedwater and main turbine high water level trip capability.	2 hours
C. Required Action and associated Completion Time not met.	C.1	-------- NOTE ---------- Only applicable if inoperable channel is the result of inoperable feedwater pump turbine or main turbine stop valve. ----------------------- Remove affected stop valve(s) from service.	 4 hours
	OR		
	C.2	Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

--- NOTE ---

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.2	----------------------- NOTE ----------------------- Only required to be performed when in MODE 4 for > 24 hours. --- Perform CHANNEL FUNCTIONAL TEST.	 In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 222.5 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1	Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1	Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1	Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

------------------------------------- NOTE --------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel in the associated Function is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK of each required PAM instrument channel.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION of each required PAM instrumentation channel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-NOTE-

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-NOTE-

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.3	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.4	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level—Low Low (Level 2): ≥ 105.4 inches; and b. Reactor Pressure—High: ≤ 1153 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-NOTES-

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c, 3.f, and 3.g; and (b) for up to 6 hours for Functions other than 3.c, 3.f, and 3.g provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

------------------------------------NOTES------------------------------------

1. Refer to Table 3.3.5.2-1 to determine which SRs apply for each RCIC Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2 and 4; and (b) for up to 6 hours for Functions 1 and 3 provided the associated Function maintains RCIC initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

---------------------------------- NOTES ----------------------------------

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 2.d, 2.g, 7.a, and 7.b; and (b) for up to 6 hours for Functions other than 2.d, 2.g, 7.a, and 7.b provided the associated Function maintains isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3	------------------ NOTE ------------------ For Functions 1.f and 2.f, radiation detectors are excluded. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6	Calibrate the radiation detectors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.7	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.8	Verify the ISOLATION INSTRUMENTATION RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C.(continued)	C.1.2	Declare associated secondary containment isolation valves inoperable.	1 hour
	AND		
	C.2.1	Place the associated standby gas treatment (SGT) subsystem(s) in operation.	1 hour
	OR		
	C.2.2	Declare associated SGT subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

------------------------------------ NOTES ------------------------------------

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.4	Calibrate the trip units.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

- NOTE -
When the channel is placed in an inoperable status solely for performance of required Surveillances, entry into the Condition and Required Actions may be delayed for up to 6 hours.
- -

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 4000 cpm.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Condenser air removal pump isolation capability not maintained.	B.1	Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Isolate the condenser air removal pumps.	12 hours
	<u>OR</u>		
	C.2	Isolate the main steam lines.	12 hours
	<u>OR</u>		
	C.3	Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

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

When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser air removal pump isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.7.2.2	----------NOTE---------- Radiation detectors are excluded. ------------------------------ Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 3 times Normal Full Power Background.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2.3	Calibrate the radiation detectors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including isolation valve actuation.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the ESW pressure instrumentation maintains initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.7.3.1	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≥ 40 psig and ≤ 50 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.3.2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

- NOTE -
Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP Function.
- -

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 3, 4, or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies.	D.1	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	------------------NOTE------------------ Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 for ≥ 24 hours. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice RPS motor generator sets. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 112.5 V for RPS bus A and ≥ 113.9 V for RPS bus B, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.3	Perform CHANNEL CALIBRATION of the electric power monitoring assemblies associated with the inservice alternate power supplies. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 109.9 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.4	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	------------------ NOTE ------------------ Only required to be performed in MODE 1. -- Verify reactor operating at core flow and THERMAL POWER conditions outside the Exclusion Region of the power-to-flow map specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	------------------ NOTE ------------------ Not required to be performed until 24 hours after both recirculation loops are in operation. -- Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. 10% of rated core flow when operating at < 70% of rated core flow; and b. 5% of rated core flow when operating at ≥ 70% of rated core flow.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	------------------ NOTE------------------ 1. Not required to be performed until 4 hours after associated recirculation loop is in operation. 2. Not required to be performed until 24 hours after > 25% RTP. -- Verify at least one of the following criteria (a or b) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and recirculation loop jet pump flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met. <u>OR</u> Pressure boundary LEAKAGE exists.	C.1 <u>AND</u> C.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-- NOTE --
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required leakage detection instrumentation is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of drywell continuous atmospheric monitoring systems.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2.1 Be in MODE 3. AND B.2.2.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	---------------------NOTE------------------ Only required to be performed in MODE 1. --- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is $\leq$ 0.2 µCi/gm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	------------------NOTE------------------ Not required to be met until 2 hours after reactor steam dome pressure is less than the RHR cut in permissive pressure. --- Verify each required RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System — Cold Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE.

------------------------------NOTE------------------------------
One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 4.

ACTIONS

------------------------------NOTE------------------------------
Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1	Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify each RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	------------------------------ NOTE ------------------------------ Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. --	
	Verify: a. RCS pressure and RCS temperature are within the limits specified in the curves in the PTLR as applicable; and b. RCS temperature change averaged over a one hour period is: 1. $\leq$ 100°F when the RCS pressure and RCS temperature are on or to the right of curve C in the PTLR as applicable, during inservice leak and hydrostatic testing; 2. $\leq$ 20°F when the RCS pressure and RCS temperature are to the left of curve C in the PTLR as applicable, during inservice leak and hydrostatic testing; and 3. $\leq$ 100°F during other heatup and cooldown operations.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.9.5	------------------------ NOTES ------------------------ Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. --- Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is within the limits specified in the PTLR.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.9.6	------------------------ NOTES ------------------------ Only required to be performed when tensioning the reactor vessel head bolting studs. --- Verify, when the reactor vessel head bolting studs are under tension, reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.7	------------------------ NOTES ------------------------ Not required to be performed until 30 minutes after RCS temperature ≤ 80°F with any reactor vessel head bolting stud tensioned. --- Verify, when the reactor vessel head bolting studs are under tension, reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.4.9.8	------------------------- NOTES ------------------------- Not required to be performed until 12 hours after RCS temperature ≤ 100°F with any reactor vessel head bolting stud tensioned. -- Verify, when the reactor vessel head bolting studs are under tension, reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. Required Action and associated Completion Time of Condition C, D, E, or F not met. OR Two or more required ADS valves inoperable.	G.1 AND G.2	Be in MODE 3. Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours
H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A. OR HPCI System and one or more required ADS valves inoperable.	H.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	------------------------------NOTE------------------------------ Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. -- Verify each ECCS injection/spray subsystem 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 3.5.1.3	Verify ADS pneumatic supply header pressure is ≥ 95 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify the RHR System cross tie valves are closed and power is removed from the electrical valve operator.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.5	Cycle open and closed each LPCI motor operated valve independent power supply battery charger AC input breaker and verify each LPCI inverter output voltage is ≥ 576 V and ≤ 624 V while supplying the respective bus.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.6	------------------------------NOTE------------------------------ Not required to be performed if performed within the previous 31 days. --- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	Once each startup prior to exceeding 25% RTP
SR 3.5.1.7	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure above primary containment pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE ABOVE PRIMARY CONTAINMENT PRESSURE OF Core Spray / ≥ 4265 gpm / 1 / ≥ 113 psi LPCI / ≥ 7700 gpm / 1 / ≥ 20 psi	In accordance with the Inservice Testing Program
SR 3.5.1.8	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 1040 psig and ≥ 970 psig, the HPCI pump can develop a flow rate ≥ 3400 gpm against a system head corresponding to reactor pressure.	In accordance with the Inservice Testing Program

SR 3.5.1.7 table:

SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE ABOVE PRIMARY CONTAINMENT PRESSURE OF
Core Spray	≥ 4265 gpm	1	≥ 113 psi
LPCI	≥ 7700 gpm	1	≥ 20 psi

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 3400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.10	------------------------------NOTE------------------------------ 1. For the HPCI System, not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. 2. Vessel injection/spray may be excluded. -- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.11	------------------------------NOTE------------------------------ Valve actuation may be excluded. -- Verify the ADS actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.12	Verify each LPCI motor operated valve independent power supply inverter capacity is adequate to supply and maintain in OPERABLE status the required emergency loads for the design duty cycle.	In accordance with the Surveillance Frequency Control Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action C.2 and associated Completion Time not met.	D.1 Initiate action to restore secondary containment to OPERABLE status.	Immediately
	AND	
	D.2 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	AND	
	D.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 10.33 ft.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, the: a. Suppression pool water level is ≥ 10.33 ft; or b. ------------------------------NOTE------------------------------ Only one required CS subsystem may take credit for this option during OPDRVs. --- The water level in each condensate storage tank is ≥ 324 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.4	------------------------------NOTE------------------------------ One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable. --- Verify each required ECCS injection/spray subsystem 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure above primary containment pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE ABOVE PRIMARY CONTAINMENT PRESSURE OF CS / ≥ 4265 gpm / 1 / ≥ 113 psi LPCI / ≥ 7700 gpm / 1 / ≥ 20 psi	In accordance with the Inservice Testing Program
SR 3.5.2.6	---------------------------------NOTE--------------------------------- Vessel injection/spray may be excluded. -- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE ABOVE PRIMARY CONTAINMENT PRESSURE OF
CS	≥ 4265 gpm	1	≥ 113 psi
LPCI	≥ 7700 gpm	1	≥ 20 psi

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.2	Verify each RCIC System 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 3.5.3.3	------------------ NOTE ------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 1040 psig and ≥ 970 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.4	------------------ NOTE ------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.5	------------------- NOTE ------------------ 1. Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. 2. Vessel injection may be excluded. --- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify suppression chamber pressure increase is $\leq$ 0.25 in. water gauge per minute over a 10 minute period with a drywell to suppression chamber differential pressure of $\geq$ 1 psi.	In accordance with the Surveillance Frequency Control Program <u>AND</u> ---------NOTE--------- Only required after two consecutive tests fail and continues until two consecutive tests pass --------------------------- 12 months

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.2.1	-----------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 criteria applicable to SR 3.6.1.1.1. --------------------------- Perform required primary containment air lock leakage rate testing in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.2.2	Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	------------------------------NOTE------------------------------ Not required to be met when the 20 inch and 24 inch primary containment vent and purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open, provided the full-flow line to Standby Gas Treatment (SGT) System is closed and one or more SGT System reactor building suction valves are open. --	
	Verify each 20 inch and 24 inch primary containment vent and purge valve is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.2	------------------------------NOTE------------------------------ 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. --	
	Verify each primary containment isolation manual valve and blind flange that is located outside primary containment and not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.3	-----NOTE----- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for PCIVs that are open under administrative controls. ---------- Verify each primary containment manual isolation valve and blind flange that is located inside primary containment and not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on a simulated instrument line break.	In accordance with the Inservice Testing Program
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.10	Verify combined main steam line leakage rate is $\leq$ 46 scfh when tested at $\geq$ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify the leakage rate of each air operated testable check valve associated with the LPCI and CS Systems vessel injection penetrations is within limits.	In accordance with the Primary Containment Leakage Rate Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be ≤ 1.95 psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell pressure not within limit.	A.1	Restore drywell pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.4.1	Verify drywell pressure is within limit.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Drywell Air Temperature

LCO 3.6.1.5 Drywell average air temperature shall be ≤ 135°F.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1	Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 <u>AND</u> B.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify drywell average air temperature is within limit.	**In accordance with the Surveillance Frequency Control Program**

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	D.1	Restore all vacuum breakers in one line to OPERABLE status.	1 hour
E. Required Action and Associated Completion Time not met.	E.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	-----------------------------NOTES----------------------------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. --- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.6.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.3	Perform a CHANNEL CALIBRATION of each air operated vacuum breaker differential pressure instrument channel and verify the setpoint is $\leq$ 0.5 psid.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.6.4	Verify the opening setpoint of each self actuating vacuum breaker is $\leq$ 0.5 psid.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	-----NOTES----- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. ----- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.7.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is $\leq$ 0.5 psid.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	Verify each MSLC subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.8.2	Perform a system functional test of each MSLC subsystem.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.9.1	Verify each RHR containment spray subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.9.2	Verify each required RHR pump develops a flow rate of ≥ 7750 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program
SR 3.6.1.9.3	Verify each spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Suppression pool average temperature > 120°F.	E.1	Depressurize the reactor vessel to < 200 psig.	12 hours
	AND		
	E.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	In accordance with the Surveillance Frequency Control Program AND 5 minutes when performing testing that adds heat to the suppression pool

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 13.88 ft and ≤ 14 ft.

--NOTE--
Not required to be met for up to 4 hours during Surveillances that cause suppression pool water level to be outside the limit.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Suppression pool water level not within limits.	A.1	Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.2.1	Verify suppression pool water level is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.3.2	Verify each required RHR pump develops a flow rate $\geq$ 7700 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify drywell-to-suppression chamber differential pressure is within limit.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.3.1 Primary Containment Oxygen Concentration

LCO 3.6.3.1 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to

b. 24 hours prior to reducing THERMAL POWER to < 15% RTP prior to the next scheduled reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1	Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1	Reduce THERMAL POWER to ≤ 15% RTP.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1.1	Verify primary containment oxygen concentration is within limits.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.2.1	Verify ≥ 1400 gal of liquid nitrogen are contained in each CAD subsystem.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.2.2	Verify each CAD subsystem 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. (continued)	C.2	Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	Verify one secondary containment access door in each access opening is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 6000 cfm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	-------------------------NOTES------------------------- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. -- Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.3.4	Manually cycle each SGT subsystem filter cooling cross-tie valve.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Both RHRSW subsystems inoperable for reasons other than Condition B.	-----------------------NOTE----------------------- Enter applicable Conditions and Required Actions of LCO 3.4.7 for RHR shutdown cooling made inoperable by RHRSW System. -- D.1 Restore one RHRSW subsystem to OPERABLE status.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW 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 or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met. OR Both ESW subsystems inoperable for reasons other than Condition A. OR UHS inoperable for reasons other than Condition B.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in the ESW pump screenwell is ≥ 236.5 ft mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.2	Verify the average water temperature of UHS is ≤ 85°F.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.3	------------------------------NOTE------------------------------ Not required to be met if UHS temperature is > 37°F. --- Verify the required deicing heater feeder current is within limits for each division of deicing heaters.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.4	------------------------------NOTE------------------------------ Isolation of flow to individual components does not necessarily render ESW System inoperable. --- Verify each ESW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.5	------------------------------NOTE------------------------------ Not required to be met if UHS temperature is > 37°F. --- Verify the required deicing heater power is within limits for each division of deicing heaters.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.6	-----NOTE----- Not required to be met if UHS temperature is > 37°F. ----- Verify the required deicing heater resistance to ground is within limits for each division of deicing heaters.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.7	Verify each ESW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREVAS subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. <u>OR</u> One or more CREVAS subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel in the secondary containment or during OPDRVs.	--------- NOTE --------- LCO 3.0.3 is not applicable. ------------------------------- F.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment. <u>AND</u> F.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREVAS subsystem for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.2	Perform required CREVAS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	- - - - - - - - - - - - - - - - - NOTE- - - - - - - - - - - - - - - - - - - Not required to be performed until 31 days after any main steam line not isolated and SJAE in operation. - Verify the gross gamma activity rate of the noble gases is ≤ 600,000 μCi/second.	In accordance with the Surveillance Frequency Control Program AND - - - - - NOTE- - - - - Only required when gross gamma activity rate is ≥ 5,000 μCi/second - - - - - - - - - - - - - - - Once within 4 hours after a ≥ 50% increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify one complete cycle of each required main turbine bypass valve.	Prior to entering MODE 2 or 3 from MODE 4
SR 3.7.6.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program
SR 3.7.6.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Spent Fuel Storage Pool Water Level

LCO 3.7.7 The spent fuel storage pool water level shall be ≥ 21 ft 7 inches over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the spent fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Spent fuel storage pool water level not within limit.	A.1	- - - - - - - - NOTE - - - - - - - - - LCO 3.0.3 is not applicable. - Suspend movement of irradiated fuel assemblies in the spent fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify the spent fuel storage pool water level is ≥ 21 ft 7 inches over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	Restore EDG subsystem to OPERABLE status.	12 hours
E. Two EDG subsystems inoperable.	E.1	Restore one EDG subsystem to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1	Be in MODE 3.	12 hours
	AND		
	F.2	Be in MODE 4.	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 indicated power availability for each offsite circuit.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.2	-------------------NOTE------------------- All EDG subsystem starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. --- Verify each EDG subsystem starts from standby conditions, force parallels, and achieves: a. In ≤ 10 seconds, voltage ≥ 3900 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 3900 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.3	-------------------NOTE------------------- 1. EDG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one EDG subsystem at a time. 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. --- Verify each EDG subsystem is paralleled with normal, reserve, or backfeed power and each EDG is loaded and operates for ≥ 60 minutes at a load ≥ 2340 kW and ≤ 2600 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.4	Verify each day tank contains ≥ 327 gal of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.6	Verify that each EDG fuel oil transfer system operates to automatically transfer fuel oil from its storage tank to the associated day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.7	------------------NOTE------------------ Only required to be met for each offsite circuit that is not energizing its respective 4.16 kV emergency bus. --- Verify automatic and manual transfer of plant power supply from the normal station service transformer to each offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	------------------NOTE------------------ If performed with the EDG subsystem paralleled with normal, reserve, or backfeed power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. --- Verify each EDG subsystem rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is ≤ 66.75 Hz.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-------------------- NOTE- -------------------All EDG subsystem starts may be preceded by an engine prelube period. --- Verify on an actual or simulated loss of power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. EDG subsystem auto-starts from standby condition, force parallels, and: 1. energizes permanently connected loads in ≤ 11 seconds, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage ≥ 3900 V and ≤ 4400 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.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-------------------- NOTE ------------------- All EDG subsystem starts may be preceded by an engine prelube period. ---	
	Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each EDG subsystem auto-starts from standby condition, force parallels, and: a. In ≤ 10 seconds after auto-start and during tests, achieves voltage ≥ 3900 V, frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 3900 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are auto-connected in the prescribed sequence from the offsite power system.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-------------------- NOTE ------------------- Momentary transients outside the load and power factor ranges do not invalidate this test. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. -- Verify each EDG subsystem operating within the power factor limit operates for ≥ 8 hours: a. For ≥ 2 hours each EDG loaded ≥ 2730 kW and ≤ 2860 kW; and b. For the remaining hours of the test each EDG loaded ≥ 2340 kW and ≤ 2600 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------- NOTE ------------------- All EDG subsystem starts may be preceded by an engine prelube period. --- Verify, on an actual or simulated loss of power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. EDG subsystem auto-starts from standby condition, force parallels, and: 1. energizes permanently connected loads in ≤ 11 seconds, 2. energizes auto-connected emergency loads in the prescribed sequence, 3. achieves steady state voltage ≥ 3900 V and ≤ 4400 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.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.13	Verify interval between each sequenced load block is greater than or equal to the minimum design load interval.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One or more EDGs with new fuel oil properties not within limits.	D.1	Restore stored fuel oil properties to within limit.	30 days
E. One or more EDGs with required starting air receiver pressure < 150 psig and ≥ 110 psig.	E.1	Restore required starting air receiver pressure to within limits.	48 hours
F. Requires Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One or more EDGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other then condition A, B, C, D, or E.	F.1	Declare associated EDG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.2	Verify lube oil inventory of each EDG 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 diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify Each EDG required air start receiver pressure is ≥ 150 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage on float charge is: a. ≥ 127.8 VDC for 125 VDC batteries, and b. ≥ 396.2 VDC for 419 VDC LPCI MOV independent power supply batteries.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify each 125 VDC battery charger supplies ≥ 270 amps at ≥ 128 VDC for ≥ 4 hours. <u>OR</u> Verify each 125 VDC battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	- - - - - - - - - - - - - - - - NOTE - - - - - - - - - - - - - - - - This Surveillance shall not normally be performed in MODE 1, 2, or 3 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. - 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 or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	---------------- NOTE ---------------- This Surveillance shall not normally be performed in MODE 1, 2, or 3 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. -------------------------------------	
	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 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 (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> One or more batteries with average electrolyte temperature of the representative cells not within limits. <u>OR</u> 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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each 125 VDC battery, and ≥ 50°F for each 419 VDC LPCI MOV independent power supply battery.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two or more electrical power distribution subsystems inoperable that result in a loss of function.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and voltage to required AC and 125 VDC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A.(continued)		
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC and 125 VDC electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct breaker alignments and voltage to required AC and 125 VDC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple not fully up, e. Refuel platform frame mounted hoist, fuel loaded, and f. Refuel platform trolley mounted (monorail) hoist, fuel loaded.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LCO 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refuel position one-rod-out interlock inoperable.	A.1 Suspend control rod withdrawal. AND A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify reactor mode switch locked in refuel position.	In accordance with the Surveillance Frequency Control Program
SR 3.9.2.2	-------------------NOTE------------------- Not required to be performed until 1 hour after any control rod is withdrawn. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify all control rods are fully inserted.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY — Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1	Initiate action to fully insert inoperable withdrawn control rods.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	-------------------NOTE------------------- Not required to be performed until 7 days after the control rod is withdrawn. -- Insert each withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is $\geq$ 940 psig.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 22 ft 2 inches above the top of the RPV flange.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV,
During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RPV water level not within limit.	A.1	Suspend movement of fuel assemblies and handling of control rods within the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 22 ft 2 inches above the top of the RPV flange.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	AND		
	B.4	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify each required RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify each RHR shutdown cooling subsystem 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, or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3.1	Place the reactor mode switch in the shutdown position.	1 hour
	<u>OR</u>		
	A.3.2	--------- NOTE ---------- Only applicable in MODE 5. --------------------------	
		Place the reactor mode switch in the refuel position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	In accordance with the Surveillance Frequency Control Program
SR 3.10.2.2	Verify no CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.3.2	------------------ NOTE ------------------ Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements. -- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	 In accordance with the Surveillance Frequency Control Program
SR 3.10.3.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more of the above requirements not met with the affected control rod not insertable.	B.1	Suspend withdrawal of the control rod and removal of associated CRD.	Immediately
	<u>AND</u>		
	B.2.1	Initiate action to fully insert all control rods.	Immediately
	<u>OR</u>		
	B.2.2	Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	------------------ NOTE --------------------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. -- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.4	------------------ NOTE ------------------ Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. --- Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Initiate action to fully insert all control rods. OR A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.5.1	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.5.2	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, in a five by five array centered on the control rod withdrawn for the removal of the associated CRD, are disarmed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.5.3	Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.5.4	Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.5.5	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>OR</u>	
	A.3.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.10.6.1	Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.6.2	Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.6.3	-------------------NOTE-------------------- Only required to be met during fuel loading. -- Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.2	------------------ NOTE- ----------------- Not required to be met if SR 3.10.8.3 satisfied. -- Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 2 of Table 3.3.2.1-1.	According to the applicable SRs
SR 3.10.8.3	------------------ NOTE- ----------------- Not required to be met if SR 3.10.8.2 satisfied. -- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full-out" position <u>AND</u> Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure $\geq$ 940 psig.	In accordance with the Surveillance Frequency Control Program

5.5.14 Control Room Envelope Habitability Program (continued)

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.15 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 the 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.

JAFP-11-0088
Attachment 5

Proposed Changes to Technical Specification Bases Pages

Pages

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B 3.1.4-5	B 3.3.3.2-5	B 3.4.7-4	B 3.6.2.3-3	B 3.8.4-8
B 3.1.5-4	B 3.3.3.2-6	B 3.4.8-4	B 3.6.2.3-4	B 3.8.4-9
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B 3.3.2.1-12	B 3.4.1-6	B 3.6.1.6-5	B 3.8.1-23	
B 3.3.2.1-13	B 3.4.1-7	B 3.6.1.6-6	B 3.8.1-24	
B 3.3.2.2-5	B 3.4.2-4	B 3.6.1.7-5	B 3.8.1-25	
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B 3.3.3.1-11	B 3.4.5-5	B 3.6.1.9-4	B 3.8.3-8	
B 3.3.3.1-12	B 3.4.5-6	B 3.6.2.1-5		

SURVEILLANCE REQUIREMENTS

SR 3.1.3.1

The position of each control rod must be determined to ensure adequate information on control rod position is available to the operator for determining control rod OPERABILITY and controlling rod patterns. Control rod position may be determined by the use of OPERABLE position indicators, by moving control rods to a position with an OPERABLE indicator, or by the use of other appropriate methods (such as taking voltage measurements using the position indicator probe connectors and determining the position using the resultant readings). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency of this SR is based on operating experience related to expected changes in control rod position and the availability of control rod position indications in the control room.~~

SR 3.1.3.2

Control rod insertion capability is demonstrated by inserting each partially or fully withdrawn control rod at least one notch and observing that the control rod moves. The control rod may then be returned to its original position. This ensures the control rod is not stuck and is free to insert on a scram signal. These Surveillances are not required when THERMAL POWER is less than or equal to the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of the Banked Position Withdrawal Sequence (BPWS) (LCO 3.1.6) and the RWM (LCO 3.3.2.1). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. ~~Withdrawn control rods are tested at a 31 day Frequency, based on the following: (1) slow crack growth of the Collet Retainer Tube (CRT); (2) the improved CRT design; (3) a more reliable method (scram time testing) to monitor CRD scram system functionality; (4) GE chemistry recommendations; and (5) no known CRD failures have been detected during the notch testing exercise. Furthermore, the 31 day Frequency takes into account operating experience related to changes in CRD performance.~~ At any time, if a control rod is immovable, a determination of the control rods OPERABILITY must be made and appropriate action taken. This SR is modified by a Note that allows 31 days, after withdrawal of the control rod and increasing power to above the LPSP of the RWM, to perform the Surveillance. This acknowledges that the control rod must be first withdrawn and THERMAL POWER must increase to above the LPSP before performance of the Surveillance, and therefore the Notes avoid potential conflicts with SR 3.0.3 and SR 3.0.4.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.4.2 (continued)

data may have been previously tested in a sample. ~~The 200 day Frequency is based on operating experience that has shown control rod scram times do not significantly change over an operating cycle. This Frequency is also reasonable based on the additional Surveillances done on the CRDs at more frequent intervals in accordance with LCO 3.1.3 and LCO 3.1.5, "Control Rod Scram Accumulators."~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.1.4.3

When work that could affect the scram insertion time is performed on a control rod or the CRD System, testing must be done to demonstrate that each affected control rod retains adequate scram performance over the range of applicable reactor pressures from zero to the maximum permissible pressure. The scram testing must be performed once before declaring the control rod OPERABLE. The required scram time testing must demonstrate the affected control rod is still within acceptable limits. The limits for reactor pressures < 800 psig are found in the Technical Requirements Manual (Ref. 7) and are established based on a high probability of meeting the acceptance criteria at reactor pressures ≥ 800 psig. Limits for ≥ 800 psig are found in Table 3.1.4-1. If testing demonstrates the affected control rod does not meet these limits, but is within the 7-second limit of Table 3.1.4-1, Note 2, the control rod can be declared OPERABLE and "slow."

Specific examples of work that could affect the scram times are (but are not limited to) the following: removal of any CRD for maintenance or modification; replacement of a control rod; and maintenance or modification of a scram pilot valve, scram valve, accumulator, isolation valve or check valve in the piping required for scram.

The Frequency of once prior to declaring the affected control rod OPERABLE is acceptable because of the capability to test the control rod over a range of operating conditions and the more frequent surveillances on other aspects of control rod OPERABILITY.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

With one or more control rod scram accumulators inoperable and the reactor steam dome pressure < 900 psig, the pressure supplied to the charging water header must be adequate to ensure that accumulators remain charged. With the reactor steam dome pressure < 900 psig, the function of the accumulators in providing the scram force becomes much more important since the scram function could become severely degraded during a depressurization event or at low reactor pressures. Therefore, immediately upon discovery of charging water header pressure < 940 psig, concurrent with Condition C, all control rods associated with inoperable accumulators must be verified to be fully inserted. Withdrawn control rods with inoperable accumulators may fail to scram under these low pressure conditions. The associated control rods must also be declared inoperable within 1 hour. The allowed Completion Time of 1 hour is reasonable for Required Action C.2, considering the low probability of a DBA or transient occurring during the time that the accumulator is inoperable.

D.1

The reactor mode switch must be immediately placed in the shutdown position if either Required Action and associated Completion Time associated with loss of the CRD charging pump (Required Actions B.1 and C.1) cannot be met. This ensures that all insertable control rods are inserted and that the reactor is in a condition that does not require the active function (i.e., scram) of the control rods. This Required Action is modified by a Note stating that the action is not applicable if all control rods associated with the inoperable scram accumulators are fully inserted, since the function of the control rods has been performed.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

SR 3.1.5.1 requires that the accumulator pressure be checked every ~~7 days~~periodically to ensure adequate accumulator pressure exists to provide sufficient scram force. The primary indicator of accumulator OPERABILITY is the accumulator pressure. A minimum accumulator pressure is specified, below which the capability of the accumulator to perform its intended function becomes degraded and the accumulator is considered

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1 (continued)

inoperable. The minimum accumulator pressure of 940 psig is well below the expected pressure of approximately 1100 psig (Ref 4). Declaring the accumulator inoperable when the minimum pressure is not maintained ensures that significant degradation in scram times does not occur. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency has been shown to be acceptable through operating experience and takes into account indications available in the control room.~~

REFERENCES

1. UFSAR, Section 14.6.
2. UFSAR, Section 14.5.
3. 10 CFR 50.36(c)(2)(ii).
4. GEK-9582C, "Hydraulic Control Unit," December 1987.

BASES

ACTIONS

B.1 and B.2 (continued)

switch in shutdown, the reactor is shut down, and as such, does not meet the applicability requirements of this LCO. The allowed Completion Time of 1 hour is reasonable to allow insertion of control rods to restore compliance, and is appropriate relative to the low probability of a CRDA occurring with the control rods out of sequence.

SURVEILLANCE REQUIREMENTS

SR 3.1.6.1

The control rod pattern is periodically verified to be in compliance with the BPWS ~~at a 24 hour Frequency~~ to ensure the assumptions of the CRDA analyses are met. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency was developed considering that the primary check on compliance with the BPWS is performed by the RWM (LCO 3.3.2.1), which~~The RWM provides control rod blocks to enforce the required sequence and is required to be OPERABLE when operating at ≤ 10% RTP.

REFERENCES

1. NEDE-24011-P-A, General Electric Standard Application for Reactor Fuel, Supplement for United States, Section S.2.2.3.1, (Revision specified in the COLR).

2. Letter from T.A. Pickens (BWROG) to G.C. Lainas (NRC), Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A, BWROG-8644, August 15, 1986.

3. NUREG-0979, Safety Evaluation Report Related to the Final Design Approval of the GESSAR II, BWR/6 Nuclear Island Design (and Supplements 1 through 5), Section 4.2.1.3.2, April 1983.

4. NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, Section 15.4.9, Spectrum of Rod Drop Accidents (BWR), Revision 2, July 1981.

5. 10 CFR 100.

6. NEDO-10527, Rod Drop Accident Analysis For Large BWRs, March 1972.

7. NEDO-10527, Supplement 1, Rod Drop Accident Analysis For Large Boiling Water Reactors, Addendum No. 1, Multiple Enrichment Cores With Axial Gadolinium, July 1972.

(continued)

BASES

ACTIONS (continued)

B.1

If both SLC subsystems are inoperable, at least one subsystem must be restored to OPERABLE status within 8 hours. The allowed Completion Time of 8 hours is considered acceptable given the low probability of a DBA or severe transient occurring concurrent with the failure of the control rods to shut down the reactor.

C.1

If any Required Action and associated Completion Time is 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 MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.7.1, SR 3.1.7.2, and SR 3.1.7.3

SR 3.1.7.1 through SR 3.1.7.3 ~~are 24 hour Surveillances~~ verify~~ing~~ certain characteristics of the SLC System (e.g., the volume and temperature of the borated solution in the storage tank), thereby ensuring SLC System OPERABILITY without disturbing normal plant operation. These Surveillances ensure that the proper borated solution volume and temperature, including the temperature of the pump suction piping, are maintained. Maintaining a minimum specified borated solution temperature is important in ensuring that the boron remains in solution and does not precipitate out in the storage tank or in the pump suction piping. The temperature versus concentration curve of Figure 3.1.7-2 ensures that a 10°F margin will be maintained above the saturation temperature. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is based on operating experience and has shown there are relatively slow variations in the measured parameters of volume and temperature.~~

SR 3.1.7.4 and SR 3.1.7.6

SR 3.1.7.4 verifies the continuity of the explosive charges in the injection valves to ensure that proper operation will occur if required. Other administrative controls, such as those that limit the shelf life of the explosive charges,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.4 and SR 3.1.7.6 (continued)

must be followed. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on operating experience and has demonstrated the reliability of the explosive charge continuity.~~

SR 3.1.7.6 verifies that each valve in the system is in its correct position, but does not apply to the squib (i.e., explosive) valves. Verifying the correct alignment for manual valves in the SLC System flow path provides assurance that the proper flow paths will exist for system operation. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position from the control room, or locally by a dedicated operator at the valve control. This is acceptable since the SLC System is a manually initiated system. This Surveillance 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 verification of valve alignment does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on engineering judgment and is consistent with the procedural controls governing valve operation that ensures correct valve positions.~~

SR 3.1.7.5

This Surveillance requires an examination of the sodium pentaborate solution by using chemical analysis to ensure that the proper concentration of boron in the storage tank is maintained per Figure 3.1.7-1. SR 3.1.7.5 must be performed anytime boron or water is added to the storage tank solution to determine that the boron solution concentration is within the specified limits. SR 3.1.7.5 must also be performed anytime the temperature is restored to within the limits of Figure 3.1.7-2, to ensure that no significant boron precipitation occurred. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this Surveillance is appropriate because of the relatively slow variation of boron concentration between surveillances.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.7.7

Demonstrating that each SLC System pump develops a flow rate ≥ 50 gpm at a discharge pressure ≥ 1275 psig by recirculating demineralized water to the test tank ensures that pump performance has not degraded during the surveillance interval. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms pump and motor capability and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve primer assembly. The replacement primer assembly for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. ~~The pump and explosive valve pathway tested should be alternated such that both complete flow paths are tested every 48 months at alternating 24 month intervals.~~ The Surveillance may be performed in separate steps to prevent injecting boron into the RPV. An acceptable method for verifying flow from the pump to the RPV is to pump demineralized water from a test tank through one SLC subsystem and into the RPV. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.. ~~The 24 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 the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

Demonstrating that all heat traced piping between the boron solution storage tank and the suction inlet to the injection pumps is unblocked ensures that there is a functioning flow path for injecting the sodium pentaborate solution. An

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

acceptable method for verifying that the suction piping is unblocked is to manually initiate the system, except the explosive valves, and pump from the storage tank and recirculating it back to the storage tank. Upon completion of this verification, the pump suction piping must be flushed with demineralized water to ensure piping between the storage tank and pump suction is unblocked.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is acceptable since there is a low probability that the subject piping will be blocked due to precipitation of the boron from solution in the heat traced piping.~~ This is especially true in light of the temperature verification of this piping required by SR 3.1.7.3. However, if, in performing SR 3.1.7.3, it is determined that the temperature of this piping has fallen below the specified minimum, SR 3.1.7.9 must be performed once within 24 hours after the piping temperature is restored to within the limits of Figure 3.1.7-2.

SR 3.1.7.10

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Isotopic tests on the granular sodium pentaborate to verify the actual B-10 enrichment must be performed prior to addition to the SLC tank in order to ensure that the proper B-10 atom percentage is being used. A single isotopic test from a single batch can suffice as the required analysis for any number of mixings and additions from this batch. Certified vendor analytical test results may be used to satisfy this requirement.

SR 3.1.7.11

The B-10 enrichment of boron in solution in the SLC tank is only affected by the B-10 enrichment of tank additions. The requirements of SR 3.1.7.10 serve to assure that tank additions contain the proper enrichment. SR 3.1.7.11 requires periodic verification of the B-10 enrichment of the solution in the SLC tank, providing added assurance that the proper B-10 enrichment is maintained. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.8.1 (continued)

that the SDV vent and drain valves will perform their intended functions during normal operation. This SR does not require any testing or valve manipulation; rather, it involves verification that the valves are in the correct position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on engineering judgment and is consistent with the procedural controls governing valve operation, which ensure correct valve positions.~~

SR 3.1.8.2

During a scram, the SDV vent and drain valves should close to contain the reactor water discharged to the SDV piping. Cycling each valve through its complete range of motion (closed and open) ensures that the valve will function properly during a scram. The Frequency is in accordance with the Inservice Testing Program requirements.

SR 3.1.8.3

SR 3.1.8.3 is an integrated test of the SDV vent and drain valves to verify total system performance. After receipt of a simulated or actual scram signal, the closure of the SDV vent and drain valves is verified. The closure time of 30 seconds after receipt of a scram signal is based on the bounding leakage case evaluated in the accident analysis (Ref. 3). Similarly, after receipt of a simulated or actual scram reset signal, the opening of the SDV vent and drain valves is verified. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3 overlap this Surveillance to provide complete testing of the assumed safety function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

BASES

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.2.1.1

APLHGRs are required to be initially calculated within 12 hours after THERMAL POWER is ≥ 25% RTP and then ~~every 24 hours~~periodically thereafter. They are compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. ~~The 24 hour Frequency is based on the recognition of the slowness of changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. NEDE-24011-P-A, General Electric Standard Application for Reactor Fuel, (Revision specified in the COLR).

2. UFSAR, Chapter 3.

3. UFSAR, Chapter 6.

4. UFSAR, Chapter 14.

5. Supplemental Reload Licensing Report for James A. FitzPatrick (Revision specified in the COLR).

6. GE-NE-0000-0003-3218-02P, James A. FitzPatrick Nuclear Power Plant ECCS-LOCA Evaluation for GE14, Revision 0, August 2002.

7. NEDC-31317P, Revision 2, James A. FitzPatrick Nuclear Power Plant SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis, April 1993.

8. 10 CFR 50.36(c)(2)(ii).

9. NEDC-33087P, Revision 1, J. A. FitzPatrick Nuclear Power Plant APRM/RBM/Technical Specifications / Maximum Extended Operating Domain (ARTS/MEOD), September 2005.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.2.2.1

The MCPR is required to be initially calculated within 12 hours after THERMAL POWER is ≥ 25% RTP and then ~~every 24 hours~~periodically thereafter. It is compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is based on the recognition of the slowness of changes in power distribution during normal operation.~~

The 12 hour allowance after THERMAL POWER ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels.

SR 3.2.2.2

Because the transient analysis takes credit for conservatism in the scram speed performance, it must be demonstrated that the specific scram speed distribution is consistent with that used in the transient analysis. SR 3.2.2.2 determines the value of τ, which is a measure of the actual scram speed distribution compared with the assumed distribution. The MCPR operating limit is then determined based on an interpolation between the applicable limits for Option A (scram times of LCO 3.1.4, "Control Rod Scram Times") and Option B (realistic scram times) analyses. The parameter τ must be determined once within 72 hours after each set of scram time tests required by SR 3.1.4.1, SR 3.1.4.2, and SR 3.1.4.4 because the effective scram speed distribution may change during the cycle or after maintenance that could affect scram times. The 72 hour Completion Time is acceptable due to the relatively minor changes in τ expected during the fuel cycle.

(continued)

BASES

ACTIONS (continued)

B.1

If the LHGR cannot be restored to within its required limits within the associated Completion Time, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, THERMAL POWER is reduced to < 25% RTP within 4 hours. The allowed Completion Time is reasonable, based on operating experience, to reduce THERMAL POWER TO < 25% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.3.1

The LHGR is required to be initially calculated within 12 hours after THERMAL POWER is ≥ 25% RTP and ~~then every 24 hours~~periodically thereafter. It is compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. ~~The 24 hour Frequency is based on the recognition of the slow changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at lower power levels. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 14.5.
2. NEDE-24011-P-A, General Electric Standard Application for Reactor Fuel, (Revision specified in the COLR).
3. 10 CFR 50.36(c)(2)(ii).
4. SC03-12, ECCS Single Loop Operation MAPLHGR and LHGR Multipliers, dated July 17, 2003.
5. NEDC-33087P, Revision 1, J. A. FitzPatrick Nuclear Power Plant APRM/RBM/Technical Specifications / Maximum Extended Operating Domain (ARTS/MEOD), September 2005.
6. Supplemental Reload Licensing Report for James A. FitzPatrick (Revision specified in the COLR).

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.1

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 instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. For Functions 8 and 9, this SR is associated with the enabling circuit sensing first stage pressure.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.1.1.2

To ensure that the APRMs are accurately indicating the true core average power, the APRMs are calibrated to the reactor power calculated from a heat balance. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of once per 7 days is based on minor changes in LPRM sensitivity, which could affect the APRM reading between performances of SR 3.3.1.1.8.~~

A restriction to satisfying this SR when < 25% RTP is provided that requires the SR to be met only at ≥ 25% RTP because it is difficult to accurately maintain APRM indication of core THERMAL POWER consistent with a heat

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.2 (continued)

balance when < 25% RTP. At low power levels, a high degree of accuracy is unnecessary because of the large, inherent margin to thermal limits (MCPR and APLHGR). At ≥ 25% RTP, the Surveillance is required to have been satisfactorily performed ~~within the last 7 days,~~ in accordance with SR 3.0.2. A Note is provided which allows an increase in THERMAL POWER above 25% if the ~~7 day~~ Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after reaching or exceeding 25% RTP. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

SR 3.3.1.1.3

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the 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 the applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted, SR 3.3.1.1.3 is not required to be performed when entering MODE 2 from MODE 1, since testing of the MODE 2 required IRM and APRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This allows entry into MODE 2 if the ~~7 day~~ Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after entering MODE 2 from MODE 1. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~A Frequency of 7 days provides an acceptable level of system average unavailability over the Frequency interval and is based on reliability analysis (Ref. 18).~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.4

A functional test of each automatic scram contactor is performed to ensure that each automatic RPS trip channel will perform the intended function. There are four RPS channel test switches, one associated with each of the four automatic trip channels (A1, A2, B1, and B2). These test switches allow the operator to test the OPERABILITY of the individual trip channel automatic scram contactors as an alternative to using an automatic scram function trip. This is accomplished by placing the RPS channel test switch in the test position, which will input a trip signal into the associated RPS trip channel. The RPS channel test switches are not specifically credited in the accident analysis. ~~The Manual Scram Functions at JAFNPP are not configured the same as the generic model used in Reference 18. However, Reference 18 concluded that the Surveillance Frequency extensions for RPS Functions were not affected by the difference in configuration since each automatic RPS trip channel has a test switch which is functionally the same as the manual scram switches in the generic model. As such, a functional test of each RPS automatic scram contactor using either its associated test switch or by test of any of the associated automatic RPS Functions is required to be performed once every 7 days.~~ 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. In accordance with Reference 18, the scram contactors must be tested as part of the Manual Scram Function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 7 days is based on the reliability analysis of Reference 18. (This automatic scram contactor testing is credited in the analysis to extend many automatic Scram Function Surveillance Frequencies).~~

SR 3.3.1.1.5 and SR 3.3.1.1.6

These Surveillances are established to ensure that no gaps in neutron flux indication exist from subcritical to power operation for monitoring core reactivity status.

The overlap between SRMs and IRMs is required to be demonstrated to ensure that reactor power will not be

(continued)

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.5 and SR 3.3.1.1.6 (continued)

increased into a neutron flux region without adequate indication. This is required prior to fully withdrawing SRMs since indication is being transitioned from the SRMs to the IRMs.

The overlap between IRMs and APRMs is of concern when reducing power into the IRM range. On power increases, the system design will prevent further increases (by initiating a rod block) if adequate overlap is not maintained. Overlap between IRMs and APRMs exists when sufficient IRMs and APRMs concurrently have onscale readings such that the transition between MODE 1 and MODE 2 can be made without either APRM downscale rod block, or IRM upscale rod block. Overlap between SRMs and IRMs similarly exists when, prior to fully withdrawing the SRMs, IRMs are above mid-scale on range 1 before SRMs have reached the upscale rod block.

As noted, SR 3.3.1.1.6 is only required to be met during entry into MODE 2 from MODE 1. That is, after the overlap requirement has been met and indication has transitioned to the IRMs, maintaining overlap is not required (APRMs may be reading downscale once in MODE 2).

If overlap for a group of channels is not demonstrated (e.g., IRM/APRM overlap), the reason for the failure of the Surveillance should be determined and the appropriate channel(s) declared inoperable. Only those appropriate channels that are required in the current MODE or condition should be declared inoperable.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~A Frequency of 7 days is reasonable based on engineering judgment and the reliability of the IRMs and APRMs.~~

SR 3.3.1.1.7

LPRM gain settings are determined from the local flux profiles measured by the Traversing Incore Probe (TIP) System. This establishes the relative local flux profile for appropriate representative input to the APRM System. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 2000 MWD/T Frequency is based on operating experience, statistical evaluations, and core monitoring that utilizes nodal diffusion theory (Refs. 23 and 24).~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.8 and SR 3.3.1.1.11

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the 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 the applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. For Function 2.b, the CHANNEL FUNCTIONAL TEST includes the adjustment of the APRM channel to conform to the calibrated flow signal. This ensures that the total loop drive flow signals from the flow units used to vary the setpoint is appropriately compared to a valid core flow signal to verify the flow signal trip setpoint and, therefore, the APRM Function accurately reflects the required setpoint as a function of flow. If the flow unit signal is not within the appropriate flow limit, one required APRM that receives an input from the inoperable flow unit must be declared inoperable. For Function 7.b, the CHANNEL FUNCTIONAL TEST is performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected. For Function 10, the CHANNEL FUNCTIONAL TEST is performed by actually placing the reactor mode switch in the shutdown position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 92 day Frequency of SR 3.3.1.1.8 is based on the reliability analysis of Reference 18.~~

~~The 24 month Frequency of SR 3.3.1.1.11 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

SR 3.3.1.1.9 and SR 3.3.1.1.12

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.9 and SR 3.3.1.1.12 (continued)

adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. For Function 7.b, the CHANNEL CALIBRATION must be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected. For Functions 8 and 9, SR 3.3.1.1.12 is associated with the enabling circuit sensing first stage turbine pressure as well as the trip function.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions.~~in accordance with the Surveillance Frequency Control Program.

SR 3.3.1.1.9 has been modified by three Notes. Note 1 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the ~~7 day~~ calorimetric calibration (SR 3.3.1.1.2) and the ~~2000 MWD/T~~ LPRM calibration against the TIPs (SR 3.3.1.1.7). A second Note is provided that requires the APRM and IRM SRs to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 APRM and IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR. Note 3 to SR 3.3.1.1.9 and the Note to SR 3.3.1.1.12 concerns the Neutron Flux — High (Flow Biased) Function (Function 2). Note 3 to SR 3.3.1.1.9 excludes the recirculation loop flow signal portion of the channel, since this portion of the channel is calibrated by SR 3.3.1.1.12. Similarly, the Note to SR 3.3.1.1.12 excludes all portions of the channel except the recirculation loop flow signal portion, since they are covered by SR 3.3.1.1.9. Since the recirculation loop flow signal is also a portion of the Rod Block Monitor (RBM) — Upscale control rod block Function

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.9 and SR 3.3.1.1.12 (continued)

channels (Table 3.3.2.1-1, Control Rod Block Instrumentation, Function 1.a), satisfactory performance of SR 3.3.1.1.12 also results in satisfactory performance of SR 3.3.2.1.8 for the associated RBM — Upscale control rod block Function channels.

Reactor Pressure — High and Reactor Vessel Water Level — Low (Level 3) Function sensors (Functions 3 and 4, respectively) are excluded from the RPS RESPONSE TIME testing (Ref. 19). However, prior to the CHANNEL CALIBRATION of these sensors a response check must be performed to ensure adequate response. This testing is required by Reference 20. Personnel involved in this testing must have been trained in response to Reference 21 to ensure they are aware of the consequences of instrument response time degradation. This response check must be performed by placing a fast ramp or a step change into the input of each required sensor. The personnel, must monitor the input and output of the associated sensor so that simultaneous monitoring and verification may be accomplished.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.3.1.1.9 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.12 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.1.1.10

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.1.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology. For Functions 8 and 9, this SR is associated with the enabling circuit sensing first stage turbine pressure.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 184 days is based on the reliability, accuracy, and lower failure rates of the solid-state electronic Analog Transmitter/Trip System components.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.13

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods (LCO 3.1.3), and SDV vent and drain valves (LCO 3.1.8), overlaps this Surveillance to provide complete testing of the assumed safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

SR 3.3.1.1.14

This SR ensures that scrams initiated from the Turbine Stop Valve — Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure — Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 29% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed during an inservice calibration at THERMAL POWER ≥ 29% RTP to ensure that the calibration is valid.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 29% RTP, either due to open main turbine bypass valve(s) or other reasons), then the affected Turbine Stop Valve — Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure — Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met and the channel is considered OPERABLE.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months is based on engineering judgment and reliability of the components.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.15

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The RPS RESPONSE TIME acceptance criteria are included in Reference 22.

RPS RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. However, the sensors for Functions 3 and 4 are excluded from specific RPS RESPONSE TIME measurement since the conditions of Reference 19 are satisfied. For Functions 3 and 4, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design response time. For all other Functions, sensor response time must be measured.
Note 1 excludes neutron detectors from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

~~RPS RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. Note 2 requires STAGGERED TEST BASIS Frequency to be determined based on 2 channels. This ensures all required channels are tested during two Surveillance Frequency intervals. For Functions 2.b, 2.c, 3, 4, 6, and 9, two channels must be tested during each test; while for Functions 5 and 8, eight and four channels must be tested. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal.~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is consistent with the refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.~~

REFERENCES

1. UFSAR, Section 7.2.

2. UFSAR, Section 14.5.4.2.

3. NEDO-23842, Continuous Control Rod Withdrawal Transient In The Startup Range, April 18, 1978.

4. 10 CFR 50.36(c)(2)(ii).

5. NEDO-31960-A, BWR Owners' Group Long Term Stability Solutions Licensing Methodology, June 1991.

(continued)

BASES

ACTIONS

E.1 and E.2 (continued)

Suspending CORE ALTERATIONS prevents the two most probable causes of reactivity changes, fuel loading and control rod withdrawal, from occurring. Inserting all insertable control rods ensures that the reactor will be at its minimum reactivity given that fuel is present in the core. Suspension of CORE ALTERATIONS shall not preclude completion of the movement of a component to a safe, conservative position.

Action (once required to be initiated) to insert control rods must continue until all insertable rods in core cells containing one or more fuel assemblies are inserted.

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each SRM Applicable MODE or other specified conditions are found in the SRs column of Table 3.3.1.2-1.

SR 3.3.1.2.1 and SR 3.3.1.2.3

Performance of the CHANNEL CHECK 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 another channel. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of once every 12 hours for SR 3.3.1.2.1 is based on operating experience that demonstrates channel failure is rare. While in MODES 3 and 4, reactivity changes are not expected; therefore, the 12 hour Frequency is relaxed to 24 hours for SR 3.3.1.2.3.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.2.2

To provide adequate coverage of potential reactivity changes in the core when the fueled region encompasses more than one SRM, one SRM is required to be OPERABLE in the quadrant where CORE ALTERATIONS are being performed, and the other OPERABLE SRM must be in an adjacent quadrant containing fuel. Note 1 states that the SR is required to be met only during CORE ALTERATIONS. It is not required to be met at other times in MODE 5 since core reactivity changes are not occurring. This Surveillance consists of a review of plant logs to ensure that SRMs required to be OPERABLE for given CORE ALTERATIONS are, in fact, OPERABLE. In the event that only one SRM is required to be OPERABLE (when the fueled region encompasses only one SRM), per Table 3.3.1.2-1, footnote (b), only the a. portion of this SR is required. Note 2 clarifies that more than one of the three requirements can be met by the same OPERABLE SRM. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 12 hour Frequency is based upon operating experience and supplements operational controls over refueling activities that include steps to ensure that the SRMs required by the LCO are in the proper quadrant.~~

SR 3.3.1.2.4

This Surveillance consists of a verification of the SRM instrument readout to ensure that the SRM reading is greater than a specified minimum count rate with the detector full-in, which ensures that the detectors are indicating count rates indicative of neutron flux levels within the core. With few fuel assemblies loaded, the SRMs will not have a high enough count rate to satisfy the SR. Therefore, allowances are made for loading sufficient "source" material, in the form of irradiated fuel assemblies, to establish the minimum count rate.

To accomplish this, the SR is modified by a Note that states that the count rate is not required to be met on an SRM that has less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies are in the associated core quadrant. With four or less fuel assemblies loaded around each SRM and no other fuel assemblies in the associated core quadrant, even with a control rod withdrawn, the configuration will not be critical.

~~The Frequency is based upon channel redundancy and other information available in the control room, and ensures that the required channels are frequently monitored while core~~

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.4 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~reactivity changes are occurring. When no reactivity changes are in progress, the Frequency is relaxed from 12 hours to 24 hours.~~

SR 3.3.1.2.5 and SR 3.3.1.2.6

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. 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 the applicable extensions. SR 3.3.1.2.5 is required in MODE 5, and ~~the 7 day Frequency~~ ensures that the channels are OPERABLE while core reactivity changes could be in progress. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~This Frequency is reasonable, based on operating experience and on other Surveillances (such as a CHANNEL CHECK), that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.~~

SR 3.1.2.6 is required in MODE 2 with IRMs on Range 2 or below, and in MODES 3 and 4. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~Since core reactivity changes do not normally take place in MODES 3 and 4, and core reactivity changes are due only to control rod movement in MODE 2, the Frequency has been extended from 7 days to 31 days. The 31 day Frequency is based on operating experience and on other Surveillances (such as CHANNEL CHECK) that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.~~

Verification of the signal to noise ratio also ensures that the detectors are inserted to an acceptable operating level. In a fully withdrawn condition, the detectors are sufficiently removed from the fueled region of the core to essentially eliminate neutrons from reaching the detector. Any count rate obtained while the detectors are fully withdrawn is assumed to be "noise" only.

With few fuel assemblies loaded, the SRMs will not have a high enough count rate to determine the signal to noise ratio. Therefore, allowances are made for loading sufficient "source" material, in the form of irradiated fuel assemblies, to establish the conditions necessary to

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

determine the signal to noise ratio. To accomplish this, SR 3.3.1.2.5 is modified by a Note that states that the determination of signal to noise ratio is not required to be met on an SRM that has less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies are in the associated core quadrant. With four or less fuel assemblies loaded around each SRM and no other fuel assemblies in the associated quadrant, even with a control rod withdrawn the configuration will not be critical.

The Note to SR 3.3.1.2.6 allows the Surveillance to be delayed until entry into the specified condition of the Applicability (THERMAL POWER decreased to IRM Range 2 or below). The SR must be performed within 12 hours after IRMs are on Range 2 or below. The allowance to enter the Applicability with the ~~31 day~~ Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. Twelve hours is reasonable based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

SR 3.3.1.2.7

Performance of a CHANNEL CALIBRATION ~~at a Frequency of 92 days~~ verifies the performance of the SRM monitors and associated circuitry. The Frequency considers the plant conditions required to perform the test, the ease of performing the test, and the likelihood of a change in the system or component status. The neutron detectors are excluded from the CHANNEL CALIBRATION (Note 1) because they cannot readily be adjusted. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range and with an accuracy specified for a fixed useful life.

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the ~~92 day~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.7 (continued)

Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. Twelve hours is reasonable based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

REFERENCES

None.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.1 (continued)

function. It includes the Reactor Manual Control Multiplexing System input. 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 the applicable extensions. Testing of the Reactor Manual Control Multiplexing System input shall include inputs of "no control rod selected," "peripheral control rod selected," and other control rods selected with two, three, or four LPRM assemblies around it. In addition, testing shall include a verification that an inoperable trip occurs when a module is not plugged in, or the function switch is moved to any position other than "Operate". The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 92 days is based on reliability analyses (Ref. 9).~~

SR 3.3.2.1.2 and SR 3.3.2.1.3

A CHANNEL FUNCTIONAL TEST is performed for the RWM to ensure that the entire system will perform the 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 the applicable extensions. The CHANNEL FUNCTIONAL TEST for the RWM is performed by attempting to withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2 and, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and entry into MODE 1 when THERMAL POWER is ≤ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the ~~92 day~~ Frequency is not met per

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.2 and SR 3.3.2.1.3 (continued)

SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 92 day Frequencies are based on reliability analysis (Ref. 9).~~

SR 3.3.2.1.4

The RBM is automatically bypassed when power is below a specified value or if a peripheral control rod is selected. The power level is determined from the APRM signals input to each RBM channel. The automatic bypass must be verified periodically to be < 30% RTP. In addition, it must also be verified that the RBM is not bypassed when a non-peripheral control rod is selected (only one non-peripheral control rod is required to be verified). If any bypass setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the APRM channel can be placed in the conservative condition (i.e., enabling the nonbypass). If placed in this condition, the SR is met and the RBM channel is not considered inoperable. As noted, neutron detectors are excluded from the Surveillance because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 92 day Frequency is based on the actual trip setpoint methodology utilized for these channels.~~

SR 3.3.2.1.5 and SR 3.3.2.1.8

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.5 and SR 3.3.2.1.8 (continued)

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 the applicable extensions.

SR 3.3.2.1.5 is modified by two Notes. Note 1 to SR 3.3.2.1.5 excludes neutron detectors from the CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7. Note 2 to SR 3.3.2.1.5 excludes the recirculation loop flow signal portion of the channel from the CHANNEL CALIBRATION, since this portion of the channel is calibrated by SR 3.3.2.1.8.

SR 3.3.2.1.8 is modified by a Note that excludes all portions of channel except the recirculation loop flow signal from CHANNEL CALIBRATION. SR 3.3.2.1.5, in conjunction with SR 3.3.2.1.8, results in calibration of the entire channel. Since the recirculation loop flow signal is also a portion of the APRM Neutron Flux-High (Flow Biased) RPS scram Function channels (Table 3.3.1.1-1, RPS Instrumentation, Function 2.b), satisfactory performance of SR 3.3.2.1.8 also results in satisfactory completion of SR 3.3.1.1.12 for the associated APRM Neutron Flux -High (Flow Biased) RPS scram Function channels.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.3.2.1.5 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.2.1.8 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of the equipment drift in the setpoint analysis.~~

SR 3.3.2.1.6

The RWM is automatically bypassed when power is above a specified value. The power level is determined from steam flow signals compensated for steam pressure. The automatic bypass setpoint must be verified periodically to be ≤ 10% RTP. If the RWM low power setpoint is nonconservative, then the RWM is considered inoperable. Alternately, the low power setpoint channel can be placed in the conservative condition (nonbypass). If placed in the nonbypassed condition, the SR is met and the RWM is not considered inoperable. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based on the trip setpoint methodology utilized for the low power setpoint channel.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.7

A CHANNEL FUNCTIONAL TEST is performed for the Reactor Mode Switch-Shutdown Position Function to ensure that the entire channel will perform the 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 the applicable extensions. The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch-Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs.

As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable links. This allows entry into MODES 3 and 4 if the ~~24 month~~ Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 the 24 month Frequency.~~

SR 3.3.2.1.9

The RWM will only enforce the proper control rod sequence if the rod sequence is properly input into the RWM computer. This SR ensures that the proper sequence is loaded into the RWM so that it can perform its intended function. The Surveillance is performed once prior to declaring RWM OPERABLE following loading of sequence into RWM, since this is when rod sequence input errors are possible.

(continued)

ACTIONS (continued)

E.1 and E.2

With one Reactor Mode Switch-Shutdown Position control rod withdrawal block channel inoperable, the remaining OPERABLE channel is adequate to perform the control rod withdrawal block function. However, since the Required Actions are consistent with the normal action of an OPERABLE Reactor Mode Switch- Shutdown Position Function (i.e., maintaining all control rods inserted), there is no distinction between having one or two channels inoperable.

In both cases (one or both channels inoperable), suspending all control rod withdrawal and initiating action to fully insert all insertable control rods in core cells containing one or more fuel assemblies will ensure that the core is subcritical with adequate SDM, (LCO 3.1.1, "SHUTDOWN MARGIN (SDM)"). Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and are therefore not required to be inserted. Action must continue until all insertable control rods in core cells containing one or more fuel assemblies are fully inserted.

SURVEILLANCE REQUIREMENTS

As noted (Note 1) at the beginning of the SRs, the SRs for each Control Rod Block instrumentation Function are found in the SRs column of Table 3.3.2.1-1.

The Surveillances are modified by Note 2 to indicate that when an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 8) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that a control rod block will be initiated when necessary.

SR 3.3.2.1.1

A CHANNEL FUNCTIONAL TEST is performed for each RBM channel to ensure that the entire channel will perform the intended

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.1 (continued)

function. It includes the Reactor Manual Control Multiplexing System input. 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 the applicable extensions. Testing of the Reactor Manual Control Multiplexing System input shall include inputs of "no control rod selected," "peripheral control rod selected," and other control rods selected with two, three, or four LPRM assemblies around it. In addition, testing shall include a verification that an inoperable trip occurs when a module is not plugged in, or the function switch is moved to any position other than "Operate". ~~The Frequency of 92 days is based on reliability analyses (Ref. 9).~~ Insert 3

SR 3.3.2.1.2 and SR 3.3.2.1.3

A CHANNEL FUNCTIONAL TEST is performed for the RWM to ensure that the entire system will perform the 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 the applicable extensions. The CHANNEL FUNCTIONAL TEST for the RWM is performed by attempting to withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2 and, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and entry into MODE 1 when THERMAL POWER is ≤ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the 92 day Frequency is not met per

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.2 and SR 3.3.2.1.3 (continued)

SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. ~~The 92 day Frequencies are based on reliability analysis (Ref. 9).~~Insert 3

SR 3.3.2.1.4

The RBM is automatically bypassed when power is below a specified value or if a peripheral control rod is selected. The power level is determined from the APRM signals input to each RBM channel. The automatic bypass must be verified periodically to be < 30% RTP. In addition, it must also be verified that the RBM is not bypassed when a non-peripheral control rod is selected (only one non-peripheral control rod is required to be verified). If any bypass setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the APRM channel can be placed in the conservative condition (i.e., enabling the nonbypass). If placed in this condition, the SR is met and the RBM channel is not considered inoperable. As noted, neutron detectors are excluded from the Surveillance because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7. ~~The 92 day Frequency is based on the actual trip setpoint methodology utilized for these channels.~~Insert 3

SR 3.3.2.1.5 and SR 3.3.2.1.8

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.5 and SR 3.3.2.1.8 (continued)

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 the applicable extensions.

SR 3.3.2.1.5 is modified by two Notes. Note 1 to SR 3.3.2.1.5 excludes neutron detectors from the CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.7. Note 2 to SR 3.3.2.1.5 excludes the recirculation loop flow signal portion of the channel from the CHANNEL CALIBRATION, since this portion of the channel is calibrated by SR 3.3.2.1.8.

SR 3.3.2.1.8 is modified by a Note that excludes all portions of channel except the recirculation loop flow signal from CHANNEL CALIBRATION. SR 3.3.2.1.5, in conjunction with SR 3.3.2.1.8, results in calibration of the entire channel. Since the recirculation loop flow signal is also a portion of the APRM Neutron Flux-High (Flow Biased) RPS scram Function channels (Table 3.3.1.1-1, RPS Instrumentation, Function 2.b), satisfactory performance of SR 3.3.2.1.8 also results in satisfactory completion of SR 3.3.1.1.12 for the associated APRM Neutron Flux-High (Flow Biased) RPS scram Function channels.

The Frequency of SR 3.3.2.1.5 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. ~~The Frequency of SR 3.3.2.1.8 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of the equipment drift in the setpoint analysis.~~Insert 3

SR 3.3.2.1.6

The RWM is automatically bypassed when power is above a specified value. The power level is determined from steam flow signals compensated for steam pressure. The automatic bypass setpoint must be verified periodically to be ≤ 10% RTP. If the RWM low power setpoint is nonconservative, then the RWM is considered inoperable. Alternately, the low power setpoint channel can be placed in the conservative condition (nonbypass). If placed in the nonbypassed condition, the SR is met and the RWM is not considered inoperable. The Frequency is based on the trip setpoint methodology utilized for the low power setpoint channel.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.7

A CHANNEL FUNCTIONAL TEST is performed for the Reactor Mode Switch-Shutdown Position Function to ensure that the entire channel will perform the 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 the applicable extensions. The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch-Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs.

As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable links. This allows entry into MODES 3 and 4 if the 24 month Frequency is not met per SR 3.0.2. ~~The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs.~~Insert 3

~~The 24 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.~~ Insert 3Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency.

SR 3.3.2.1.9

The RWM will only enforce the proper control rod sequence if the rod sequence is properly input into the RWM computer. This SR ensures that the proper sequence is loaded into the RWM so that it can perform its intended function. The Surveillance is performed once prior to declaring RWM OPERABLE following loading of sequence into RWM, since this is when rod sequence input errors are possible.

(continued)

Bases

ACTIONS (continued)

C.1 and C.2

With the required channels not restored to OPERABLE status or placed in trip, THERMAL POWER must be reduced to < 25% RTP within 4 hours. Alternatively, the affected stop valve(s) may be removed from service since this performs the intended function of the instrumentation. As discussed in the Applicability section of the Bases, operation below 25% RTP results in sufficient margin to the required limits, and the feedwater and main turbine high water level trip instrumentation is not required to protect fuel integrity during the feedwater controller failure, maximum demand event. The allowed Completion Time of 4 hours is based on operating experience to reduce THERMAL POWER to < 25% RTP from full power conditions in an orderly manner and without challenging plant systems. Required Action C.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable feedwater pump turbine stop valve or main turbine stop valve. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that
when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains feedwater and main turbine high water level trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 4) assumption that 6 hours is the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the feedwater pump turbines and main turbine will trip when necessary.

SR 3.3.2.2.1

Performance of the CHANNEL CHECK ~~once every 24 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

(continued)

Bases

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2.1 (continued)

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 something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limits.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel status during normal operational use of the displays associated with the channels required by the LCO.~~

SR 3.3.2.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the 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 shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted, the CHANNEL FUNCTIONAL TEST is only required to be performed when in MODE 4 for > 24 hours. In MODE 4, the plant is in a condition where a loss of a feedwater pump turbine or a main turbine trip will not jeopardize steady state power operation. The design of the trip systems do not permit functional testing of this trip function without lifting electrical leads. Consequently, testing the trip

(continued)

Bases

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2.2 (continued)

systems on-line poses an unacceptable risk of an inadvertent trip of the feedwater pump turbines and main turbine, resulting in a plant transient. The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling a proper performance of the Surveillance.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 92 day Frequency and the Note to this Surveillance are based on Reference 5.~~

SR 3.3.2.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.2.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater and main turbine valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation would also be inoperable. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 14.5.9.

2. 10 CFR 50.36(c)(2)(ii).

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SURVEILLANCE REQUIREMENTS (continued)

performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required channel in the associated Function is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the probability of properly monitoring post-accident parameters, when necessary.

SR 3.3.3.1.1

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 against 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 something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. For the PCIV Position Function, the CHANNEL CHECK consists of verifying the remote indication conforms to expected valve position.

Channel agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including isolation, 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.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~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 rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of those displays associated with the channels required by the LCO.~~

SR 3.3.3.1.2

This SR requires a CHANNEL CALIBRATION to be performed. CHANNEL CALIBRATION is a complete check of the instrument

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1.2 (continued)

loop, including the sensor. The test verifies the channel responds to measured parameter with the necessary range and accuracy. For the PCIV Position Function, the CHANNEL CALIBRATION consists of verifying the remote indication conforms to actual valve position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency for CHANNEL CALIBRATION of PAM instrumentation of Table 3.3.3.1-1 is based on operating experience and consistency with the refueling cycles.~~

REFERENCES

1. Regulatory Guide 1.97, Revision 3, Instrumentation For Light-Water-Cooled Nuclear Power Plants To Assess Plant And Environs Conditions During And Following An Accident, May 1983.
2. NRC letter, H. I. Abelson to J. C. Brons dated March 14, 1988, regarding conformance to Regulatory Guide 1.97, Rev. 2. Includes NRR Safety Evaluation Report for Regulatory Guide 1.97 and James A. FitzPatrick Nuclear Power Plant.
3. 10 CFR 50.36(c)(2)(ii).
4. DRF-T23-688-1, Error in FitzPatrick Temperature Measurement Based on Monticello In-plant S/RV Test Data.

BASES

ACTIONS (continued)

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System is inoperable. This includes any function listed in Reference 4, as well as the control and transfer switches.

The Required Action is to restore the Function (both divisions, if applicable) to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1

If the Required Action and associated Completion Time of Condition A 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 12 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the probability of properly monitoring remote shutdown parameters, when necessary.

SR 3.3.3.2.1

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 instrument channels could be an indication of

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1 (continued)

excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon plant operating experience that demonstrates channel failure is rare.~~

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel 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 placed and maintained in MODE 3 from the remote shutdown panel, auxiliary shutdown panels and the local control stations. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is based on the need to perform portions of 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 Remote Shutdown System control channels usually pass the Surveillance when performed at the 24 month Frequency.~~

SR 3.3.3.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies the channel responds to measured parameter values with the necessary range and accuracy.

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.3.3.2.3 (continued) The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is based upon operating experience and consistency with the refueling cycle.~~
REFERENCES	1. UFSAR, Section 16.6. 2. UFSAR, Section 14.5.10. 3. 10 CFR 50.36(c)(2)(ii). 4. Technical Requirements Manual, Appendix D.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

SR 3.3.4.1.1

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 instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the required channels of this LCO.

SR 3.3.4.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.2 (continued)

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 92 days is based on the reliability analysis of Reference 5.~~

SR 3.3.4.1.3

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in SR 3.3.4.1.4. If the trip setting is discovered to be less conservative than the setting accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 184 days is based on the reliability, accuracy, and low failure rates of these solid-state electronic components.~~

SR 3.3.4.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.4.1.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the

BASES

pump breakers is

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.5 (continued)

included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channels would be inoperable.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 the 24 month Frequency.~~

REFERENCES

1. UFSAR, Figure 7.4-9 Reactor Recirculation System (FCD).
2. 10 CFR 50.36(c)(2)(ii).
3. Drawing 11825-5.01-15D, Rev. D, Reactor Assembly Nuclear Boiler, (GE Drawing 919D690BD).
4. "ATWS Overpressure Analysis for FitzPatrick," GE-NE-A42-00137-2-01, March 2000.
5. GENE-770-06-1-A, Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications, December 1992.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours as follows: (a) for Functions 3.c, 3.f, and 3.g; (b) for Functions other than 3.c, 3.f, and 3.g provided the associated Function or redundant Function maintains ECCS initiation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 7) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the ECCS will initiate when necessary.

SR 3.3.5.1.1

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 instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK guarantees that undetected outright channel failure is limited ~~to 12 hours~~; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the 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 shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 92 days is based on the reliability analyses of Reference 7.~~

SR 3.3.5.1.3 and SR 3.3.5.1.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions.

~~The Frequency of SR 3.3.5.1.3 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.3 and SR 3.3.5.1.5 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.3.5.1.5 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.5.1.4

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.5.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analyses. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than the setting accounted for in the appropriate setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 184 days is based on the reliability, accuracy, and lower failure rates of the associated solid-state electronic Analog Transmitter/Trip System components.~~

SR 3.3.5.1.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.1, LCO 3.5.2, LCO 3.8.1, and LCO 3.8.2 overlaps this Surveillance to complete testing of the assumed safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 6.5.

2. UFSAR, Section 14.6.

3. UFSAR, Section 14.5.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 3) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RCIC will initiate when necessary.

SR 3.3.5.2.1

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 parameter on other similar channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.5.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the 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

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.2 (continued)

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 shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 92 days is based on the reliability analysis of Reference 3.~~

SR 3.3.5.2.3 and SR 3.3.5.2.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.3.5.2.3 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

~~The Frequency of SR 3.3.5.2.5 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.2.4

The calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.5.2-1. If the trip setting is discovered to be less conservative than the setting accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 184 days is based on the reliability, accuracy, and low failure rates of the associated solid-state electronic Analog Transmitter/Trip System components.~~

SR 3.3.5.2.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.3 overlaps this Surveillance to provide complete testing of the safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. 10 CFR 50.36(c)(2)(ii).
2. Drawing 11825-5.01-15D, Rev. D, Reactor Assembly Nuclear Boiler, (GE Drawing 919D690BD).
3. GENE-770-06-2-A, Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications, December 1992.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillances are modified by Note 2 to indicate that when a channel is is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours as follows: (a) for Functions 2.d, 2.g, 7.a, and 7.b; and (b) for Functions other than 2.d, 2.g, 7.a, and 7.b provided the associated Function maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 7 and 8) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary. For Functions 2.d and 2.g, this allowance is permitted since the associated penetration flow path(s) involve sample lines which form a closed system with the primary containment atmosphere. For Functions 7.a and 7.b, this is permitted since the associated penetrations can be manually isolated if needed.

SR 3.3.6.1.1

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 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 verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.1 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based on operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.6.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the 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 shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 92 day Frequency of SR 3.3.6.1.2 is based on the reliability analysis described in References 7 and 8.~~

SR 3.3.6.1.3, SR 3.3.6.1.5, and SR 3.3.6.1.6

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.3, SR 3.3.6.1.5, and SR 3.3.6.1.6 (continued)

by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with the applicable extensions.

SR 3.3.6.1.6 however is only a calibration of the radiation detectors using a standard radiation source. As noted for SR 3.3.6.1.3, the main steam tunnel radiation detectors are excluded from CHANNEL CALIBRATION due to ALARA reasons (when the plant is operating, the radiation detectors are generally in a high radiation area; the steam tunnel). This exclusion is acceptable because the radiation detectors are passive devices, with minimal drift. ~~The radiation detectors are calibrated in accordance with SR 3.3.6.1.6 on a 24 month Frequency.~~ The CHANNEL CALIBRATION of the remaining portions of the channel (SR 3.3.6.1.3) are performed using a standard current source.

Reactor Vessel Water Level — Low Low Low (Level 1), Main Steam Line Pressure — Low and Main Steam Line Flow — High Function sensors (Functions 1.a, 1.b, and 1.c, respectively) are excluded from ISOLATION INSTRUMENTATION RESPONSE TIME testing (Ref. 11). However, during the CHANNEL CALIBRATION of these sensors, a response check must be performed to ensure adequate response. This testing is required by Reference 11. Personnel involved in this testing must have been trained in response to Reference 12 to ensure that they are aware of the consequences of instrument response time degradation. This response check must be performed by placing a fast ramp or a step change into the input of each required sensor. The personnel must monitor the input and output of the associated sensor so that simultaneous monitoring and verification may be accomplished.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.3.6.1.3 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequencies of SR 3.3.6.1.5 and SR 3.3.6.1.6 are based on the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.6.1.4

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.4 (continued)

the Allowable Value specified in Table 3.3.6.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than that accounted for in the appropriate setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 184 days is based on operating experience that demonstrates this equipment to be reliable.~~

SR 3.3.6.1.7

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on PCIVs in LCO 3.6.1.3 overlaps this Surveillance to provide complete testing of the assumed safety function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~While this Surveillance can be performed with the reactor at power for some Functions, the 24 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 the 24 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.~~

SR 3.3.6.1.8

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Testing is performed only on channels where the assumed response time does not correspond to the emergency diesel generator (EDG) start time. For channels assumed to respond within the EDG start time, sufficient margin exists in the 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test.

ISOLATION INSTRUMENTATION RESPONSE TIME acceptance criteria are included in Reference 9. ISOLATION SYSTEM RESPONSE TIME may be verified by actual response time measurements in any

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.8 (continued)

series of sequential, overlapping, or total channel measurements. However, the sensors for Functions 1.a, 1.b, and 1.c are excluded from specific ISOLATION SYSTEM RESPONSE TIME measurement since the conditions of Reference 10 are satisfied. For Functions 1.a, 1.b, and 1.c, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design response time.

~~ISOLATION INSTRUMENTATION RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. A Note requires STAGGERED TEST BASIS Frequency to be determined based on 2 channels. This will ensure that all required channels are tested during two Surveillance Frequency intervals. For Functions 1.a and 1.b, two channels must be tested during each test, while for Function 1.c, eight channels must be tested.~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is consistent with the refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.~~

REFERENCES

1. UFSAR, Table 7.3-1.
2. UFSAR, Section 14.5.
3. UFSAR, Section 14.6.
4. 10 CFR 50.36(c)(2)(ii).
5. NEDO-31466, Technical Specification Screening Criteria Application and Risk Assessment, November 1987.
6. UFSAR, Section 3.9.3.
7. NEDC-31677P-A, Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation, July 1990.
8. NEDC-30851P-A, Supplement 2, Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation, March 1989.
9. UFSAR, Table 7.3-12.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

This Note is based on the reliability analysis (Refs. 6 and 7) assumption of the average time required to perform channel surveillance. That analysis demonstrated the 6 hour testing allowance does not significantly reduce the probability that the SCIVs will isolate the associated penetration flow paths and that the SGT System will initiate when necessary.

SR 3.3.6.2.1

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 instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based on operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channel status during normal operational use of the displays associated with channels required by the LCO.

SR 3.3.6.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the 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

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.2.2 (continued)

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 shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 92 days is based on the reliability analysis of References 6 and 7.~~

SURVEILLANCE REQUIREMENTS

SR 3.3.6.2.3 and SR 3.3.6.2.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequencies of SR 3.3.6.2.3 and SR 3.3.6.2.5 are based on the assumption of a 92 day and a 24 month calibration interval, respectively, in the determination of the magnitude of equipment drift in the setpoint analysis.~~

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.4

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.6.2-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 184 days is based on the reliability, accuracy and lower failure rates of the solid state electronic Analog Transmitters/Trip System components.~~

SURVEILLANCE REQUIREMENTS

SR 3.3.6.2.6

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on SCIVs and the SGT System in LCO 3.6.4.2 and LCO 3.6.4.3, respectively, overlaps this Surveillance to provide complete testing of the assumed safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~While this Surveillance can be performed with the reactor at power for some Functions, the 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 5.3.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36(c)(2)(ii).
4. UFSAR, Section 14.6.1.3.
5. UFSAR, Section 14.6.1.4.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

probability of an event requiring this Function during this time period and since many other alarms are available to indicate whether a design basis event has occurred.

SR 3.3.7.1.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channel status during normal operational use of the displays associated with channels required by the LCO.

SR 3.3.7.1.2

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

3.3.7.1.2 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

REFERENCES

1. UFSAR, Section 14.6.1.2.
2. UFSAR, Section 14.6.1.3.
3. UFSAR, Section 14.6.1.4.
4. UFSAR, Section 14.6.1.5.
5. UFSAR, Section 14.8.2.
6. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

C.1, C.2, and C.3 (continued)

at least MODE 3 within 12 hours (Required Action C.3). Alternately, the condenser air removal pumps may be isolated since this performs the intended function of the instrumentation (Required Action C.1). An additional option is provided to isolate the main steam lines (Required Action C.2), which may allow operation to continue. Isolating the main steam lines effectively provides an equivalent level of protection by precluding fission product transport to the condenser.

The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions, or to remove the condenser air removal pump from service, or to isolate the main steam lines, in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains condenser air removal pump isolation trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 4) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the condenser air removal pumps will isolate when necessary.

SR 3.3.7.2.1

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 instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7.2.1 (continued)

gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel 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 instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon operating experience that demonstrates channel failure is rare.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the required channels of this LCO.

SR 3.3.7.2.2 and SR 3.3.7.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. SR 3.3.7.2.3, however, is only a calibration of the radiation detectors using a standard radiation source.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions~~.

As noted for SR 3.3.7.2.2, the main steam line radiation detectors are excluded from CHANNEL CALIBRATION due to ALARA reasons (when the plant is operating, the radiation detectors are generally in a high radiation area; the steam tunnel). This exclusion is acceptable because the radiation detectors are passive devices, with minimal drift.~~The radiation detectors are calibrated in accordance with~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7.2.2 and SR 3.3.7.2.3 (continued)

~~SR 3.3.7.2.3 on a 24 month Frequency.~~ The CHANNEL CALIBRATION of the remaining portions of the channel (SR 3.3.6.1.2) are performed using a standard current source.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.3.7.2.2 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.7.2.3 is based on the assumption of a 24 month calibration interval in the determination of the magnitude of detector drift in the setpoint analysis.~~

SR 3.3.7.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) would be inoperable.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 10.4.3.1.
2. UFSAR, Section 14.6.1.2.
3. 10 CFR 50.36(c)(2)(ii).
4. NEDC-31677P-A, Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation, July 1990.

BASES

SURVEILLANCE REQUIREMENTS (continued)

time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the ESW initiation will occur when necessary.

SR 3.3.7.3.1

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. 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 the applicable extensions.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.7.3.2

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional test performed in LCO 3.7.2 overlaps this Surveillance to provide complete testing of the safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

(continued)

BASES

ACTIONS

B.1 (continued)

entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable EDG(s).

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LOP instrumentation Function are located in the SRs column of Table 3.3.8.1-1.

SR 3.3.8.1.1

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.8.1.2

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 the 24 month Frequency.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1 (continued)

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 shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. 3).~~

SR 3.3.8.2.2 and SR 3.3.8.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.8.2.4

Performance of a system functional test demonstrates that, with a required system actuation (simulated or actual) signal, the logic of the system will automatically trip open the associated electric power monitoring assembly. The system functional test shall include actuation of the protective relays, tripping logic, and output circuit breakers. Only one signal per electric power monitoring

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.4 (continued)

assembly is required to be tested. This Surveillance overlaps with the CHANNEL CALIBRATION to provide complete testing of the safety function. The system functional test of the Class 1E circuit breakers is included as part of this test to provide complete testing of the safety function. If the breakers are incapable of operating, the associated electric power monitoring assembly would be inoperable.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 8.9.5.
2. 10 CFR 50.36(c)(2)(ii).
3. NRC Generic Letter 91-09, Modification of Surveillance Interval for the Electric Protective Assemblies in Power Supplies for the Reactor Protection System, June 1991.

BASES

ACTIONS

B.1 (continued)

The 24 hour Completion Time is based on the low probability of an accident occurring during this time period, on a reasonable time to complete the Required Action, and on frequent core monitoring by operators allowing abrupt changes in core flow conditions to be quickly detected.

This Required Action does not require tripping the recirculation pump in the lowest flow loop when the mismatch between total jet pump flows of the two loops is greater than the required limits. However, in cases where large flow mismatches occur, low flow or reverse flow can occur in the low flow loop jet pumps, causing vibration of the jet pumps. If zero or reverse flow is detected, the condition should be alleviated by changing pump speeds to re-establish forward flow or by tripping the pump.

C.1

With any Required Action and associated Completion Time of Condition A or B not met, or no recirculation loop is in operation, 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 12 hours. In this condition, the recirculation loops are not required to be operating because of the reduced severity of DBAs and minimal dependence on the recirculation loop coastdown characteristics. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1

This SR ensures the combination of core flow and THERMAL POWER are within appropriate limits to prevent uncontrolled thermal-hydraulic oscillations. At low recirculation flows and high reactor power, the reactor exhibits increased susceptibility to thermal-hydraulic instability. The power-to-flow map specified in the COLR is based on guidance provided in Reference 7. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 12 hour Frequency is based on operating experience and the operator's knowledge of the reactor status, including significant changes in THERMAL POWER and core flow.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1 (continued)

This SR is modified by a Note that requires this Surveillance to be performed only in MODE 1 because the APRM Neutron Flux — High (Startup) Function in LCO 3.3.1.1 will prevent operation in the Exclusion Region while in MODE 2.

SR 3.4.1.2

This SR ensures the recirculation loops are within the allowable limits for mismatch. At low core flow (i.e., < 70% of rated core flow), the MCPR requirements provide larger margins to the fuel cladding integrity Safety Limit such that the potential adverse effect of early boiling transition during a LOCA is reduced. A larger flow mismatch can therefore be allowed when core flow is < 70% of rated core flow. The recirculation loop jet pump flow, as used in this Surveillance, is the summation of the flows from all of the jet pumps associated with a single recirculation loop.

The mismatch is measured in terms of percent of rated core flow. If the flow mismatch exceeds the specified limits, Condition B must be entered, and the loop with the lower flow must be declared "not in operation". (However, for the purpose of performing SR 3.4.1.1, the flow rate of both loops shall be used.) The SR is not required when only one loop is in operation since the mismatch limits are meaningless during single loop or natural circulation operation. The Surveillance must be performed within 24 hours after both loops are in operation. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is consistent with the Surveillance Frequency for jet pump OPERABILITY verification and has been shown by operating experience to be adequate to detect off normal jet pump loop flows in a timely manner.~~

REFERENCES

1. UFSAR, Section 14.6.

2. UFSAR, Section 14.5.

3. NEDO-24281, FitzPatrick Nuclear Power Plant Single-Loop Operation, August 1980.

4. UFSAR, Section 16.6.

5. NEDO-31960-A, BWR Owners' Group Long Term Stability Solutions Licensing Methodology, June 1991.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1 (continued)

acceptable surveillance results obtained during two recirculation loop operation prior to entering SLO, or by visual inspection of the jet pumps during outages. Upon startup of an idle recirculation loop when THERMAL POWER is greater than 25% of RATED THERMAL POWER, the specified jet pump surveillances are required to be performed for the previously idle loop within 4 hours, as specified in the SR.

The recirculation pump speed operating characteristics (recirculation pump flow and recirculation loop jet pump flow versus pump speed) are determined by the flow resistance from the loop suction through the jet pump nozzles. A change in the relationship may indicate a plug, flow restriction, loss in pump hydraulic performance, leakage, or new flow path between the recirculation pump discharge and jet pump nozzle. For this criterion, the recirculation pump flow and recirculation loop jet pump flow versus pump speed relationship must be verified.

Individual jet pumps in a recirculation loop normally do not have the same flow. The unequal flow is due to the drive flow manifold, which does not distribute flow equally to all risers. The jet pump diffuser to lower plenum differential pressure pattern or relationship of one jet pump to the loop average is repeatable. An appreciable change in this relationship is an indication that increased (or reduced) resistance has occurred in one of the jet pumps.

The deviations from normal are considered indicative of a potential problem in the recirculation drive flow or jet pump system (Ref. 3). Normal flow ranges and established jet pump differential pressure patterns are established by plotting historical data as discussed in Reference 3.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency has been shown by operating experience to be timely for detecting jet pump degradation and is consistent with the Surveillance Frequency for recirculation loop OPERABILITY verification.~~

This SR is modified by two Notes. Note 1 allows this Surveillance not to be performed until 4 hours after the associated recirculation loop is in operation, since these checks can only be performed during jet pump operation. The 4 hours is an acceptable time to establish conditions appropriate for data collection and evaluation.

(continued)

BASES

ACTIONS (continued)

B.1 and B.2

An unidentified LEAKAGE increase of > 2 gpm within a 24 hour period is an indication of a potential flaw in the RCPB and must be quickly evaluated. Although the increase does not necessarily violate the absolute unidentified LEAKAGE limit, certain susceptible components must be determined not to be the source of the LEAKAGE increase within the required Completion Time. For an unidentified LEAKAGE increase greater than required limits, an alternative to reducing LEAKAGE increase to within limits (i.e., reducing the LEAKAGE rate such that the current rate is less than the "2 gpm increase in the previous 24 hours" limit; either by isolating the source or other possible methods) is to evaluate service sensitive type 304 and type 316 austenitic stainless steel piping that is subject to high stress or that contains relatively stagnant or intermittent flow fluids and determine it is not the source of the increased LEAKAGE. This type of piping is very susceptible to IGSCC.

The 4 hour Completion Time is reasonable to properly reduce the LEAKAGE increase or verify the source before the reactor must be shut down without unduly jeopardizing plant safety.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B is not met or if pressure boundary LEAKAGE exists, 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 12 hours and to MODE 4 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 safety systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

The RCS LEAKAGE is monitored by a variety of instruments designed to provide alarms when LEAKAGE is indicated and to quantify the various types of LEAKAGE. Leakage detection instrumentation is discussed in more detail in the Bases for LCO 3.4.5, "RCS Leakage Detection Instrumentation." Sump level and flow rate are typically monitored to determine actual LEAKAGE rates; however, any method may be used to quantify LEAKAGE within the guidelines of Reference 8. ~~In~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~conjunction with alarms and other administrative controls, a 4 hour Frequency for this Surveillance is appropriate for identifying LEAKAGE and for tracking required trends (Ref. 9).~~

REFERENCES

1. 10 CFR 50.2.
2. 10 CFR 50.55a(c).
3. UFSAR, Section 16.6.
4. UFSAR, Section 4.10.
5. UFSAR, Section 16.3.
6. DRF-E31-00029-3(E), Summary of the Design of the Leak Detection System (LDS) for New York Power Authority, James A. FitzPatrick Nuclear Power Plant, November 1997.
7. 10 CFR 50.36(c)(2)(ii).
8. UFSAR, Section 4.10.3.4.
9. Generic Letter 88-01, NRC Position on Intergranular Stress Corrosion Cracking (IGSCC) in BWR Austenitic Stainless Steel Piping, US Nuclear Regulatory Commission, January 1988.
10. UFSAR, Section 16.4.
11. UFSAR, Section 16.5.14.

BASES

ACTIONS (continued)

D.1 and D.2

If any Required Action and associated Completion Time of Condition A or B cannot be 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 12 hours and MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to perform the actions in an orderly manner and without challenging plant systems.

E.1

With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required instrumentation (the drywell floor drain sump monitoring system or drywell continuous atmospheric monitoring channel, as applicable) is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the probability of properly monitoring RCS leakage.

SR 3.4.5.1

This SR is for the performance of a CHANNEL CHECK of the required drywell continuous atmospheric monitoring channels. The check gives reasonable confidence that the channels are operating properly. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.~~

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument channel. 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 Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument channel. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is 92 days and operating experience has proven this Frequency is acceptable.~~

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 4.10.
3. UFSAR, Section 4.10.3.4.
4. UFSAR, Section 4.10.2.3.
5. JAF-CALC-PRM-03345, Rev. 0, March 2000.
6. UFSAR, Section 4.10.3.2.
7. UFSAR, Section 16.3.2.2.
8. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.5.2 (continued)

the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument channel. 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 Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument channel. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is 92 days and operating experience has proven this Frequency is acceptable.~~

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 4.10.
3. UFSAR, Section 4.10.3.4.
4. UFSAR, Section 4.10.2.3.
5. JAF-CALC-PRM-03345, Rev. 0, March 2000.
6. UFSAR, Section 4.10.3.2.
7. UFSAR, Section 16.3.2.2.
8. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

A.1 and A.2 (continued)

significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to power operation.

B.1, B.2.1, B.2.2.1, and B.2.2.2

If the DOSE EQUIVALENT I-131 cannot be restored to ≤ 0.2 μCi/gm within 48 hours, or if at any time it is > 2.0 μCi/gm, it must be determined at least once every 4 hours and all the main steam lines must be isolated within 12 hours. Isolating the main steam lines precludes the possibility of releasing radioactive material to the environment in an amount that is more than a small fraction of the requirements of 10 CFR 100.11 and GDC 19 of 10 CFR 50 Appendix A (Ref. 3) during a postulated MSLB accident.

Alternatively, the plant can be placed in MODE 3 within 12 hours and in MODE 4 within 36 hours. This option is provided for those instances when isolation of main steam lines is not desired (e.g., due to the decay heat loads). In MODE 4, the requirements of the LCO are no longer applicable.

The Completion Time of once every 4 hours is the time needed to take and analyze a sample. The 12 hour Completion Time is reasonable, based on operating experience, to isolate the main steam lines in an orderly manner and without challenging plant systems. Also, the allowed Completion Times for Required Actions B.2.2.1 and B.2.2.2 for placing the plant in MODES 3 and 4 are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This Surveillance is performed to ensure iodine remains within limit during normal operation. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is adequate to trend changes in the iodine activity level.~~

This SR is modified by a Note that requires this Surveillance to be performed only in MODE 1 because the level of fission products generated in other MODES is much less.

(continued)

ACTIONS

A.1, A.2, and A.3 (continued)

cooling subsystem inoperability. This re-establishes backup decay heat removal capabilities, similar to the requirements of the LCO. The 1 hour Completion Time is based on the decay heat removal function and the probability of a loss of the available decay heat removal capabilities.

The required cooling capacity of the alternate method should be ensured by verifying (by calculation or demonstration) its capability to maintain or reduce temperature. Decay heat removal by ambient losses can be considered as, or contributing to, the alternate method capability. Alternate methods that can be used include (but are not limited to) the Condensate and Main Steam Systems, Reactor Water Cleanup System (by itself or using feed and bleed in combination with the Control Rod Drive System or Condensate System), or a combination of an RHR pump and safety/relief valve(s).

However, due to the potentially reduced reliability of the alternate methods of decay heat removal, it is also required to reduce the reactor coolant temperature to the point where MODE 4 is entered.

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR shutdown cooling flow path provides assurance that the proper flow paths will exist for RHR operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that can be manually (from the control room or locally) aligned is allowed to be in a non-RHR shutdown cooling position provided the valve can be repositioned. This SR 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 does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control. This Frequency has been shown to be acceptable through operating experience.~~

(continued)

BASES

ACTIONS

A.1 (continued)

the Condensate and Main Steam Systems, Reactor Water Cleanup System (by itself or using feed and bleed in combination with the Control Rod Drive System or Condensate System), or a combination of an RHR pump and safety/relief valve(s).

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR shutdown cooling flow path provides assurance that the proper flow paths will exist for RHR operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that can be manually (from the control room or locally) aligned is allowed to be in a non-RHR shutdown cooling position provided the valve can be repositioned. This SR 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 does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control. This Frequency has been shown to be acceptable through operating experience.~~

REFERENCES

1. UFSAR, Chapter 14.

2. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

B.1 and B.2 (continued)

reduced pressure and temperature. With the reduced pressure and temperature conditions, the likelihood of propagation of undetected flaws is decreased.

Pressure and temperature are reduced by placing the plant in at least MODE 3 within 12 hours and in MODE 4 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.

C.1 and C.2

Operation outside the P/T limits in other than MODES 1, 2, and 3 (including defueled conditions) must be corrected so that the RCPB is returned to a condition that has been verified by stress analyses. The Required Action must be initiated without delay and continued until the limits are restored.

Besides restoring the P/T limit parameters to within limits, an evaluation is required to determine if RCS operation is allowed. This evaluation must verify that the RCPB integrity is acceptable and must be completed before approaching criticality or heating up to > 212°F. Several methods may be used, including comparison with pre-analyzed transients, new analyses, or inspection of the components. ASME Code, Section XI, Appendix E (Ref. 6), may be used to support the evaluation; however, its use is restricted to evaluation of the beltline.

Condition C is modified by a Note requiring Required Action C.2 to be completed whenever the Condition is entered. The Note emphasizes the need to perform the evaluation of the effects of the excursion outside the allowable limits. Restoration alone per Required Action C.1 is insufficient because higher than analyzed stresses may have occurred and may have affected the RCPB integrity.

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

Verification that operation is within the PTLR limits is required ~~every 30 minutes~~ when RCS pressure and temperature conditions are undergoing planned changes. This

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1 (continued)

is accomplished by monitoring the bottom head drain, recirculation loop, and RPV metal temperatures. ~~This Frequency is considered reasonable in view of the control room indication available to monitor RCS status. Also, since temperature rate of change limits are specified in hourly increments, 30 minutes permits a reasonable time for assessment and correction of minor deviations.~~ The limits in the PTLR are met when operation is on or to the right of the applicable curve. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

Surveillance for heatup, cooldown, or inservice leakage and hydrostatic testing may be discontinued when the criteria given in the relevant plant procedure for ending the activity are satisfied. In general, if two consecutive temperature readings taken ≥ 30 minutes apart are within 5°F of each other the activity can be considered complete.

This SR is modified by a Note that requires this Surveillance to be performed only during system heatup and cooldown operations and inservice leakage and hydrostatic testing. Unlike steady-state operation, these intentional operational transients may be characterized by large pressure and temperature changes, and performance of this SR provides assurance that RCS pressure and temperature remain within acceptable regions of the P/T limit curves as well as within RCS temperature change limits.

SR 3.4.9.2

A separate limit is used when the reactor is approaching criticality. Consequently, the RCS pressure and temperature must be verified within the appropriate limits before withdrawing control rods that will make the reactor critical.

Performing the Surveillance within 15 minutes before control rod withdrawal for the purpose of achieving criticality provides adequate assurance that the limits will not be exceeded between the time of the Surveillance and the time of the control rod withdrawal.

SR 3.4.9.3, SR 3.4.9.4, and SR 3.4.9.5

Differential temperatures within the specified limits ensure that thermal stresses resulting from the startup of an idle recirculation pump will not exceed design allowances. In

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.9.6, SR 3.4.9.7, and SR 3.4.9.8 (continued)

temperature less than or equal to certain specified values require assurance that these temperatures meet the LCO limits.

The flange temperatures must be verified to be above the limits within 30 minutes before and while tensioning the reactor vessel head bolting studs to ensure that once the head is tensioned the limits are satisfied. When any reactor vessel head bolting stud is tensioned with RCS temperature ≤ 80°F, 30 minute checks of the flange temperatures are required because of the reduced margin to the limits. When any reactor vessel head bolting stud is tensioned with RCS temperature ≤ 100°F, monitoring of the flange temperature is required every 12 hours to ensure the temperature is within specified limits.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 30 minute Frequency reflects the urgency of maintaining the temperatures within limits, and also limits the time that the temperature limits could be exceeded. The 12 hour Frequency is reasonable based on the rate of temperature change possible at these temperatures.~~

SR 3.4.9.6 is modified by a Note which requires the SR to be performed only when tensioning the reactor vessel head bolting studs. SR 3.4.9.7 is modified by a Note which states that the SR is not required to be performed until 30 minutes after RCS temperature is ≤ 80°F in MODE 4. SR 3.4.9.8 is modified by a Note which states that the SR is not required to be performed until 12 hours after RCS temperature is ≤ 100°F in MODE 4. These Notes are necessary to specify when the reactor vessel flange and head flange temperatures are required to be within specified limits.

REFERENCES

1. 10 CFR 50, Appendix G.
2. ASME, Boiler and Pressure Vessel Code, Section III, Appendix G.
3. ASTM E 185-82, July 1982.
4. 10 CFR 50, Appendix H.
5. Regulatory Guide 1.99, Revision 2, Radiation Embrittlement of Reactor Vessel Materials, May 1988.
6. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.

(continued)

BASES

ACTIONS

G.1 and G.2 (continued)

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.

H.1

When multiple ECCS subsystems are inoperable, as stated in Condition H, the plant is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCI System, CS System, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points and observe water flow through the vent. Another acceptable method is to verify that the associated "keep full" level switch alarms are clear. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.~~

SR 3.5.1.2

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 were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a non-accident position provided the valve will

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.2 (continued)

automatically reposition in the proper stroke time. This SR 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 does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. ~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.~~In MODE 3 with reactor dome pressure less than the actual RHR cut in permissive pressure, the RHR System may be required to operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. Therefore, this SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. Alignment and operation for decay heat removal includes when the system is being realigned from or to the RHR shutdown cooling mode. At the low pressures and decay heat loads associated with operation in MODE 3 with reactor steam dome pressure less than the shutdown cooling permissive pressure, a reduced complement of low pressure ECCS subsystems should provide the required cooling, thereby allowing operation of RHR shutdown cooling, when necessary.

The intent of this surveillance is to ensure the availability of required flow paths. The operation of the HPCI system is supported by flow paths from one or both CSTs and the suppression pool. Therefore, it is permissible to isolate a single CST by repositioning manual isolation valves without considering this SR not met. This is permissible based on the design of the CSTs and the administrative controls on plant configuration.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.3

Verification every ~~31 days~~ that ADS pneumatic supply header pressure is ≥ 95 psig ensures adequate pneumatic pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve actuation. The design pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least one valve actuation can occur with the drywell at 70% of design pressure (Ref. 13). The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. This minimum required pressure of ≥ 95 psig is provided by the ADS nitrogen supply. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency takes into consideration administrative controls over operation of the pneumatic system and alarms for low pneumatic pressure.~~

SR 3.5.1.4

Verification every ~~31 days~~ that the RHR System cross tie valves are closed and power to the motor operated valve is disconnected ensures that each LPCI subsystem remains independent and a failure of the flow path in one subsystem will not affect the flow path of the other LPCI subsystem. Acceptable methods of removing power to the operator include de-energizing breaker control power or racking out or removing the breaker. If one or more of the RHR System cross tie valves are open or power has not been removed from the motor operated valve, both LPCI subsystems must be considered inoperable. In addition, plant procedures require the motor operated cross tie valve to be chain-locked closed and the manual cross tie valve to be locked closed. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency has been found acceptable, considering that these valves are under strict administrative controls that will ensure the valves continue to remain closed with either control or motive power removed.~~

SR 3.5.1.5

Verification every ~~31 days~~ that each LPCI inverter output has a voltage of ≥ 576 V and ≤ 624 V while supplying its respective bus

BASES

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.5 (continued)

demonstrates that the AC electrical power is available to ensure proper operation of the associated LPCI injection and heat exchanger bypass valves and the recirculation pump discharge valve. Each inverter must be OPERABLE for the associated LPCI subsystem to be OPERABLE. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency has been found acceptable based on operating experience.~~

SR 3.5.1.6

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to close to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps. De-energizing the valve in the closed position will also ensure the proper flow path for the LPCI subsystem. Acceptable methods of de-energizing the valve include de-energizing breaker control power, racking out the breaker or removing the breaker.

The specified Frequency is once during reactor startup before THERMAL POWER is > 25% RTP. However, this SR is modified by a Note that states the Surveillance is only required to be performed if the last performance was more than 31 days ago. Verification during reactor startup prior to reaching > 25% RTP is an exception to the normal Inservice Testing Program generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 8). This periodic Surveillance is performed (in accordance with

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9 (continued)

the ASME Code, Section XI, requirements for the ECCS pumps) to verify that the ECCS pumps will develop at least the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of Reference 10. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established during preoperational testing. The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow against a system head corresponding to reactor pressure is tested at both the higher and lower operating ranges of the system. The required system head should overcome the RPV pressure and associated discharge line losses. Adequate reactor steam pressure must be available to perform these tests. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these tests. Adequate reactor steam pressure must be ≥ 970 psig to perform SR 3.5.1.8 and > 150 psig to perform SR 3.5.1.9. Adequate steam flow is represented by at least one turbine bypass valve open or main turbine generator load is greater than 100 MWe. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.8 and SR 3.5.1.9 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9 (continued)

perform the test. The 12 hours allowed for performing the flow test after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SRs.

The Frequency for SR 3.5.1.7 and SR 3.5.1.8 is in accordance with the Inservice Testing Program requirements. The ~~24 month~~ Frequency for SR 3.5.1.9 ~~is based~~ is controlled under the Surveillance Frequency Control Program.~~on the need to perform the Surveillance under the conditions that apply during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

SR 3.5.1.10

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. The HPCI System actual or simulated automatic actuation test must be performed with adequate steam pressure for verification of automatic pump startup. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Thus, sufficient time is allowed after adequate pressure and flow are achieved to perform this test associated with the HPCI System. Adequate reactor steam dome pressure is > 150 psig. Adequate steam flow is represented by at least one turbine bypass valve open. This SR also ensures that the HPCI System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip. In addition, this SR also ensures that the HPCI suction is automatically

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.10 (continued)

transferred from the CSTs to the suppression pool on high suppression pool water level or low CST water level. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~For CS and LPCI, the 24 month Frequency is based on the need to perform the 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. For HPCI, the 24 month Frequency is based on the need to perform the surveillance under conditions that apply during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

This SR is modified by two Notes. Note 1 states that for the HPCI System, the Surveillance is not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for performing the actual or simulated automatic actuation for the HPCI System after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SR. Note 2 excludes vessel injection/spray during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

SR 3.5.1.11

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.11 (continued)

an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.13 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is based on the need to perform the 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 that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

This SR is modified by a Note that excludes valve actuation since the valves are individually tested in accordance with SR 3.5.1.13. This prevents the possibility of an RPV pressure blowdown.

SR 3.5.1.12

A LPCI motor operated valve independent power supply subsystem inverter test is a test of the inverter's capability, as found, to satisfy the design requirements (inverter duty cycle). The discharge rate and test length correspond to the design duty cycle requirements.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months is acceptable, given plant conditions required to perform the test and the other requirements existing to ensure adequate LPCI inverter performance during the 24 month interval. In addition, the Frequency is intended to be consistent with expected fuel cycle lengths.~~

SR 3.5.1.13

Valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME Code requirements, prior to valve installation.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.13 (continued)

Actuation of each required ADS valve is performed to verify that mechanically the valve is functioning properly. For both two-stage and three-stage S/RVs, tests are required to demonstrate:

- That each ADS S/RV solenoid valve ports pneumatic pressure to the associated S/RV actuator when energized;
- That each ADS S/RV pilot stage actuates to open the associated main stage when the pneumatic actuator is pressurized; and
- That each ADS S/RV main stage opens and passes steam when the associated pilot stage actuates.

The solenoid valves are functionally tested once per cycle as part of the Inservice Testing Program. The actuators and main stages are bench tested, together or separately, as part of the certification process, at intervals determined in accordance with the Inservice Testing Program. Maintenance procedures ensure that the S/RV actuators and main stages are correctly installed in the plant, and that the S/RV and associated piping remain clear of foreign material that might obstruct valve operation or full steam flow. This approach provides adequate assurance that the required ADS valves will operate when actuated, while minimizing the challenges to the valves and the likelihood of leakage or spurious operation. While two-stage actuator assemblies are not tested in-situ due to a high probability of causing unseating or leakage of the pilot stage which can lead to spurious actuation or failure to reclose, installed three-stage actuator assemblies are dry lift tested after installation. SR 3.5.1.11 and the LOGIC SYSTEM FUNCTIONAL Test performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

REFERENCES

1. UFSAR, Section 6.4.3.
2. UFSAR, Section 6.4.4.

(continued)

BASES

ACTIONS

C.1, C.2, D.1, D.2, and D.3 (continued)

secondary containment isolation is indicated). OPERABILITY may be verified by an administrative check, or by examining logs or other information, to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 and SR 3.5.2.2

The minimum water level of 10.33 ft required for the suppression pool is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the CS System and LPCI subsystem pumps, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, all ECCS injection/spray subsystems are inoperable unless they are aligned to an OPERABLE CST.

When suppression pool level is < 10.33 ft, the CS System is considered OPERABLE only if it can take suction from both CSTs, and the CST water level is sufficient to provide the required NPSH for the CS pump. Therefore, a verification that either the suppression pool water level is ≥ 10.33 ft or that CS is aligned to take suction from both CSTs and the CSTs contain ≥ 354,000 gallons (two tanks) of water, equivalent to 324 inches (27 ft), ensures that the CS System can supply at least 50,000 gallons of makeup water to the RPV. An excess amount of water remains as a supplementary volume and to ensure adequate CS pump NPSH. The CS suction is uncovered at approximately 258,000 gallons (two tanks). However, as noted, only one required CS subsystem may take credit for the CST option during OPDRVs. During OPDRVs, the volume in the CSTs may not provide adequate makeup if the RPV were completely drained. Therefore, only one CS subsystem is allowed to use the CSTs. This ensures the other required ECCS subsystem has adequate makeup volume.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 12 hour Frequency of these SRs was developed considering operating experience related to suppression pool water level and CST water level variations and instrument drift during~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6~~SR 3.5.2.1 and SR 3.5.2.2 (continued~~)

~~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 suppression pool or CST water level condition.~~

~~SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6~~

The Bases provided for SR 3.5.1.1, SR 3.5.1.7, and SR 3.5.1.10 are applicable to SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6, respectively.

SR 3.5.2.4

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 initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR 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 does not apply to valves that cannot be inadvertently misaligned, such as check valves. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is appropriate because the valves are operated under procedural control and the probability of their being mispositioned during this time period is low.~~

In MODES 4 and 5, the RHR System may be required to operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. Therefore, this SR is modified by a Note that allows one LPCI subsystem to be considered OPERABLE during alignment and operation for shutdown cooling if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. Alignment and operation for decay heat removal includes when the system is being realigned from or to the RHR shutdown cooling mode. Because of the low pressure and low temperature conditions in MODE 4 and 5 sufficient time will be available to manually align and initiate LPCI subsystem operation to provide core cooling prior to postulated fuel uncovery. This will ensure adequate core cooling if an inadvertent RPV draindown should occur.

REFERENCES

1. UFSAR, Section 6.5.3.
2. 10 CFR 50.36(c) (2) (ii).

~~(continued)~~

BASES

ACTIONS (continued)

B.1 and B.2

If the RCIC System cannot be restored to OPERABLE status within the associated Completion Time, or if the HPCI System is simultaneously inoperable, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to $\leq$ 150 psig 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 3.5.3.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge line of the RCIC System full of water ensures that the system will perform properly, injecting its full capacity into the Reactor Coolant System upon demand. This will also prevent a water hammer following an initiation signal. One acceptable method of ensuring the line is full is to vent at the high points and observe water flow through the vent. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on the gradual nature of void buildup in the RCIC piping, the procedural controls governing system operation, and operating experience.~~

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in the RCIC flow path provides assurance that the proper flow path will exist for RCIC 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 initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

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 does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.~~

The intent of this surveillance is to ensure the availability of required flow paths. The operation of the RCIC system is supported by flow paths from one or both CSTs and the suppression pool. Therefore, it is permissible to isolate a single CST by repositioning manual isolation valves without considering this SR not met. This is permissible based on the design of the CSTs and the administrative controls on plant configuration.

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow against a system head corresponding to reactor pressure is tested both at the higher and lower operating ranges of the system. The required system head should overcome the RPV pressure and associated discharge line losses. Adequate reactor steam pressure must be available to perform these tests. Additionally, adequate steam flow must be passing through the main turbine or turbine

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and 3.5.3.4 (continued)

bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Adequate reactor steam pressure must be ≥ 970 psig to perform SR 3.5.3.3 and > 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve open, or main turbine generator load is greater than 100 MWe. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable.

These SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for performing the flow test after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SR.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.5 (continued)

automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) signal (Level 8 signal closes RCIC steam inlet valve, and subsequent Level 2 signal will re-open valve) and that
the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed design function.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

This SR is modified by Note 1 that says the Surveillance is not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The time allowed for this test after required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. Adequate reactor pressure must be available to perform this test. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Thus, sufficient time is allowed after adequate pressure and flow are achieved to perform this test. Adequate reactor steam pressure is > 150 psig. Adequate steam flow is represented by at least one turbine bypass valve open. Reactor startup is allowed prior to performing this test because the reactor pressure is low and the time allowed to satisfactorily perform the test is short.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1.1 (continued)

As left leakage, prior to startup after performing a required Primary Containment Leakage Rate Testing Program leakage test, is required to be ≤ 0.6 L_a for combined Type B and C leakage, and ≤ 0.75 L_a for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.1.2

Maintaining the pressure suppression function of primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurized the drywell, the steam would be directed through the downcomers into the suppression pool. This SR is a leak test that confirms that the bypass area between the drywell and suppression chamber is less than the equivalent of a one inch diameter plate orifice (Ref. 1). This ensures that the leakage paths that would bypass the suppression pool are within allowable limits (i.e., ≤ 71 scfm).

Satisfactory performance of this SR can be achieved by establishing a known differential pressure between the drywell and the suppression chamber (≥ 1 psi)and verifying that the pressure in the suppression chamber does not increase by more than 0.25 inches of water per minute over a 10 minute period. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The leakage test is performed every 24 months. The 24 month Frequency was developed considering the fact that component failures that might have affected this test are identified by other primary containment SRs.~~ Two consecutive test failures, however, would indicate unexpected primary containment degradation; in this event, as the Note indicates, increasing the Frequency to once every 12 months is required until the situation is remedied as evidenced by passing two consecutive tests.

REFERENCES

1. UFSAR, Section 5.2.

2. UFSAR, Section 14.6.1.3.

3. 10 CFR 50, Appendix J, Option B.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.2.1 (continued)

leakage rate limit value that corresponds to 0.05 L_a increased). The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall primary containment leakage rate. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR, requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1.1 (Primary Containment Leakage Rate Testing Program). This ensures that air lock leakage is properly accounted for in determining the combined Type B and C primary containment leakage rate.

SR 3.6.1.2.2

The air lock interlock mechanism is designed to prevent simultaneous opening of both doors in the air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident primary containment pressure (Ref. 1), closure of either door will support primary containment OPERABILITY. Thus, the interlock feature supports primary containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous inner and outer door opening will not inadvertently occur. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when primary containment air lock 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 is based on the need to perform this Surveillance under the conditions that apply during a plant outage, and the potential for loss of primary containment OPERABILITY if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency. The 24 month Frequency is based on engineering judgment and is considered adequate given that the interlock is not challenged during use of the air lock.~~

(continued)

BASES

ACTIONS

G.1 and G.2 (continued)

suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended and valve(s) are restored to OPERABLE status. If suspending an OPDRV would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valve(s) to OPERABLE status. This allows RHR shutdown cooling to remain in service while actions are being taken to restore the valve.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

This SR ensures that the primary containment vent and purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. The SR is modified by a Note stating that the SR is not required to be met when the vent and purge valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open, provided the full-flow 12 inch line (with valve 27MOV-120) to the SGT System is closed and one or more SGT System reactor building suction valves are open. This will ensure there is no damage to the filters if a LOCA were to occur with the vent and purge valves open since excessive differential pressure is not expected with the full-flow 12 inch line closed and one or more SGT System reactor building suction valves open. The 20 and 24 inch vent and purge valves are capable of closing against the dynamic effects of a LOCA. Therefore, these valves are allowed to be open for limited periods of time. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is consistent with other PCIV requirements discussed in SR 3.6.1.3.2.~~

SR 3.6.1.3.2

This SR ensures that each primary containment isolation manual valve and blind flange that is located outside primary containment and not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.2 (continued)

This SR does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside primary containment, and capable of being mispositioned, are in the correct position. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~Since verification of valve position for isolation devices outside primary containment is relatively easy, the 31 day Frequency was chosen to provide added assurance that the isolation devices are in the correct positions.~~

Two Notes have been added to this SR. The first Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since the primary containment is inerted and access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in the proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated. This SR does not apply to valves 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.

SR 3.6.1.3.3

This SR ensures that each primary containment manual isolation valve and blind flange that is located inside primary containment and not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits. For isolation devices inside primary containment, the Frequency defined as "prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days" is appropriate since these isolation devices are operated under administrative controls and the probability of their misalignment is low. This SR does not apply to valves that are locked, sealed, or

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.3 (continued)

otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

Two Notes have been added to this SR. The first Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since the primary containment is inerted and access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in their proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for primary containment isolation is indicated.

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.~~

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 100 limits. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.1, "Primary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency was developed considering it is prudent that this Surveillance be performed only during a plant outage since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components. Operating experience has shown that these components usually pass this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) is OPERABLE by verifying that the valve actuates to the isolation position on a simulated instrument line break. This SR provides assurance that the instrumentation line EFCVs will perform so that secondary containment will not be overpressurized during the postulated instrument line break (Ref. 10). The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in-place functional test is not possible with this design. The explosive squib is removed and tested to provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).~~

SR 3.6.1.3.10

The analyses in Reference 11 are based on leakage that is more than the specified leakage rate. The combined main steam line leakage rate must be ≤ 46 scfh when tested at ≥ 25 psig. This ensures that MSIV leakage is properly accounted for in determining the overall primary containment leakage rate. The Frequency is in accordance with the Primary Containment Leakage Rate Testing Program.

SR .6.1.3.11

Surveillance of each air operated testable check valve associated with the LPCI and CS Systems vessel injection penetrations provides assurance that the resulting radiation dose rate that would result if the reactor coolant were released to the reactor building at the specified limit will be small (Ref. 12). The acceptance criteria for each air operated testable check valve associated with the LPCI and CS Systems vessel injection penetrations is < 10 gpm when hydrostatically tested at ≥ 1035 psig or < 10 scfm when pneumatically tested at ≥ 45 psig, at ambient temperature (Ref. 12). The leakage rates must be demonstrated in accordance with the leakage rate test Frequency required by the Primary Containment Leakage Rate Testing Program.

REFERENCES

1. UFSAR, Section 14.6.

2. UFSAR, Section 14.5.2.3.

3. UFSAR, Section 6.5.3.2.

4. UFSAR, Section 14.8.2.1.2.

(continued)

BASES

ACTIONS

A.1 (continued)

the bounds of the primary containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, "Primary Containment," which requires that primary containment be restored to OPERABLE status within 1 hour.

B.1 and B.2

If drywell pressure cannot be restored to within 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 12 hours and to MODE 4 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 3.6.1.4.1

Verifying that drywell pressure is within limit ensures that plant operation remains within the limit assumed in the primary containment analysis. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 12 hour Frequency of this SR was developed, based on operating experience related to trending of drywell 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 drywell pressure condition.~~

REFERENCES

1. UFSAR, Section 14.6.1.3.3.

2. NEDO-24578, Revision 0, Mark I Containment Program Plant Unique Load Definition, James A. FitzPatrick Nuclear Power Plant, March 1979.

3. UFSAR, Section 16.9.3.5.

4 .UFSAR, Section 16.9.3.5.1.3.

5. 10 CFR 50.36(c)(2)(ii).

BASES

APPLICABILITY (continued)

reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining drywell average air temperature within the limit is not required in MODE 4 or 5.

ACTIONS

A.1

With drywell average air temperature not within the limit of the LCO, drywell average air temperature must be restored within 8 hours. The Required Action is necessary to return operation to within the bounds of the primary containment analysis. The 8 hour Completion Time is acceptable, considering the sensitivity of the analysis to variations in this parameter, and provides sufficient time to correct minor problems.

B.1 and B.2

If the drywell average air temperature cannot be restored to within the 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 12 hours and to MODE 4 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 3.6.1.5.1

Verifying that the drywell average air temperature is within the LCO limit ensures that operation remains within the limits assumed for the primary containment analyses. Drywell air temperature is monitored in various areas and at various elevations (referenced to mean sea level). Due to the shape of the drywell, a volumetric average is used to determine an accurate representation of the actual average temperature.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency of the SR was developed based on operating experience related to drywell average air temperature variations and temperature instrument drift during the applicable MODES and the low probability of a DBA occurring between surveillances. Furthermore, the 24 hour Frequency is considered adequate in view of other~~

(continued)

BASES

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.6.1.5.1 (continued)~~

~~indications available in the control room, including alarms, to alert the operator to an abnormal drywell air temperature condition.~~

REFERENCES

1. UFSAR, Section 14.6.1.3.3.
2. GE-NE-T23-00737-01, James A. FitzPatrick Nuclear Power Plant Higher RHR Service Water Temperature Analysis, August 1996.
3. UFSAR, 16.7.3.2.3.
4. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS (continued)

E.1 and E.2

If any Required Action and associated Completion Time cannot be 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 12 hours and to MODE 4 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 3.6.1.6.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance may be performed by observing local or remote indications of vacuum breaker position. Position indications of the air operated vacuum breakers are available in the control and relay rooms while position indications of the self actuating vacuum breakers are only available in the relay room. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.~~

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers. The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

SR 3.6.1.6.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The Frequency of this SR is in accordance with the Inservice Testing Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.6.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of SR 3.6.1.6.3 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.6.1.6.4

Demonstration of each self-actuating vacuum breaker opening setpoint is necessary to ensure that the design function regarding vacuum breaker opening differential pressure of ≤ 0.5 psid is valid. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency, which is based on the operating cycle. The 24 month Frequency is further justified because SR 3.6.1.6.2 is performed at a shorter Frequency that conveys the proper functioning status of each self-actuating vacuum breaker.~~

REFERENCES

1. Design Bases Document-016A, Section 5.2.10, Maximum Design Negative Pressure for Containment.

2. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1 (continued)

SR 3.6.1.1.2, the bypass leakage test. If the bypass test fails, not only must the vacuum breaker(s) be considered open and the appropriate Conditions and Required Actions of this LCO be entered, but also the appropriate Condition and Required Actions of LCO 3.6.1.1 must be entered. Each suppression chamber-to-drywell vacuum breaker disc will be seated as long as the arm movement is ≤ 1.0 degree. The vacuum breakers are considered closed if the associated position light indicates the closed position since it is set to actuate at ≤ 1.0 degree. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.~~

Two Notes are added to this SR. The first Note allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

SR 3.6.1.7.2

Each vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.1.7.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker opening differential pressure of 0.5 psid is valid. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency has been shown to be acceptable, based on operating experience, and is further justified because SR 3.6.1.7.2 is performed at a shorter Frequency that conveys the proper functioning status of each vacuum breaker.~~

(continued)

BASES

ACTIONS (continued)

B.1

With two MSLC subsystems inoperable, at least one subsystem must be restored to OPERABLE status within 7 days. The 7 day Completion Time is based on the low probability of the occurrence of a DBA LOCA.

C.1 and C.2

If the MSLC subsystem cannot be restored to OPERABLE status 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 12 hours and to MODE 4 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 3.6.1.8.1

Verifying the correct alignment for manual, power operated, and automatic valves in the MSLC System flow path provides assurance that the proper flow path exists for system 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 is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the MSLC System is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.8.2

A system functional test is performed to ensure that the MSLC System will operate through its operating sequence. This includes verifying that the automatic positioning of the valves and the operation of each interlock are correct. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. UFSAR, Section 9.19.

2. Regulatory Guide 1.96, Revision 1, Design Of Main Steam Isolation Valve Leakage Control Systems For Boiling Water Reactor Nuclear Power Plants, June 1976.

3. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.9.1 (continued)

also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR Containment Spray System is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this SR is justified because the valves are operated under procedural control and because improper valve position would affect only a single subsystem. This Frequency has been shown to be acceptable based on operating experience.~~

SR 3.6.1.9.2

Verifying each required RHR pump develops a flow rate ≥ 7750 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. It is tested in the pool cooling mode to demonstrate pump OPERABILITY without spraying down equipment in the drywell. Flow is a normal test of centrifugal pump performance required by the ASME Code, Section XI (Ref. 6). This test confirms one point on the pump performance curve and is indicative of overall performance. Such inservice tests 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.

SR 3.6.1.9.3

This Surveillance is performed ~~every 10 years~~ by introduction of air to verify that the spray nozzles are not obstructed and that flow will be provided when required. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 10 year Frequency is adequate to detect degradation in performance due to the passive nozzle design and its normally dry state and has been shown to be acceptable through operating experience.~~

(continued

BASES

ACTIONS

E.1 and E.2 (continued)

the plant must be brought to at least MODE 4 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.

Continued addition of heat to the suppression pool with suppression pool temperature > 120°F could result in exceeding the design basis maximum allowable values for primary containment temperature or pressure. Furthermore, if a blowdown were to occur when the temperature was > 120°F, the maximum allowable bulk and local temperatures could be exceeded very quickly.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1.1

The suppression pool average temperature is regularly monitored to ensure that the required limits are satisfied. The LCO 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," Bases contains a description of the suppression pool temperature monitoring system. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency has been shown, based on operating experience, to be acceptable. When heat is being added to the suppression pool by testing, however, it is necessary to monitor suppression pool temperature more frequently.~~ The 5 minute Frequency during testing is justified by the rates at which tests will heat up the suppression pool, has been shown to be acceptable based on operating experience, and provides assurance that allowable pool temperatures are not exceeded. The Frequency~~ies~~ ~~are~~is further justified in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

REFERENCES

1. UFSAR, Section 14.6.1.3.3.
2. NEDC-24361-P, James A. FitzPatrick Nuclear Power Plant Suppression Pool Temperature Response, August 1981.
3. GE-NE-T23-00737-01, James A. FitzPatrick Nuclear Power Plant Higher RHR Service Water Temperature Analysis, August 1996.

(continued)

BASES

ACTIONS

A.1 (continued)

Therefore, continued operation for a limited time is allowed. The 2 hour Completion Time is sufficient to restore suppression pool water level to within limits. Also, it takes into account the low probability of an event requiring the suppression pool water level to be within limits occurring during this interval.

B.1 and B.2

If suppression pool water level 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 12 hours and to MODE 4 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 3.6.2.2.1

Verification of the suppression pool water level is to ensure that the required limits are satisfied. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency has been shown to be acceptable based on operating experience. Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool water level condition.~~

REFERENCES

1. UFSAR, Section 14.6.1.3.3.

2. GE-NE-T23-00737-01, James A. FitzPatrick Nuclear Power Plant Higher RHR Service Water Temperature Analysis, August 1996.

3. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS (continued)

B.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and the potential avoidance of a plant shutdown transient that could result in the need for the RHR suppression pool cooling subsystems to operate.

C.1 and C.2

If any Required Action and associated Completion Time cannot be 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 12 hours and to MODE 4 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 3.6.2.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR suppression pool cooling mode flow path provides assurance that the proper flow path exists for system 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 is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.~~1~~2 ~~(continued)~~

~~event requiring initiation of the system is low, and the system is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~

~~SR 3.6.2.3.2~~

Verifying that each required RHR pump develops a flow rate ≥ 7700 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME Code, Section XI (Ref. 5). This test confirms one point on the pump performance curve, and the results are indicative of overall performance. Such inservice tests 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.

REFERENCES

1. UFSAR, Section 14.6.1.3.3.
2. GE-NE-T23-00737-01, James A. FitzPatrick Nuclear Power Plant Higher RHR Service Water Temperature Analysis, August 1996.
3. NEDC-24361-P, James. A FitzPatrick Nuclear Power Plant Suppression Pool Temperature Response, August 1981.
4. 10 CFR 50.36(c)(2)(ii).
5. ASME, Boiler and Pressure Vessel Code, Section XI.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1.1

The primary containment must be determined to be inert by verifying that oxygen concentration is < 4.0 v/o. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is based on the slow rate at which oxygen concentration can change and on other indications of abnormal conditions (which would lead to more frequent checking by operators in accordance with plant procedures). Also, this Frequency has been shown to be acceptable through operating experience.~~

REFERENCES

1. UFSAR, Section 5.2.3.8.
2. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

B.1 and B.2 (continued)

inoperable for up to 7 days. Seven days is a reasonable time to allow two CAD subsystems to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit.

C.1

If any Required Action cannot be 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 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.1

Verifying that there is ≥ 1400 gal of liquid nitrogen supply in each CAD subsystem will ensure at least 3 days of post-LOCA CAD operation. This minimum volume of liquid nitrogen allows sufficient time after an accident to replenish the nitrogen supply for long term inerting. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~This is verified every 31 days to ensure that the system is capable of performing its intended function when required. The 31 day Frequency is based on operating experience, which has shown 31 days to be an acceptable period to verify the liquid nitrogen supply and on the availability of other hydrogen mitigating systems.~~

SR 3.6.3.2.2

Verifying the correct alignment for manual, power operated, and automatic valves in each of the CAD subsystem flow paths provides assurance that the proper flow paths exist for system 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.2 (continued)

A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable because the CAD System is manually initiated. This SR 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 capable of being mispositioned are in the correct position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is appropriate because the valves are operated under procedural control, improper valve position would only affect a single subsystem, the probability of an event requiring initiation of the system is low, and the system is a manually initiated system.~~

REFERENCES

1. Safety Guide 7, March 10, 1971.

2. UFSAR, Section 5.2.3.8.3.

3. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1 (continued)

installed instrumentation due to gusty wind conditions are considered acceptable and not cause for failure of this SR. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency of this SR was developed based on operating experience related to secondary containment vacuum variations during the applicable MODES and the low probability of a DBA occurring between surveillances. Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal secondary containment vacuum condition.~~

SR .6.4.1.2 and SR 3.6.4.1.3

Verifying that secondary containment equipment hatches and one access door in each access opening are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur. Verifying that all such openings are closed provides adequate assurance that exfiltration from the secondary containment will not occur. SR 3.6.4.1.2 also requires equipment hatches to be sealed. In this application, the term "sealed" has no connotation of leak tightness. Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed. An access opening contains one inner and one outer door. In some cases, secondary containment access openings are shared such that a secondary containment barrier may have multiple outer doors. The intent is to not breach the secondary containment at any time when secondary containment is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times. However, all secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of SR 3.6.4.1.2 is considered adequate, based on operating experience, and in view of strict administrative procedures required to open a hatch. The 31 day Frequency for SR 3.6.4.1.3 has been shown to be adequate, based on operating experience, and in view of local indication of door status and strict administrative procedures required to be followed for entry and exit.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.1.4

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products released to the secondary containment are treated, SR 3.6.4.1.4 verifies that a pressure in the secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary can be maintained. When the SGT System is operating as designed, the maintenance of secondary containment pressure cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.4 demonstrates that the pressure in the secondary containment can be maintained ≥ 0.25 inches of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 6000 cfm under calm wind conditions. Calm wind conditions will result in little, if any, infiltration to the secondary containment. Therefore, if the test is performed at other wind conditions and the results are acceptable, this test may be considered met. This test method is acceptable since extreme wind conditions are only expected to be present for a few hours a year. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state conditions. The primary purpose of this SR is to ensure secondary containment boundary integrity. The secondary purpose of this SR is to ensure that the SGT subsystem being tested functions as designed. There is a separate LCO with Surveillance Requirements which serves the primary purpose of ensuring OPERABILITY of the SGT System. The inoperability of the SGT subsystem does not necessarily constitute a failure of this Surveillance relative to the secondary containment OPERABILITY. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~This SR need not be performed for each SGT subsystem. The SGT subsystem used for this Surveillance is staggered to ensure that in addition to the requirements of LCO 3.6.4.3, either SGT subsystem will perform this test. The inoperability of the SGT subsystem does not necessarily constitute a failure of this Surveillance relative to the secondary containment OPERABILITY. Operating experience has shown the secondary containment boundary usually passes this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1 (continued)

SCIVs in secondary containment that are capable of being mispositioned are in the correct position.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~Since these SCIVs are readily accessible to personnel during normal operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the SCIVs are in the correct positions.~~ This SR does not apply to valves 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.

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls 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 SCIVs, once they have been verified to be in the proper position, is low.

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open. These controls consist of stationing a dedicated operator at the controls of the valve who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.

SR 3.6.4.2.2

Verifying that the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of this SR is 92 days.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.2.3

Verifying that each automatic SCIV closes on a secondary containment isolation signal is required to prevent leakage of radioactive material from secondary containment following a DBA or other accidents. This SR ensures that each automatic SCIV will actuate to the isolation position on a secondary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 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 the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. UFSAR, Section 14.6.1.3.
2. UFSAR, Section 14.6.1.4.
3. 10 CFR 50.36(c)(2)(ii).
4. Technical Requirements Manual.

BASES

ACTIONS (continued)

E.1 and E.2

When two SGT subsystems are inoperable, if applicable, movement of recently irradiated fuel assemblies in secondary containment must immediately be suspended. Suspension of this activity shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must immediately be initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

LCO 3.0.3 is not applicable in MODE 4 or 5. However, since recently irradiated fuel assembly movement can occur in MODE 1, 2, or 3, Required Action E.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving recently irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Operating each SGT subsystem fan for ≥ 10 continuous hours ensures that both subsystems are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. Operation with the heaters on for ≥ 10 continuous hours ~~every 31 days~~periodically eliminates moisture on the adsorbers and HEPA filters. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.~~

SR 3.6.4.3.2

This SR verifies that the required SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.3.3

This SR verifies that each SGT subsystem starts on receipt of an actual or simulated initiation signal. In addition, the OPERABILITY of each SGT decay heat cooling valve is verified to ensure the valve closes on subsystem initiation (interlocked with the suction valve) and opens when shutdown. This will ensure the mitigation function as well as the decay heat cooling mode of each SGT subsystem is available. ~~While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function.~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~Therefore, the Frequency was found to be acceptable from a reliability standpoint.~~

SR 3.6.4.3.4

This SR verifies that the filter cooling cross-tie valves are OPERABLE. This ensures that the decay heat cooling mode of SGT System operation is available. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency has been shown to be adequate, based on operating experience, and in view of the strict administrative controls required for entry into the area of these valves.~~

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 5.3.3.4.
3. UFSAR, Section 14.6.
4. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

D.1 (continued)

The Required Action is modified by a Note indicating that the applicable Conditions of LCO 3.4.7, be entered and Required Actions taken if an inoperable RHRSW subsystem results in an inoperable RHR shutdown cooling subsystem. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

E.1 and E.2

If any Required Action and associated Completion Time is not met, 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 12 hours and in MODE 4 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 3.7.1.1

Verifying the correct alignment for each manual, power operated, and automatic valve in each RHRSW subsystem flow path provides assurance that the proper flow paths will exist for RHRSW 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. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be realigned to its accident position. This is acceptable because the RHRSW System is a manually initiated system. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

(continued)

BASES

ACTIONS

B.1 (continued)

must be restored to OPERABLE status within 7 days. With the plant in this condition, the remaining OPERABLE division of deicing heaters is adequate to perform the required function. However, the overall reliability of the deicing heaters is reduced.

The 7 day Completion Time is based on the redundant capabilities afforded by the OPERABLE division of deicing heaters, the low probability of an accident occurring during this time period, and is consistent with the allowed Completion Time for restoring an inoperable EDG subsystem.

C.1 and C.2

If the ESW subsystem cannot be restored to OPERABLE status within the associated Completion Time, or both ESW subsystems are inoperable, or the UHS is determined 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 12 hours and in MODE 4 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 3.7.2.1

This SR verifies the water level in the screenwell to be sufficient for the proper operation of the ESW and RHRSW pumps (net positive suction head and pump vortexing are considered in determining this limit). ~~The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.2.2

Verification of the UHS temperature ensures that the heat removal capability of the ESW System is within the assumptions of the DBA analysis. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.3, SR 3.7.2.5, and SR 3.7.2.6

These SRs are modified by a NOTE indicating that these SRs are not required to be met if UHS temperature is > 37°F. Industry experience has shown that frazil ice will not adhere to the bar racks that are above freezing temperatures. Therefore at these elevated temperatures, blockage of the intake is unlikely and the deicing heaters are not required to be OPERABLE.

Verification of the required deicing feeder current in SR 3.7.2.3 and the required deicing heater power in SR 3.7.2.5 will help ensure that adequate heat is being provided at the bar racks to help ensure that frazil ice does not adhere to them. Verification of the required deicing heater resistance to ground in SR 3.7.2.6 is performed to monitor long term degradation of the cable and heater insulations. SR 3.7.2.3 can be performed by measuring the current in all three phases of the feeder cables to each division and ensuring the total current is within limits to confirm that at least 18 deicing heaters are OPERABLE in each division. SR 3.7.2.5 is performed to verify that at least 18 deicing heaters in each division are each dissipating at least 1503 watts (from Vendor Specification 1670 ±10% watts). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency of SR 3.7.2.3 and the 6 month Frequency of SR 3.7.2.5 is based on operating experience that shows the heaters are reliable. The 12 month Frequency of SR 3.7.2.6 has shown that the components usually pass the SR when performed at the 12 month Frequency. Therefore, this Frequency is considered to be acceptable from a reliability standpoint.~~

SR 3.7.2.4

Verifying the correct alignment for each manual, power operated, and automatic valve in each ESW subsystem flow path provides assurance that the proper flow paths will exist for ESW 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 is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be automatically realigned to its accident position within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.4 (continued)

This SR is modified by a Note indicating that isolation of the ESW System to components or systems may render those components or systems inoperable, but does not necessarily affect the OPERABILITY of the ESW System. As such, when all ESW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the ESW System may still be considered OPERABLE.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

SR 3.7.2.7

This SR verifies the automatic start capability of the ESW pump in each subsystem. This is demonstrated by the use of an actual or simulated initiation signal associated with each EDG. In addition, the proper positioning of the ESW supply header isolation valves and the ESW minimum flow valves, upon actual or simulated ESW lockout matrix logic actuation, must be demonstrated in this SR. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.7.3 overlaps this Surveillance to provide complete testing of the assumed safety function. ESW will not be supplied to the Reactor Building Closed Loop Cooling System during the performance of this test to avoid contaminating this system with lake water.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. UFSAR, Section 9.7.1.

2. UFSAR, Chapter 5.

3. UFSAR, Chapter 14.

4. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS (continued)

E.1

If both CREVAS subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable CRE boundary (i.e., Condition B), the CREVAS System may not be capable of performing the intended function and the plant is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

F.1 and F.2

LCO 3.0.3 is not applicable when in MODE 4 or 5. However, since recently irradiated fuel assembly movement can occur in MODES 1, 2, or 3, the Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs, with two CREVAS subsystems inoperable or with one or more CREVAS subsystems inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk.

If applicable, movement of recently irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of this activity shall not preclude completion of movement of a component to a safe position. If applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. These subsystems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every three months provides an adequate check on this system. Since the CREVAS System does not contain heaters, it need only be operated for ≥ 15 minutes to demonstrate the function of the system. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 92 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.~~

BASES

(continued)

BASES

ACTIONS

E.1 and E.2 (continued)

If applicable, handling of recently irradiated fuel in the secondary containment must be suspended immediately. Suspension of this activity shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analyses with ESW providing water to the cooling coils of the air handling units. Heat transfer testing is not performed on the Control Room (CR) and Relay Room (RR) Air Handlin Units (AHUs) as these coolers are closed loop, glycol based systems which are not prone to fouling. To verify the system has the capability to remove the assumed heat, the ESW supply function (safety related) is required to be operable and the following surveillance requirements met: 1) the manual valves needed to initiate ESW flow to these coolers are cycled to verify operability; 2) the ESW supply piping to the AHUs is flushed during check valve testing; and 3) flow rates are measured against target flow rates. Therefore, any degradation would be detected and corrected through the corrective action program. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period.~~

JAF calculations verify maximum Allowable Tube Plugging Limit for CR and RR AHUs if maintenance is required on the AHUs. The level of allowed plugging provides a margin in the CR and RR equipment heat load and still maintains the CR and RR below 104°F under accident conditions using ESW at 85°F. In addition, JAF calculations state the potential for plugged tubes is low crediting use of a closed loop cooling water system using glycol/demineralized water (not service water) as the cooling medium.

REFERENCES

1. UFSAR, Section 9.9.3.11.
2. 10 CFR 50.36(c)(2)(ii).
3. SEP-SW-001 Rev.0, NRC Generic Letter 89-13 Service Water Program

BASES

ACTIONS

B.1, B.2, B.3.1, and B.3.2 (continued)

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 3.7.5.1

This SR~~, on a 31 day Frequency,~~ requires an isotopic analysis of an offgas sample, taken at the discharge (prior to dilution and/or discharge) of the SJAE, to ensure that the required limits are satisfied. If the measured rate of radioactivity increases significantly (by ≥ 50% after correcting for expected increases due to changes in THERMAL POWER), an isotopic analysis is also performed within 4 hours after the increase is noted, to ensure that the increase is not indicative of a sustained increase in the radioactivity rate. As noted, this Frequency is only required when the gross gamma activity rate, as indicated by the SJAE monitor, is ≥ 5000 μCi/second. ~~The 31 day Frequency is adequate in view of other instrumentation that continuously monitor the offgas providing offgas isolation on excessive activity, and is acceptable, based on operating experience.~~ The 5,000 μCi/second threshold level is an administrative control to reduce the number of unnecessary grab samples. This value is approximately 1% of the SJAE trip level setting and operating at or below the threshold level will ensure the site boundary annual radiation exposures remain within the 10 CFR 50, Appendix I guidelines (Ref. 4). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note indicating that the SR is not required to be performed until 31 days after any main steam line is not isolated and the SJAE is in operation. Only in this condition can radioactive fission gases be in the Main Condenser SJAE Offgas System at significant rates.

REFERENCES

1. UFSAR, Section 11.4.7.2.
2. 10 CFR 100.
3. 10 CFR 50.36(c)(2)(ii).
4. 10 CFR 50, Appendix I.

BASES

ACTIONS

B.1 (continued)

limits, and the Main Turbine Bypass System is not required to protect fuel integrity during the abnormal operational transients. The 4 hour Completion Time is 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 3.7.6.1

Cycling each required main turbine bypass valve through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will function when required. The specified Frequency (prior to entering MODE 2 or 3 from MODE 4) is based on engineering judgment, is consistent with the procedural controls governing valve operation, ensures correct valve positions, and ensures the valves are OPERABLE prior to each reactor startup from MODE 4. Operating experience has shown that these components usually pass the SR when performed at the specified Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

SR 3.7.6.2

The Main Turbine Bypass System is required to actuate automatically to perform its design function. This SR demonstrates that, with the required system initiation signals, the required valves will actuate to their required position. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown the 24 month Frequency, which is based on the refueling cycle, is acceptable from a reliability standpoint.~~

SR 3.7.6.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in the Technical Requirements Manual (Reference 5). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant~~

(continued)

BASES (continued)

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.7.6.3 (continued)~~

REFERENCES

1. USFAR, Section 7.11.
2. UFSAR, Section 14.5.
3. 10 CFR 50.36(c)(2)(ii).
4. Supplemental Reload Licensing Report for James A. FitzPatrick (Revision specified in the COLR).
5. Technical Requirements Manual.

BASES

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies in the spent fuel storage pool since the potential for a release of fission products exists.

ACTIONS

A.1

LCO 3.0.3 is not applicable while in MODE 4 and 5. However, because irradiated fuel assembly movement can occur in MODE 1, 2, or 3, Required Action A.1 is modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not a sufficient reason to require a reactor shutdown.

When the initial conditions for an accident cannot be met, action must be taken to preclude the accident from occurring. If the spent fuel storage pool level is less than required, the movement of irradiated fuel assemblies in the spent fuel storage pool is suspended immediately. Suspension of this activity shall not preclude completion of movement of an irradiated fuel assembly to a safe position. This effectively precludes a spent fuel handling accident from occurring.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

This SR verifies that sufficient water is available in the event of a refueling accident. The water level in the spent fuel storage pool must be checked periodically. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is acceptable, based on operating experience, considering that the water volume in the pool is normally stable, and all water level changes are controlled by plant procedures.~~

REFERENCES

1. UFSAR, Section 9.3.

2. UFSAR, Section 14.6.1.4.

3. 10 CFR 100.

(continued

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the plant distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that emergency buses and loads can be or are connected to their offsite power source and that appropriate independence of offsite circuits is maintained. Offsite circuit alignment verification can be accomplished by verifying that an offsite circuit bus is energized and that the status of offsite circuit supply breakers and disconnects displayed in the control room is correct. Offsite source power availability can be verified by communication with Niagara Mohawk for the Nine Mile Point Unit One switchyard, South Oswego substation, and Light House Hill substation. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room. In addition, the Frequency is adequate since administrative controls are in place that require plant notification by Niagara Mohawk of distribution system problems that affect power availability.~~

SR 3.8.1.2

This SR helps to ensure the availability of the onsite electrical power supply to mitigate DBAs and transients and maintain the plant in a safe shutdown condition.

To minimize the wear on moving parts, this SR has been modified by a Note to indicate that all EDG starts for this Surveillance may be preceded by an engine prelube period and followed by a warmup prior to loading.

For the purposes of this testing, the EDGs are started from standby conditions. Standby conditions for an EDG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

This SR requires that~~, at a 31 day Frequency,~~ the EDG subsystem starts from standby conditions, force parallels, and achieves required voltage and frequency within 10 seconds. The 10 second start requirement supports the assumptions in the design basis LOCA analysis of UFSAR, Section 6.5 (Ref. 12).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 (continued)

In addition to the SR requirements, the time for the EDG subsystem to reach steady state operation is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.108 (Ref. 9). This Frequency provides adequate assurance of EDG subsystem OPERABILITY, while minimizing degradation resulting from testing.~~

SR 3.8.1.3

This SR verifies that the EDG subsystems are capable of synchronizing and accepting greater than or equal to the equivalent of the maximum expected accident loads. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the EDG subsystem is paralleled with the normal, reserve or backfeed power source.

Although no power factor requirements are established by this SR, the EDG is normally operated at a power factor between 0.8 lagging and 1.0. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation to ensure circulating currents are minimized. The load band is provided to avoid routine overloading of the EDG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain EDG OPERABILITY.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency for this Surveillance is consistent with Safety Guide 9 (Ref. 3).~~

Note 1 modifies this SR to indicate that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized.

Note 2 modifies this SR by stating that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test.

Note 3 indicates that this SR should be conducted on only one EDG subsystem at a time in order to avoid common cause failures that might result from normal, reserve or backfeed power source perturbations.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful EDG subsystem 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 the low level alarm is annunciated. The level is expressed as an equivalent volume in gallons, and is selected to ensure adequate fuel oil for a minimum of 1.5 hours of EDG operation at full load.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and plant operators would be aware of any large uses of fuel oil during this period.~~

SR 3.8.1.5

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. Periodic ~~R~~removal of water from the fuel oil day tanks ~~once every 31 days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during EDG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and 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 Frequency is controlled under the Surveillance Frequency Control Program.~~The Surveillance Frequency is consistent with Regulatory Guide 1.137 (Ref. 10). This SR is for preventive maintenance.~~ The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

SR 3.8.1.6

This SR demonstrates that at least one fuel oil transfer pump associated with each OPERABLE EDG operates and automatically transfers fuel oil from its associated storage

BASES

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

tank to its associated day tank. It is required to support continuous operation of onsite power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE for each EDG.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency for this SR is consistent with the Frequency for testing the EDG subsystem in SR 3.8.1.3. EDG operation for SR 3.8.1.3 is normally long enough that fuel oil level in the day tank will be reduced to the point where the fuel oil transfer pump automatically starts to restore fuel oil level in the day tank.~~

SR 3.8.1.7

Automatic residual transfer of each 4.16 kV emergency bus power supply from the normal (main generator) source (NSST 71T-4) to each offsite circuit demonstrates the OPERABILITY of the offsite circuit distribution network to power the shutdown loads. As Noted, the SR is only required to be met for each offsite circuit that is not energizing its respective 4.16 kV emergency bus (i.e., the bus is being energized by the NSST), since the automatic transfer must be OPERABLE when the 4.16 kV emergency bus is being supplied by the main generator. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed on the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

In lieu of an actual automatic residual transfer, testing that adequately demonstrates the automatic residual transfer capability is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire automatic residual transfer function and emergency bus energization is verified.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.8

Each EDG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by 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 EDG subsystem capability to reject the largest single load without exceeding a predetermined frequency and while maintaining a specified margin to the overspeed trip. The largest single load for each EDG subsystem is a core spray pump (1250 bhp motor rating actual load will depend on accident progression). This Surveillance may be accomplished by:

a. Tripping the EDG output breakers with the EDG subsystem carrying greater than or equal to its associated single largest post-accident load while paralleled with normal, reserve, or backfeed power, or while solely supplying the bus; or

b. Tripping its associated single largest post-accident load with the EDG subsystem solely supplying the bus.

Consistent with Safety Guide 9 (Ref. 3), the load rejection test is acceptable if the diesel speed does not exceed the nominal (synchronous) speed plus 75% of the difference between nominal speed and the overspeed trip setpoint, or 115% of nominal speed, whichever is lower.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months, takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

This SR is modified by a Note. In order to ensure that the EDG subsystem is tested under load conditions that are as close to design basis conditions as possible, the Note requires that, if paralleled with normal, reserve or backfeed power, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the EDG subsystem would experience. However, if the grid conditions do not permit, the power factor limit is not required to be met. In this condition the test is performed with a power factor as close to the design rating of the machine as practicable. This is permitted since, with a high grid voltage it may not be possible to raise the EDG

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

subsystem output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus.

SR 3.8.1.9

Consistent with Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), this SR demonstrates the as designed operation of the onsite power sources due to an emergency bus loss of power (LOP) signal. This test verifies all actions required following receipt of the LOP signal, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the EDG subsystem. It further demonstrates the capability of the EDG subsystem to automatically achieve the required voltage and frequency within the specified time.

The EDG auto-start time of 11 seconds is derived from requirements of the accident analysis for responding to a design basis large break LOCA. 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 verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the EDG subsystem loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the EDG subsystem to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months, takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

This SR is modified by a Note. The reason for the Note is to minimize the wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.10

This SR demonstrates that the EDG subsystem automatically starts, force parallels and achieves the required voltage and frequency within the specified time (10 seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability. SR 3.8.1.10.d and SR 3.8.1.10.e ensure that permanently connected loads and emergency loads are energized from the offsite electrical power system on a LOCA signal without a LOP signal.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the loading logic for loading onto offsite power. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the EDG subsystem to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

In addition to the SR requirements, the time for the EDG subsystem to reach steady state operation is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

~~The Frequency of 24 months takes into consideration plant~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

This SR is modified by a Note. The reason for the Note is to minimize the wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.11

Consistent with IEEE-387 (Ref. 13), Section 7.5.9 and Table 3, this SR requires demonstration that the EDGs can run continuously at full load capability for an interval of not less than 8 hours — 6 hours of which is at a load equivalent to 90-100% of the continuous rating of the EDG, and 2 hours of which is at a load equivalent to 105% to 110% of the continuous duty rating of the EDG. The EDG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the EDG subsystem is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor $\leq$ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the EDG subsystem could experience. A load band is provided to avoid routine overloading of the EDG subsystem. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain EDG OPERABILITY.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 month Frequency is consistent with the recommendations of IEEE-387 (Ref. 13), Section 7.5.9 and Table 3 which takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.11 (continued)

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test. Note 2 is provided in recognition that when grid conditions do not permit, the power factor limit is not required to be met. In this condition, the test is performed with a power factor as close to the design rating of the machine as practicable. This is permitted since, with a high grid voltage it may not be possible to raise the EDG output voltage sufficiently to obtain the required power factor without creating an overvoltage condition on the emergency bus.

SR 3.8.1.12

In the event of a DBA coincident with an emergency bus loss of power signal, the EDGs are required to supply the necessary power to Engineered Safeguards systems so that the fuel, RCS, and containment design limits are not exceeded.

This SR demonstrates EDG subsystem operation, as discussed in the Bases for SR 3.8.1.9, during an emergency bus LOP signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the EDG subsystem to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.~~

This SR is modified by a Note. The reason for the Note is to minimize the wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.13

Under accident conditions loads are sequentially connected to the bus by the individual time delay relays. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the EDGs due to high motor starting currents. The minimum load sequence time interval tolerance ensures that sufficient time exists for the EDG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding engineered safeguards equipment time delays are not violated. There is no upper limit for the load sequence time interval since, for a single load interval (i.e., the time between two load blocks), the capability of the EDG to restore frequency and voltage prior to applying the second load is not negatively affected by a longer than designed load interval, and if there are additional load blocks (i.e., the design includes multiple load intervals), then the lower limit requirements will ensure that sufficient time exists for the EDG to restore frequency and voltage prior to applying the remaining load blocks (i.e., all load intervals must be greater than or equal to the minimum design interval).

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with expected fuel cycle lengths.~~

REFERENCES

1. UFSAR, Section 16.6.

2. UFSAR, Chapter 8.

3. Safety Guide 9, Selection Of Diesel Generator Set Capacity For Standby Power Supplies, March 1971.

4. UFSAR, Chapter 6.

5. UFSAR, Chapter 14.

6. 10 CFR 50.36(c)(2)(ii).

7. Generic Letter 84-15, Proposed Staff Actions To Improve And Maintain Diesel Generator Reliability, July 1984.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since plant operators would be aware of any large uses of fuel oil during this period.~~

SR 3.8.3.2

This SR ensures that sufficient lubricating oil inventory is available to support at least 7 days of full load operation for each EDG. The lube oil equivalent to a 7 day supply is 168 gallons. The 168 gal requirement is based on the EDG manufacturer's consumption values for the run time of the EDG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the EDG, when the EDG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since EDG starts and run time are closely monitored by the plant staff.~~

SR 3.8.3.3

The tests of new fuel oil prior to addition to the storage tanks are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between the sample (and corresponding test results) of new fuel and addition of new fuel oil to the storage tanks to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel oil in accordance with ASTM D4057-1995 (Ref. 6);

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

b. Verify in accordance with the tests specified in ASTM D975-2006 (Ref. 6) that the sample has an absolute specific gravity at 60/60°F of $\geq$ 0.83 and $\leq$ 0.89 or an API gravity at 60°F of $\geq$ 27° and $\leq$ 39°, a kinematic viscosity at 40°C of $\geq$ 1.9 centistokes, and $\leq$ 4.1 centistokes, and a flash point of $\geq$ 125°F; and

c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-1993 or verify water and sediment are within ASTM D975- 2006 limits when tested in accordance with, ASTM D2709, or ASTM D1796 (Ref 6).

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO since the fuel oil is not added to the storage tanks.

Following the initial new fuel oil sample, the fuel oil is analyzed within 31 days following addition of the new fuel oil to the fuel oil storage tanks to establish that the other properties specified in Table 1 of ASTM D975-2006 (Ref. 6) are met for new fuel oil when tested in accordance with ASTM D975-2006 (Ref. 6), except that the analysis for sulfur may be performed in accordance with ASTM D1552-1995 (Ref. 6) or ASTM D2622-1994 (Ref. 6). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on EDG operation. This Surveillance ensures the availability of high quality fuel oil for the EDGs.

Fuel oil degradation during long term storage shows up as an increase in particulate concentration, mostly due to oxidation. The presence of particulates does not mean that the fuel oil will not burn properly in a diesel engine. The particulates can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D6217-1998 (Ref. 6), except that the specified filters may be replaced with filters up to 3.0 microns. This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

sample for subsequent laboratory testing in lieu of field testing.

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.4

This SR ensures that, without the aid of the refill compressor, sufficient air start capacity for each EDG is available. The system design requirements provide for a minimum of five engine start cycles without recharging or realigning air start receivers. For the purposes of the air start system, a start cycle is defined as the period required from a start signal until the engine speed reaches 200 rpm (the point at which the air start system valves are signaled to close). The pressure specified in this SR is intended to reflect the lowest value at which the five starts can be accomplished.

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

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. Periodic ~~R~~removal of water from the fuel storage tanks ~~once every 31 days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during EDG 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 are consistent with Regulatory Guide 1.137 (Ref. 2) as supplemented by ANSI/ANS-59.51 (formerly

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SURVEILLANCE REQUIREMENTS

SR 3.8.3.5 (continued)

ANSI N195, Ref. 3). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 8.6.2.

2. Regulatory Guide 1.137, Revision 1, Fuel-Oil Systems For Standby Diesel Generators, October 1979.

3. ANSI N195, Appendix B, 1976.

4. UFSAR, Chapter 14.

5. 10 CFR 50.36(c)(2)(ii).

6. ASTM Standards: D4057-1995, Standard Practice for Manual Sampling of Petroleum and Petroleum Products; D975-2006, Standard Specification for Diesel Fuel Oils; D4176-1993, Standard Test Method for Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures); D1552-1995, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method); D2622-1994, Standard Test Method for Sulfur in Petroleum Products by X-Ray Spectrometry; D6217-1998, Standard Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration; ASTM D2709-1996, Test Method for Water and Sediment in Distillate Fuels by Centrifuge; and ASTM D1796-2004, Standard Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure).

7. ANSI/ANS-59.51 1997, Fuel Oil Systems for Safety Related Emergency Diesel Generators.

8. JAF-CALC-07-00020, Revised Emergency Diesel Generator (EDG) Fuel Oil Storage Quantities for 7 Day and 6 Day Supplies.

BASES

ACTIONS

B.1 (continued)

accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary 125 VDC power subsystems to mitigate a worst case accident, continued power operation should not exceed 8 hours. The 8 hour Completion Time reflects a reasonable time to assess plant status as a function of the inoperable 125 VDC power subsystem and, if the 125 VDC power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe plant shutdown.

C.1 and C.2

If the inoperable 125 VDC power subsystem cannot be restored to OPERABLE status 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 12 hours and to MODE 4 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. The Completion Time to bring the plant to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 8).

D.1

If one or both 419 VDC LPCI MOV independent power supply subsystems are inoperable (e.g., inoperable battery, inoperable battery charger, or inoperable battery charger and associated inoperable battery), the associated LPCI subsystem may be incapable of performing its intended function and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions for an inoperable LPCI subsystem, LCO 3.5.1.

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the connected loads and the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state, while supplying the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1 (continued)

continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer (2.17 Vpc or 130.2 V at the 125 VDC battery terminals or 403.6 V for 419 VDC LPCI MOV independent power supply battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). ~~The 7 day Frequency is conservative when compared with manufacturer recommendations and IEEE-450 (Ref. 9).~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.4.2

This SR verifies the design capacity of the battery chargers (Ref. 3). According to UFSAR, Section 8.7 (Ref. 4), the battery charger is sized to restore the battery after discharging through its duty cycle to the fully charged state, while supplying the normal control loads. The minimum required amperes and duration ensures that these requirements can be satisfied.

This SR provides two options. One option requires that each battery charger be capable of supplying 270 amps at the minimum established float voltage for 4 hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least 2 hours.

The other option requires that each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not normally be available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 (continued)

the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current. The battery is recharged when the measured charging current is ≤ 2 amps.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is acceptable, given the plant conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements (Ref. 10, 11, and 12).

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months is acceptable, given plant conditions required to perform the test and the other requirements existing to ensure adequate battery performance during this 24 month interval. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~

A modified performance discharge test may be performed in lieu of a service test. This substitution is acceptable because a modified performance discharge test represents a more severe test of battery capacity than the service test.

The modified performance discharge test is a complete test which envelopes both the service test and the performance discharge test requirements. The modified performance discharge test discharge current envelopes the peak duty cycle loads of the service test followed by a constant discharge current (temperature corrected) for the performance discharge test. Since the ampere-hours removed by peak duty cycle loads represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1 (continued)

continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer (2.17 Vpc or 130.2 V at the 125 VDC battery terminals or 403.6 V for 419 VDC LPCI MOV independent power supply battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is conservative when compared with manufacturer recommendations and IEEE-450 (Ref. 9).~~

SR 3.8.4.2

This SR verifies the design capacity of the battery chargers (Ref. 3). According to UFSAR, Section 8.7 (Ref. 4), the battery charger is sized to restore the battery after discharging through its duty cycle to the fully charged state, while supplying the normal control loads. The minimum required amperes and duration ensures that these requirements can be satisfied.

This SR provides two options. One option requires that each battery charger be capable of supplying 270 amps at the minimum established float voltage for 4 hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least 2 hours.

The other option requires that each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not normally be available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 (continued)

the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current. The battery is recharged when the measured charging current is ≤ 2 amps.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency is acceptable, given the plant conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements (Ref. 10, 11, and 12).

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 24 months is acceptable, given plant conditions required to perform the test and the other requirements existing to ensure adequate battery performance during this 24 month interval. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~

A modified performance discharge test may be performed in lieu of a service test. This substitution is acceptable because a modified performance discharge test represents a more severe test of battery capacity than the service test.

The modified performance discharge test is a complete test which envelopes both the service test and the performance discharge test requirements. The modified performance discharge test discharge current envelopes the peak duty cycle loads of the service test followed by a constant discharge current (temperature corrected) for the performance discharge test. Since the ampere-hours removed by peak duty cycle loads represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.3 (continued)

modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

The purpose of the modified performance discharge test is to demonstrate the battery has sufficient capacity to meet the system design requirements and to provide trendable performance data to compare the available capacity in the battery to previous capacity test results. Initial conditions for the modified performance discharge test should be identical to those specified for a service test.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required 125 VDC power subsystem from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1, 2, or 3 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, or 3. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy the Surveillance.

SR 3.8.4.4

A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.4 (continued)

A battery modified performance discharge test is described in the Bases for SR 3.8.4.3. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.4; however, only the modified performance discharge test may be used to satisfy SR 3.8.4.4 while satisfying the requirements of SR 3.8.4.3 at the same time.

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 9). This reference recommends that the battery be replaced if its capacity is below 80% of the manufacturer's 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 is controlled under the Surveillance Frequency Control Program.~~The 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 rating, the Surveillance Frequency is reduced to 12 months. However, if the 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. 9), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is below 90% of the manufacturer's rating. All these Frequencies are consistent with the recommendations in IEEE-450 (Ref. 9).

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required 125 VDC power subsystem from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1, 2, or 3 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the

(continued)

BASES

ACTIONS

A.1, A.2, and A.3 (continued)

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. Taking into consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the DC batteries inoperable.

B.1

When any battery parameter is outside the Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potential conditions, such as any Required Action of Condition A and associated Completion Time not met, or average electrolyte temperature of representative cells < 65°F for each 125 VDC battery, or < 50°F for each 419 VDC LPCI MOV independent power supply battery, also are cause for immediately declaring the associated DC electrical power subsystem inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 4), which recommends regular battery inspections ~~(at least one per month)~~ including voltage, specific gravity, and electrolyte temperature of pilot cells. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.6.2

The ~~quarterly~~ inspection of specific gravity and voltage is consistent with IEEE-450 (Ref. 4), which recommends augmentation of the battery inspections conducted in SR 3.8.6.1 ~~at least once per quarter~~ by checking voltage, specific gravity and electrolyte temperature. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.6.3

This Surveillance verification that the average electrolyte temperature of representative cells (10% of total) is within limits is consistent with a recommendation of IEEE-450 (Ref. 4). The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~that states that the temperature of electrolyte in representative cells should be determined on a quarterly basis.~~

Lower than normal electrolyte temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range, based on assumptions in the battery sizing analyses.

Table 3.8.6-1

This Table delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

Category A defines the normal parameter limit for each designated pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity approximate the state of charge of the entire battery.

The Category A limits specified for electrolyte level are based on manufacturer's recommendations and are consistent with the guidance in IEEE-450 (Ref. 4), with the extra ¼ inch allowance above the high water level indication for operating margin to account for temperature and charge effects. In addition to this allowance, footnote (a) to Table 3.8.6-1 permits the electrolyte level to be temporarily above the specified maximum level during and, for a limited time, following an equalizing charge (normally up to 3 days following the completion of an equalization charge to allow electrolyte stabilization), provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 4) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

If the inoperable distribution subsystem 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 12 hours and to MODE 4 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.

D.1

Condition D corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one AC or 125 VDC electrical power distribution subsystem is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the AC and 125 VDC, electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical buses are maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency takes into account the redundant capability of the AC, and 125 VDC electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.~~

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

A.1, 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 the plant safety systems may be without power.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the AC and 125 VDC electrical power distribution subsystems are functioning properly, with the buses energized. The verification of proper voltage availability on the buses ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency takes into account the redundant capability of the electrical power distribution subsystems, as well as other indications available in the control room that alert the operator to subsystem malfunctions.~~

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 14.
3. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

Alternately, Required Actions A.2.1 and A.2.2 require that a control rod withdrawal block be inserted and that all control rods are subsequently verified to be fully inserted. Required Action A.2.1 ensures that no control rods can be withdrawn. This action ensures that control rods cannot be inappropriately withdrawn because an electrical or hydraulic block to control rod withdrawal is in place. Required Action A.2.2 is performed after placing the rod withdrawal block in effect. This verification that all control rods are fully inserted is in addition to the periodic verifications required by SR 3.9.3.1 and SR 3.10.6.2. Like Required Action A.1, Required Actions A.2.1 and A.2.2 ensure that unacceptable operations are blocked (e.g., loading fuel into a cell with the control rod withdrawn).

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to plant operations personnel.~~

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 7.6.3.
3. UFSAR, Section 14.5.4.3.
4. UFSAR, Section 14.5.4.4.
5. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1 (continued)

interlocks. Therefore, this Surveillance imposes an additional level of assurance that the refueling position one-rod-out interlock will be OPERABLE when required. By "locking" the reactor mode switch in the proper position (i.e., removing the reactor mode switch key from the console while the reactor mode switch is positioned in refuel), an additional administrative control is in place to preclude operator errors from resulting in unanalyzed operation.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Frequency of 12 hours is sufficient in view of other administrative controls utilized during refueling operations to ensure safe operation.~~

SR 3.9.2.2

Performance of a CHANNEL FUNCTIONAL TEST on each channel demonstrates the associated refuel position one-rod-out interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. 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 CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and visual and audible indications available in the control room to alert the operator to control rods not fully inserted.~~ To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Therefore, SR 3.9.2.2 has been modified by a Note that states the CHANNEL FUNCTIONAL TEST is not required to be performed until 1 hour after any control rod is withdrawn.

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 7.6.3.

(continued)

BASES (continued)

LCO	All control rods must be fully inserted during applicable refueling conditions to minimize the probability of an inadvertent criticality during refueling.
APPLICABILITY	During MODE 5, loading fuel into core cells with control rods withdrawn may result in inadvertent criticality. Therefore, the control rods must be inserted before loading fuel into a core cell. All control rods must be inserted before loading fuel to ensure that a fuel loading error does not result in loading fuel into a core cell with the control rod withdrawn. In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and no fuel loading activities are possible. Therefore, this Specification is not applicable in these MODES.
ACTIONS	<u>A.1</u> With all control rods not fully inserted during the applicable conditions, an inadvertent criticality could occur that is not analyzed in the UFSAR. All fuel loading operations must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position.
SURVEILLANCE REQUIREMENTS	<u>SR 3.9.3.1</u> During refueling, to ensure that the reactor remains subcritical, all control rods must be fully inserted prior to and during fuel loading. Periodic checks of the control rod position ensure this condition is maintained. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 12 hour Frequency takes into consideration the procedural controls on control rod movement during refueling as well as the redundant functions of the refueling interlocks.~~
REFERENCES	1. UFSAR, Section 16.6. 2. UFSAR, Section 14.5.4.3. 3. UFSAR, Section 14.5.4.4. 4. 10 CFR 50.36(c)(2)(ii).

BASES

LCO (continued)	being automatically inserted upon receipt of a scram signal. Inserted control rods have already completed their reactivity control function, and therefore are not required to be OPERABLE.
APPLICABILITY	During MODE 5, withdrawn control rods must be OPERABLE to ensure that in a scram the control rods will insert and provide the required negative reactivity to maintain the reactor subcritical. For MODES 1 and 2, control rod requirements are found in LCO 3.1.2, "Reactivity Anomalies," LCO 3.1.3, "Control Rod OPERABILITY," LCO 3.1.4, "Control Rod Scram Times," and LCO 3.1.5, "Control Rod Scram Accumulators." During MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate requirements for control rod OPERABILITY during these conditions.
ACTIONS	A.1 With one or more withdrawn control rods inoperable, action must be immediately initiated to fully insert the inoperable control rod(s). Inserting the control rod(s) ensures the shutdown and scram capabilities are not adversely affected. Actions must continue until the inoperable control rod(s) is fully inserted.
SURVEILLANCE REQUIREMENTS	SR 3.9.5.1 and SR 3.9.5.2 During MODE 5, the OPERABILITY of control rods is primarily required to ensure a withdrawn control rod will automatically insert if a signal requiring a reactor shutdown occurs. Because no explicit analysis exists for automatic shutdown during refueling, the shutdown function is satisfied if the withdrawn control rod is capable of automatic insertion and the associated CRD scram accumulator pressure is ≥ 940 psig. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 7 day Frequency takes into consideration equipment reliability, procedural controls over the scram accumulators, and control room alarms and indicating lights that indicate low accumulator charge pressures.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~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 on valve positions, which make significant unplanned level changes unlikely.~~

REFERENCES

1. Regulatory Guide 1.25, Assumptions Used for Evaluating The Potential Radiological Consequences Of A Fuel Handling Accident In The Fuel Handling And Storage Facility For Boiling And Pressurized Water Reactors, March 23, 1972.

2. UFSAR, Section 14.6.1.4.

3. 10 CFR 100.11.

4. NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, Section 15.7.4, Revision 1, Radiological Consequences of Fuel Handling Accident, July 1981.

5. 10 CFR 50.36(c)(2)(ii).

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.9.7.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR shutdown cooling flow path provides assurance that the proper flow paths will exist for RHR operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that can be manually (from the control room or locally) aligned is allowed to be in a non-RHR shutdown cooling position provided the valve can be repositioned. This SR 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 does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control. This Frequency has been shown to be acceptable through operating experience.~~

REFERENCES

1. UFSAR, Section 16.6.
2. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.8.1 (continued)

locking, sealing, or securing. A valve that can be manually (from the control room or locally) aligned is allowed to be in a non-RHR shutdown cooling position provided the valve can be repositioned. This SR 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 does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control. This Frequency has been shown to be acceptable through operating experience.~~

REFERENCES

1. UFSAR, Section 16.6.
2. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

A.1, A.2, A.3.1, and A.3.2 (continued)

All CORE ALTERATIONS, except control rod insertion, if in progress, are immediately suspended in accordance with Required Action A.1, and all insertable control rods in core cells that contain one or more fuel assemblies are fully inserted within 1 hour, in accordance with Required Action A.2. This will preclude potential mechanisms that could lead to criticality. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and, therefore, do not have to be inserted. Suspension of CORE ALTERATIONS shall not preclude the completion of movement of a component to a safe condition. Placing the reactor mode switch in the shutdown position will ensure that all inserted control rods remain inserted and result in operating in accordance with Table 1.1-1. Alternatively, if in MODE 5, the reactor mode switch may be placed in the refuel position, which will also result in operating in accordance with Table 1.1-1. A Note is added to Required Action A.3.2 to indicate that this Required Action is only applicable in MODE 5, since only the shutdown position is allowed in MODES 3 and 4. The allowed Completion Time of 1 hour for Required Action A.2, Required Action A.3.1, and Required Action A.3.2 provides sufficient time to normally insert the control rods and place the reactor mode switch in the required position, based on operating experience, and is acceptable given that all operations that could increase core reactivity have been suspended.

SURVEILLANCE REQUIREMENTS

SR 3.10.2.1 and SR 3.10.2.2

Meeting the requirements of this Special Operations LCO maintains operation consistent with or conservative to operating with the reactor mode switch in the shutdown position (or the refuel position for MODE 5). The functions of the reactor mode switch interlocks that are not in effect, due to the testing in progress, are adequately compensated for by the Special Operations LCO requirements. The administrative controls are to be periodically verified to ensure that the operational requirements continue to be met. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The Surveillances performed at the 12 hour and 24 hour Frequencies are intended to provide appropriate assurance that each operating shift is aware of and verifies compliance with these Special Operations LCO requirements.~~

(continued)

BASES

ACTIONS (continued)

A.2.1 and A.2.2

Required Actions A.2.1 and A.2.2 are alternate Required Actions that can be taken instead of Required Action A.1 to restore compliance with the normal MODE 3 requirements, thereby exiting this Special Operations LCO's Applicability. Actions must be initiated immediately to insert all insertable control rods. Actions must continue until all such control rods are fully inserted. Placing the reactor mode switch in the shutdown position will ensure all inserted rods remain inserted and restore operation in accordance with Table 1.1-1. The allowed Completion Time of 1 hour to place the reactor mode switch in the shutdown position provides sufficient time to normally insert the control rods.

SURVEILLANCE REQUIREMENTS

SR 3.10.3.1, SR 3.10.3.2, and SR 3.10.3.3

The other LCOs made applicable in this Special Operations LCO are required to have their Surveillances met to establish that this Special Operations LCO is being met. If the local array of control rods is inserted and disarmed while the scram function for the withdrawn rod is not available, periodic verification in accordance with SR 3.10.3.2 is required to preclude the possibility of criticality. The control rods can be hydraulically disarmed by closing the drive water and exhaust header water isolation valves. Electrically, the control rods can be disarmed by disconnecting power from all four directional control valve solenoids. SR 3.10.3.2 has been modified by a Note, which clarifies that this SR is not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements, since SR 3.10.3.2 demonstrates that the alternative LCO 3.10.3.d.2 requirements are satisfied. Also, SR 3.10.3.3 verifies that all control rods other than the control rod being withdrawn are fully inserted. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is acceptable because of the administrative controls on control rod withdrawal, the protection afforded by the LCOs involved, and hardwire interlocks that preclude additional control rod withdrawals.~~

REFERENCES

1. UFSAR, Section 14.5.4.3.

2. UFSAR, Section 14.5.4.4.

3. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.10.4.1, SR 3.10.4.2, SR 3.10.4.3, and SR 3.10.4.4 (continued)

drive water and exhaust water isolation valves. The control rods can be electrically disarmed by disconnecting power from all four directional control valve solenoids. Verification that all the other control rods are fully inserted is required to meet the SDM requirements. Verification that a control rod withdrawal block has been inserted ensures that no other control rods can be inadvertently withdrawn under conditions when position indication instrumentation is inoperable for the affected control rod. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is acceptable because of the administrative controls on control rod withdrawals, the protection afforded by the LCOs involved, and hardwire interlocks to preclude an additional control rod withdrawal.~~

SR 3.10.4.2 and SR 3.10.4.4 have been modified by Notes, which clarify that these SRs are not required to be met if the alternative requirements demonstrated by SR 3.10.4.1 are satisfied.

REFERENCES

1. UFSAR, Section 14.5.4.3.
2. UFSAR, Section 14.5.4.4.
3. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

CRD and insert its control rod, or initiate action to restore compliance with this Special Operations LCO. Actions must continue until either Required Action A.2.1 or Required Action A.2.2 is satisfied.

SURVEILLANCE REQUIREMENTS

SR 3.10.5.1, SR 3.10.5.2, SR 3.10.5.3, SR 3.10.5.4, and SR 3.10.5.5

Verification that all the control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted is required to ensure the SDM is within limits. Verification that the local five by five array of control rods, other than the control rod withdrawn for removal of the associated CRD, is inserted and disarmed, while the scram function for the withdrawn rod is not available, is required to ensure that the possibility of criticality remains precluded. The control rods can be hydraulically disarmed by closing the drive water and exhaust water isolation valves. The control rods can be electrically disarmed by disconnecting power from all four directional control valve solenoids. Verification that a control rod withdrawal block has been inserted ensures that no other control rods can be inadvertently withdrawn under conditions when position indication instrumentation is inoperable for the withdrawn control rod. The Surveillance for LCO 3.1.1, which is made applicable by this Special Operations LCO, is required in order to establish that this Special Operations LCO is being met. Verification that no other CORE ALTERATIONS are being made is required to ensure the assumptions of the safety analysis are satisfied.

Periodic verification of the administrative controls established by this Special Operations LCO is prudent to preclude the possibility of an inadvertent criticality. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is acceptable, given the administrative controls on control rod removal and hardwire interlock to block an additional control rod withdrawal.~~

REFERENCES

1. UFSAR, Section 14.5.4.3
2. UFSAR, Section 14.5.4.4.
3. 10 CFR 50.36(c)(2)(ii).

BASES

APPLICABILITY (continued)	fuel to be removed from cells whose "full-in" indications are allowed to be bypassed. This bypassing must be verified by a second licensed operator or a reactor engineer.
ACTIONS	A.1, A.2, A.3.1, and A.3.2 If one or more of the requirements of this Special Operations LCO are not met, the immediate implementation of these Required Actions restores operation consistent with the normal requirements for refueling (i.e., all control rods inserted in core cells containing one or more fuel assemblies) or with the exceptions granted by this Special Operations LCO. The Completion Times for Required Action A.1, Required Action A.2, Required Action A.3.1, and Required Action A.3.2 are intended to require that these Required Actions be implemented in a very short time and carried through in an expeditious manner to either initiate action to restore the affected CRDs and insert their control rods, or initiate action to restore compliance with this Special Operations LCO.
SURVEILLANCE REQUIREMENTS	SR 3.10.6.1, SR 3.10.6.2, and SR 3.10.6.3 Periodic verification of the administrative controls established by this Special Operations LCO is prudent to preclude the possibility of an inadvertent criticality. In addition, SR 3.10.6.1 must be verified by one licensed operator and a reactor engineer. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~The 24 hour Frequency is acceptable, given the administrative controls on fuel assembly and control rod removal, and takes into account other indications of control rod status available in the control room.~~
REFERENCES	1. UFSAR, Section 7.6. 2. UFSAR, Section 14.5.4.3. 3. UFSAR, Section 14.5.4.4. 4. 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.10.8.1, SR 3.10.8.2, and SR 3.10.8.3 (continued)

This latter verification (i.e., SR 3.10.8.3) must be performed during control rod movement to prevent deviations from the specified sequence. These Surveillances provide adequate assurance that the specified test sequence is being followed.

SR 3.10.8.4

Periodic verification of the administrative controls established by this LCO will ensure that the reactor is operated within the bounds of the safety analysis The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~. The 12 hour Frequency is intended to provide appropriate assurance that each operating shift is aware of and verifies compliance with these Special Operations LCO requirements.~~

SR 3.10.8.5

Coupling verification is performed to ensure the control rod is connected to the control rod drive mechanism and will perform its intended function when necessary. The verification is required to be performed any time a control rod is withdrawn to the "full-out" notch position, or prior to declaring the control rod OPERABLE after work on the control rod or CRD System that could affect coupling. This Frequency is acceptable, considering the low probability that a control rod will become uncoupled when it is not being moved as well as operating experience related to uncoupling events.

SR 3.10.8.6

CRD charging water header pressure verification is performed to ensure the motive force is available to scram the control rods in the event of a scram signal. Since the reactor is depressurized in MODE 5, there is insufficient reactor pressure to scram the control rods. Verification of charging water header pressure ensures that if a scram were to be required, capability for rapid control rod insertion would exist. The minimum charging water header pressure of 940 psig is well below the expected pressure of 1390 to 1580 psig, while still ensuring sufficient pressure for rapid control rod insertion. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.~~ The 7 day Frequency has been shown to be acceptable through operating experience and takes into account indications available in the control room.~~

(continued)

JAFP-11-0088

Attachment 6

Proposed No Significant Hazards Consideration

No Significant Hazards Determination

Description of Amendment Request

The change requests the adoption of an approved change to the standard technical specifications (STS) for General Electric Plants, BWR/4 (NUREG–1433), to allow relocation of specific Technical Specification (TS) Surveillance Frequencies to a licensee-controlled program. The proposed change is described in Technical Specification Task Force (TSTF) Traveler, TSTF–425, Revision 3 (Rev. 3) (ADAMS Accession No. ML080280275) 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 FR31996).

The proposed changes are consistent with NRC-approved Industry/TSTF Traveler, TSTF–425, Rev. 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 No. 071360456).

Basis for proposed no significant hazards consideration

As required by 10 CFR 50.91(a), Entergy's 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, Rev. 1 in accordance with the TS SFCP. NEI 04–10, Rev. 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, licensee concludes that the requested change does not involve a significant hazards consideration as set forth in 10 CFR 50.92(c), Issuance of Amendment.