

RS-10-031

10 CFR 50.90

February 15, 2010

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

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (Adoption of TSTF-425, Revision 3)

- References:**
1. Nuclear Energy Institute (NEI) 04-10, Revision 1, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," dated April 2007
 2. Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b," dated March 18, 2009
 3. "Notice of Availability of Technical Specification Improvement To Relocate Surveillance Frequencies to Licensee Control—Risk-Informed Technical Specification Task Force (RITSTF) Initiative 5b, Technical Specification Task Force-425, Revision 3," Federal Register published July 6, 2009 (74 FR 31996)

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) requests an amendment to Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2, respectively. The proposed amendment would modify the LSCS Technical Specifications (TS) by relocating specific surveillance frequencies to a licensee-controlled program with the implementation of Nuclear Energy Institute (NEI) 04-10 (i.e., Reference 1).

The changes are consistent with NRC-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) change TSTF-425, Revision 3, (i.e., Reference 2); however, EGC is proposing certain variations and deviations from TSTF-425 as discussed in

Attachment 1. The Federal Register notice published on July 6, 2009 (i.e., Reference 3), announced the availability of this TS improvement as part of the Consolidated Line Item Improvement Process (CLIP).

This request is subdivided as follows.

- Attachment 1 provides a description of the proposed change, 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 LSCS, Unit 1 and Unit 2, TS pages marked up to show the proposed changes.
- Attachment 4 provides the proposed LSCS, Unit 1 and Unit 2, TS Bases changes. The TS Bases pages are provided for information only and do not require NRC approval.
- Attachment 5 provides a TSTF-425 versus LSCS TS cross-reference.
- Attachment 6 provides the proposed No Significant Hazards Consideration.

The proposed change has been reviewed by the LSCS Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program.

EGC requests approval of the proposed license amendment by February 15, 2011. Once approved, the amendment will be implemented within 120 days. This implementation period will provide adequate time for the affected station documents to be revised using the appropriate change control mechanisms.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of Illinois of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 15th day of February 2010.

Respectfully,


Patrick R. Simpson
Manager – Licensing

Attachments:

1. Description and Assessment
2. Documentation of Probabilistic Risk Assessment Technical Adequacy
3. Markup of Proposed Technical Specifications Pages
4. Markup of Proposed Technical Specifications Bases Pages
5. TSTF-425 vs. LaSalle County Station Cross-Reference
6. Proposed No Significant Hazards Consideration

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – LaSalle County Station
Illinois Emergency Management Agency – Division of Nuclear Safety

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Description and Assessment

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- 2.0 ASSESSMENT
 - 2.1 Applicability of Published Safety Evaluation
 - 2.2 Optional Changes and Variations
- 3.0 REGULATORY ANALYSIS
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 - 3.2 Applicable Regulatory Requirements
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Description and Assessment

1.0 DESCRIPTION

The proposed amendment would modify the LaSalle County Station (LSCS), Units 1 and 2, Technical Specifications (TS) by relocating specific surveillance frequencies to a licensee-controlled program with the adoption of Technical Specification Task Force (TSTF)-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control - Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b." 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 TSTF Standard Technical Specifications (STS) change TSTF-425, Revision 3 (i.e., Reference 1); however, Exelon Generation Company, LLC (EGC) is proposing certain variations and deviations from TSTF-425 as discussed below in Section 2.2. The Federal Register notice published on July 6, 2009 (i.e., Reference 2), announced the availability of this TS improvement as part of the Consolidated Line Item Improvement Process (CLIP).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

EGC has reviewed the safety evaluation dated July 6, 2009. This review included a review of the NRC's evaluation, TSTF-425, Revision 3, and the requirements specified in NEI 04-10, Revision 1, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," (i.e., Reference 3).

Attachment 2 includes EGC's documentation with regard to probabilistic risk assessment (PRA) technical adequacy consistent with the requirements of Regulatory Guide 1.200, Revision 1 (i.e., Reference 4), 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.

EGC has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC are applicable to LSCS, Units 1 and 2, and justify this amendment to incorporate the changes to the LSCS TS.

2.2 Optional Changes and Variations

The proposed amendment is consistent with the STS changes described in TSTF-425, Revision 3; however, EGC proposes variations or deviations from TSTF-425, as identified below.

1. Revised (clean) TS pages are not included in this amendment request given the number of TS pages affected, the straightforward nature of the proposed changes, and outstanding LSCS amendment requests that will impact some of the same TS pages. Providing only mark-ups of the proposed TS changes satisfies the requirements of 10 CFR 50.90 in that the mark-ups fully describe the changes desired. This is an administrative deviation from the NRC's model application dated July 6, 2009, (74 FR 31996) with no impact on the NRC's model safety evaluation published in the

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same Federal Register notice. As a result of this deviation, the contents and numbering of the attachments for this amendment request differ from the attachments specified in the NRC's model application. Mark-ups of the proposed TS changes are provided in Attachment 3 for LSCS, Units 1 and 2. Additionally, mark-ups of the proposed changes to TS Bases pages are provided in Attachment 4 for LSCS, Units 1 and 2. The proposed changes to the TS Bases are provided for information only. Changes to the Bases will be incorporated in accordance with the TS Bases Control Program.

2. The definition of STAGGERED TEST BASIS is being retained in LSCS TS Definition Section 1.1 because this terminology is mentioned in Administrative TS Section 5.5.15, "Control Room Envelope Habitability Program," which is not the subject of this amendment request and is not proposed to be changed. This is an administrative deviation from TSTF-425 with no impact on the NRC's model safety evaluation dated July 6, 2009 (74 FR 31996).
3. The insert provided in TSTF-425 to replace text describing the basis for each Frequency relocated to the Surveillance Frequency Control Program has been revised from, "The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program," to read "The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program." This deviation is necessary to reflect the LSCS basis for frequencies that do not, in all cases, base Frequency on operating experience, equipment reliability, and plant risk.
4. Attachment 5 provides a cross-reference between the NUREG-1433 and, in some cases, NUREG-1434 Surveillance Requirements (SRs) included in TSTF-425 versus the LSCS SRs included in this amendment request. Attachment 5 includes a summary description of the referenced TSTF-425/LSCS TS SRs which is provided for information purposes only and is not intended to be a verbatim description of the TS SRs. This cross-reference highlights the following:
 - a. SRs included in TSTF-425 and corresponding LSCS SRs with identical SR numbers;
 - b. SRs included in TSTF-425 and corresponding LSCS SRs with differing SR numbers;
 - c. SRs included in TSTF-425 that are not contained in the LSCS TS; and
 - d. LSCS plant-specific SRs that are not contained in the TSTF-425 mark-ups.

Concerning the above, LSCS SRs that have SR numbers identical to the corresponding TSTF-425 SRs are not deviations from TSTF-425.

LSCS SRs with SR numbers that differ from the corresponding TSTF-425 SRs are administrative deviations from TSTF-425 with no impact on the NRC's model safety evaluation dated July 6, 2009 (74 FR 31996).

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

For LSCS plant-specific SRs that are not contained in the mark-ups provided in TSTF-425, EGC has determined that the relocation of the Frequencies for these LSCS plant-specific SRs is consistent with the intent of TSTF-425, Revision 3, and with the NRC's model safety evaluation dated July 6, 2009 (74 FR 31996), including the scope exclusions identified in Section 1.0, "Introduction," of the model safety evaluation, because the subject plant-specific SRs involve fixed periodic Frequencies. In accordance with TSTF-425, changes to the Frequencies for these SRs would be controlled under the Surveillance Frequency Control Program. The Surveillance Frequency Control Program provides the necessary administrative controls to require that SRs related to testing, calibration and inspection are conducted at a frequency to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. Changes to Frequencies in the Surveillance Frequency Control Program would be evaluated using the methodology and probabilistic risk guidelines contained in Reference 3, as approved by NRC letter dated September 19, 2007 (ADAMS Accession No. ML072570267). The Reference 3 methodology includes qualitative considerations, risk analyses, sensitivity studies and bounding analyses, as necessary, and recommended monitoring of the performance of systems, structures, and components (SSCs) for which Frequencies are changed to assure that reduced testing does not adversely impact the SSCs. In addition, the Reference 3 methodology satisfies the five key safety principles specified in Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," dated August 1998 (i.e., Reference 5), relative to changes in SR Frequencies.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration

EGC has reviewed the proposed no significant hazards consideration (NSHC) determination published in the Federal Register dated July 6, 2009 (74 FR 31996). EGC has concluded that the proposed NSHC presented in the Federal Register notice is applicable to LSCS, Units 1 and 2, and is provided as Attachment 6 to this amendment request, which satisfies the requirements of 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (a).

3.2 Applicable Regulatory Requirements

A description of the proposed changes and their relationship to applicable regulatory requirements is provided in TSTF-425, Revision 3 (i.e., Reference 1) and the NRC's model safety evaluation published in the Notice of Availability dated July 6, 2009 (i.e., Reference 2). EGC has concluded that the relationship of the proposed changes to the applicable regulatory requirements presented in the Federal Register notice is applicable to LSCS, Units 1 and 2.

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3.3 Conclusions

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

4.0 ENVIRONMENTAL CONSIDERATION

EGC has reviewed the environmental consideration included in the NRC's model safety evaluation published in the Federal Register on July 6, 2009 (i.e., Reference 2). EGC has concluded that the NRC's findings presented therein are applicable to LSCS, Units 1 and 2, and the determination is incorporated by reference for this application.

5.0 REFERENCES

1. TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b," dated March 18, 2009
2. "Notice of Availability of Technical Specification Improvement To Relocate Surveillance Frequencies to Licensee Control—Risk-Informed Technical Specification Task Force (RITSTF) Initiative 5b, Technical Specification Task Force—425, Revision 3," Federal Register published July 6, 2009 (74 FR 31996)
3. Nuclear Energy Institute (NEI) 04-10, Revision 1, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," dated April 2007
4. Regulatory Guide 1.200, Revision 1, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated January 2007
5. Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," dated August 1998

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Documentation of Probabilistic Risk Assessment Technical Adequacy

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A.1 Overview

The implementation of the Surveillance Frequency Control Program (also referred to as Technical Specification Initiative 5b) at LaSalle will follow the guidance provided in NEI 04-10, Revision 1 [Reference 1] in evaluating proposed surveillance test interval (STI) changes.

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

- Each STI revision is 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 is performed for each STI revision that involves several considerations as explained in Reference 1.
- Each STI revision is 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 implemented and documented for future audits by the NRC. If the IDP does not approve the STI revision, the STI value is left unchanged.
- Performance monitoring is 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 helps 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 is 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 returns the STI back to the previously acceptable STI.
- In addition to the above steps, the Probabilistic Risk Assessment (PRA) is used when possible to quantify the effect of a proposed individual STI revision compared to acceptance criteria in Figure 2 of 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 can not 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.

The NEI 04-10 methodology endorses the guidance provided in Regulatory Guide 1.200, Revision 1 [Reference 2], "An Approach for Determining the Technical Adequacy of Probabilistic

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Risk Assessment Results for Risk-Informed Activities." The guidance in RG-1.200 indicates that the following steps should be followed when performing PRA assessments:

1. Identify the parts of the PRA used to support the application
 - SSCs, operational characteristics affected by the application and how these are implemented in the PRA model
 - A definition of the acceptance criteria 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 assess 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 applicable standards endorsed by the Regulatory Guide (currently, in RG-1.200 Revision 1 this is just the internal events PRA standard). 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.

Because of the broad scope of potential Initiative 5b applications and the fact that the impact of such assumptions differs from application to application, each of the issues encompassed in Items 1 through 3 will be covered with the preparation of each individual PRA assessment made in support of the individual STI interval requests. The purpose of the remaining portion of this appendix is to address the requirements identified in item 4 above.

A.2 Technical Adequacy of the PRA Model

The 2006C update to the LS PRA model is the most recent evaluation of the risk profile at LaSalle for internal event challenges [Reference 3]. The LS PRA modeling is highly detailed, including a wide variety of initiating events, modeled systems, operator actions, and common cause events. The PRA model quantification process used for the LS PRA is based on the event tree / fault tree methodology, which is a well-known methodology in the industry.

EGC employs a multi-faceted approach to establishing and maintaining the technical adequacy and plant fidelity of the PRA models for all operating EGC nuclear generation sites. This

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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 LaSalle PRA.

PRA Maintenance and Update

The EGC risk management process ensures that the applicable PRA model remains an accurate reflection of the as-built and as-operated plants. This process is defined in the EGC Risk Management program, which consists of a governing procedure (ER-AA-600, "Risk Management") and subordinate implementation procedures. EGC procedure ER-AA-600-1015, "FPIE PRA Model Update" delineates the responsibilities and guidelines for updating the full power internal events PRA models at all operating EGC nuclear generation sites. The overall EGC Risk Management program, including ER-AA-600-1015, defines the process for implementing regularly scheduled and interim PRA model updates, for tracking issues identified as potentially affecting the PRA models (e.g., due to changes in the plant, errors or limitations identified in the model, industry operating experience), and for controlling the model and associated computer files. To ensure that the current PRA model remains an accurate reflection of the as-built, as-operated plants, the following activities are routinely performed:

- Design changes and procedure changes are reviewed for their impact on the PRA model.
- New engineering calculations and revisions to existing calculations are reviewed for their impact on the PRA model.
- Maintenance unavailabilities are captured, and their impact on CDF is trended.
- Plant specific initiating event frequencies, failure rates, and maintenance unavailabilities are updated approximately every four years.

In addition to these activities, EGC risk management procedures provide the guidance for particular risk management and PRA quality and maintenance activities. This guidance includes:

- Documentation of the PRA model, PRA products, and bases documents.
- The approach for controlling electronic storage of Risk Management (RM) products including PRA update information, PRA models, and PRA applications.
- Guidelines for updating the full power, internal events PRA models for EGC nuclear generation sites.
- Guidance for use of quantitative and qualitative risk models in support of the On-Line Work Control Process Program for risk evaluations for maintenance tasks (corrective maintenance, preventive maintenance, minor maintenance, surveillance tests and modifications) on systems, structures, and components (SSCs) within the scope of the Maintenance Rule (10CFR50.65 (a)(4)).

In accordance with this guidance, regularly scheduled PRA model updates nominally occur on an approximately four year cycle; shorter intervals may be required if plant changes, procedure enhancements, or model changes result in significant risk metric changes. In addition, EGC now maintains a continuous updated model to ensure the risk assessment of the as-built, as-operated plant does not deviate significantly from the model of record.

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As indicated previously, RG-1.200 also requires that additional information be provided as part of the LAR submittal to demonstrate the technical adequacy of the PRA model used for the risk assessment. Each of these items (plant changes not yet incorporated into the PRA model, relevant peer review findings, consistency with applicable PRA Standards, and the identification of key assumptions) will be discussed in turn.

A.2.1 Plant Changes Not Yet Incorporated into the PRA Model

A PRA updating requirements evaluation (URE - EGC PRA model update tracking database) is created for all issues that are identified that could impact the PRA model. The URE database includes the identification of those plant changes that could impact the PRA model.

As part of the PRA evaluation for each STI change request, a review of open items in the URE database for LaSalle will be performed and an assessment of the impact on the results of the application will be made prior to presenting the results of the risk analysis to the IDP. If a non-trivial impact is expected, then this may include the performance of additional sensitivity studies or model changes to confirm the impact on the risk analysis.

A.2.2 Applicability of Peer Review Findings and Observations

Several assessments of technical capability have been made, and continue to be planned for the LaSalle PRA model. These assessments are as follows and further discussed in the paragraphs below.

- An independent PRA peer review was conducted under the auspices of the BWR Owners' Group in July 2000, following the Industry PRA Peer Review process [Reference 4]. This peer review included an assessment of the PRA model maintenance and update process.
- During 2005 and 2006, the LaSalle PRA model results were evaluated in the BWR Owners' Group PRA cross-comparisons study performed in support of implementation of the mitigating systems performance indicator (MSPI) process. No significant issues resulted from this comparison.
- A self-assessment analysis was performed using Addendum B of the ASME PRA Standard [Reference 5] and Regulatory Guide 1.200, Rev. 1 [Reference 2] as part of the periodic update of the LaSalle PRA. This was updated and finalized to represent the current status near the completion of the update in 2007 [Reference 6].
- A PRA Peer Review of the LaSalle PRA [Reference 7] was performed during March 2008. The results of the PRA Peer Review indicated that a small number of the supporting requirements were "Not Met." However, these supporting requirements related principally to documentation and the treatment of modeling uncertainty. The results of the LaSalle PRA Peer Review support the quality of the LaSalle PRA and its use for this application.

A summary of the disposition of the BWROG PRA Peer Review facts and observations (F&Os) for the LaSalle PRA models was documented as part of the statement of PRA capability for MSPI in the LaSalle MSPI Basis Document [Reference 8]. As noted in that document, there were no significance level A F&Os from the peer review, and all significance level B F&Os were addressed and closed out with the completion of the current model of record in 2006. Also

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noted in that submittal was the fact that, after allowing for plant-specific features, there are no MSPI cross-comparison outliers for LaSalle.

The 2007 self-assessment in support of the 2006 PRA update identified potential gaps to Capability Category II of the Standard. PRA updating requirements evaluation (URE) entries were logged into the EGC model update tracking database to track the gaps for resolutions. All identified gaps were addressed in the 2006 PRA update, except for two minor items maintained for future consideration (one item is a documentation enhancement to the PRA System Notebooks and the other item is a suggested enhancement to the DW pneumatics fault tree logic).

A.2.3 Consistency with Applicable PRA Standards

As indicated above, a formal peer review was performed in April 2008 and the final peer review report issued in July 2008 [Reference 7]. This peer review was against Addendum B of the PRA Standard [Reference 5], the criteria in RG-1.200, Rev. 1 [Reference 2] including the NRC positions stated in Appendix A of RG-1.200, Rev. 1 and further issue clarifications [Reference 9]. The supporting requirements identified from the peer review as not meeting Capability Category II are summarized in Table A.2-1 along with an assessment of the impact on the base PRA.

The remaining gaps as well as all additional findings and observations are documented in the URE database so that they can be tracked and their potential impacts accounted for in applications where appropriate.

Each item will be reviewed as part of each STI change assessment that is performed and an assessment of the impact on the results of the application will be made prior to presenting the results of the risk analysis to the IDP. If a non-trivial impact is expected, then this may include the performance of additional sensitivity studies or model changes to confirm the impact on the risk analysis.

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TABLE A.2-1
LASALLE PRA 2008 PEER REVIEW RESULTS

SUPPORTING REQUIREMENTS	DESCRIPTION OF GAP	PEER REVIEW ASSESSMENT	IMPACT ON BASE PRA
IE-A7	REVIEW plant-specific operating experience for initiating event precursors, for the purpose of identifying additional initiating events.	Supporting Requirement Met Capability Category I.	Documentation issue. No impact. No additional IE categories would be identified. Peer reviewers desired greater discussion/documentation of IE precursors.
IE-D3	DOCUMENT the sources of model uncertainty and related assumptions associated with the initiating event analysis.	Supporting Requirement Not Met.	Refer to the impact discussion for Supporting Requirement QU-E4.
AS-C3	DOCUMENT the sources of model uncertainty and related assumptions associated with the accident sequence analysis.	Supporting Requirement Not Met.	Refer to the impact discussion for Supporting Requirement QU-E4.
SC-B5	CHECK the reasonableness and acceptability of the results of the thermal/hydraulic, structural, or other supporting engineering bases used to support the success criteria. Examples of methods to achieve this include: (a) comparison with results of the same analyses performed for similar plants, accounting for differences in unique plant features (b) comparison with results of similar analyses performed with other plant specific codes (c) check by other means appropriate to the particular analysis	Supporting Requirement Not Met.	Documentation issue. No impact. The LaSalle PRA Success Criteria Notebook compares MAAP and MELCOR runs. The peer review team desired more comparisons with other plants and other codes.
SC-C3	DOCUMENT the sources of model uncertainty and related assumptions associated with the development of success criteria.	Supporting Requirement Not Met.	Refer to the impact discussion for Supporting Requirement QU-E4.

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TABLE A.2-1
LASALLE PRA 2008 PEER REVIEW RESULTS

SUPPORTING REQUIREMENTS	DESCRIPTION OF GAP	PEER REVIEW ASSESSMENT	IMPACT ON BASE PRA
SY-A4	CONFIRM that the system analysis correctly reflects the as-built, as-operated plant through discussions with system engineers and plant operations staff.	Supporting Requirement Met (CC 1)	Documentation issue. No impact. The majority of the LaSalle PRA System Notebooks include documented Operator Interviews and Walkdowns. The peer review team desired that every System Notebook include such documentation and that walkdowns be performed with both Ops and Systems personnel on the walkdown.
SY-C3	DOCUMENT the sources of model uncertainty and related assumptions associated with the systems analysis.	Supporting Requirement Not Met.	Refer to the impact discussion for Supporting Requirement QU-E4.
HR-A1	For equipment modeled in the PRA, IDENTIFY, through a review of procedures and practices, those test and maintenance activities that require realignment of equipment outside its normal operational or standby status.	Supporting Requirement Not Met.	Documentation issue. No impact. Peer review team did not identify any expected pre-initiator HEPs missing from the models, and they stated that they believed the review was done but they desired to see greater documentation.
HR-A2	IDENTIFY, through a review of procedures and practices, those calibration activities that if performed incorrectly can have an adverse impact on the automatic initiation of standby safety equipment.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement HR-A1.
HR-B1	ESTABLISH rules for screening classes of activities from further consideration.	Supporting Requirement Met (CC 1)	Refer to impact discussion for Supporting Requirement HR-A1.
HR-G6	CHECK the consistency of the post-initiator HEP quantifications. REVIEW the HFEs and their final HEPs relative to each other to check their reasonableness given the scenario context, plant history, procedures, operational practices, and experience.	Supporting Requirement Not Met	Documentation issue. No impact. The EGC HRA best practices direct performance of a reasonableness check, and this was performed for the LaSalle PRA. Peer Review team desired to see a detailed discussion of the reasonableness check.

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TABLE A.2-1
LASALLE PRA 2008 PEER REVIEW RESULTS

SUPPORTING REQUIREMENTS	DESCRIPTION OF GAP	PEER REVIEW ASSESSMENT	IMPACT ON BASE PRA
HR-I3	DOCUMENT the sources of model uncertainty and related assumptions associated with the human reliability analysis.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.
DA-C8	ESTIMATE the time that components were configured in their standby status.	Supporting Requirement Met (CC I).	Non-significant impact. The LaSalle PRA uses primarily plant-specific information for configuration probabilities. Peer Review team desired that <u>all</u> configuration probabilities used in the PRA be based on plant-specific data.
DA-C10	REVIEW the test procedure to determine whether a test should be credited for each possible failure mode. COUNT only completed tests or unplanned operational demands as success for component operation.	Supporting Requirement Met (CC I).	Non-significant impact. The PRA data work is based on MSPI and MR data. Any changes to plant-specific failure rates from a revised rigorous accounting of test procedures vs. MR and MSPI data is expected to be non-significant.
DA-E3	DOCUMENT the sources of model uncertainty and related assumptions associated with the data analysis.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.
IF-C3b	IDENTIFY inter-area propagation through the normal flow path from one area to another via drain lines; and areas connected via back flow through drain lines involving failed check valves, pipe and cable penetrations (including cable trays), doors, stairwells, hatchways, and HVAC ducts. INCLUDE potential for structural failure (e.g., of doors or walls) due to flooding loads.	Supporting Requirement Met (CC I).	Documentation issue. No impact. Flood barrier unavailability is considered and including in the internal flood analysis. Peer review team desired to see more extensive discussions on this topic; however, the team expected any resulting changes to the model results would be non-significant.
IF-F3	DOCUMENT the sources of model uncertainty and related assumptions associated with the internal flooding analysis.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.

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TABLE A.2-1
LASALLE PRA 2008 PEER REVIEW RESULTS

SUPPORTING REQUIREMENTS	DESCRIPTION OF GAP	PEER REVIEW ASSESSMENT	IMPACT ON BASE PRA
QU-D1a	REVIEW a sample of the significant accident sequences/cutsets sufficient to determine that the logic of the cutset or sequence is correct.	Supporting Requirement Not Met.	Documentation issue. No impact. Cutset review is performed as part of the PRA update quantification and documentation process. Peer review team desired to see greater documentation of such a review.
QU-D4	REVIEW a sampling of nonsignificant accident cutsets or sequences to determine they are reasonable and have physical meaning.	Supporting Requirement Not Met.	Documentation issue. No impact. Cutset review is performed as part of the PRA update quantification and documentation process. Peer review teams desired to see greater documentation of such a review.
QU-E2	IDENTIFY assumptions related to sources of model uncertainty made in the development of the PRA model.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.
QU-E4	PROVIDE a characterization of the model uncertainties and related assumptions.	Supporting Requirement Not Met.	The LaSalle PRA Summary Notebook provides an extensive discussion of both parametric and modeling uncertainty and sensitivity studies for the base PRA. The peer reviewers assessed the sources of uncertainty as not met in anticipation of the NUREG-1855 [Reference 10] and EPR1 1016737 [Reference 11] specific process yet to be issued at the time of review. The LaSalle uncertainty and sensitivity discussions in the base PRA are judged to be consistent with, or exceed the recently issued NUREG-1855 guidance; however, each STI change assessment will follow the NUREG-1855 construct.
QU-F3	DOCUMENT the significant contributors (such as initiating events, accident sequences, basic events) to CDF in the PRA results summary	Supporting Requirement Met (CC I).	Documentation issue. No impact. Such information is documented in the PRA Quantification Notebook. Peer review team desired to see more detailed documentation.

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TABLE A.2-1
LASALLE PRA 2008 PEER REVIEW RESULTS

SUPPORTING REQUIREMENTS	DESCRIPTION OF GAP	PEER REVIEW ASSESSMENT	IMPACT ON BASE PRA
QU-F4	DOCUMENT the characterization of the sources of model uncertainty and related assumptions (as identified in QU-E4)	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.
QU-F6	DOCUMENT the quantitative definition used for significant basic event, significant cutset, and significant accident sequence. If other than the definition used in Section 2, JUSTIFY the alternative.	Supporting Requirement Not Met.	Documentation issue. No impact.
LE-F3	Characterize the LERF sources of model uncertainty and related assumptions consistent with the applicable requirements for CDF.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.
LE-G4	DOCUMENT sources of model uncertainty and related assumptions associated with the LERF analysis.	Supporting Requirement Not Met.	Refer to impact discussion for Supporting Requirement QU-E4.
LE-G6	DOCUMENT the quantitative definition used for significant accident than the definition used in Section 2, JUSTIFY the alternative.	Supporting Requirement Not Met.	Documentation issue. No impact.

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A.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 A.2.1 and A.2.3 above (including a review of identified sources of uncertainty that were developed for LaSalle based on the NUREG-1855 [Reference 10] and EPRI 1016737 [Reference 11] guidance for each STI change assessment will be documented and included in the results of the risk analysis that goes to the IDP.

A.3 External Events Considerations

EGC⁽¹⁾ submitted the results of the Risk Methods Integration and Evaluation Program (RMIEP) study (NUREG/CR-4832) [Reference 12] to the NRC in 1994 as the basis for the LaSalle Individual Plant Examination (IPE)/Individual Plant Examination of External Events (IPEEE) Submittal. 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.

Each of the RMIEP external event evaluations were reviewed as part of the Submittal and compared to the requirements of NUREG-1407. The NRC transmitted to EGC in 1996 their Staff Evaluation Report of the LaSalle IPE/IPEEE Submittal.

Consistent with Generic Letter 88-20, the RMIEP study and the LaSalle IPEEE Submittal do not screen out seismic or fire hazards, but provide quantitative analyses.

The RMIEP study analyzed LaSalle seismic risk employing the methodology sponsored by the U.S. NRC under the Seismic Safety Margin Research Program (SSMRP) and developed by Lawrence Livermore National Laboratory (LLNL). LaSalle currently does not maintain a seismic PRA.

The internal fires LaSalle RMIEP study is a detailed analysis that, like the seismic analysis, uses quantification and model elements (e.g., system fault trees, event tree structures, random failure rates, common cause failures, etc.) consistent with those employed in the internal events portion of the RMEIP study. The LaSalle RMIEP internal fires study was performed during the same time frame as the NUREG-1150 studies and The Fire Risk Scoping Study. LaSalle has recently developed a more current Fire PRA (refer to Section A. 3.1).

Other external event risks such as severe weather, high winds or tornados, transportation accidents, aircraft impacts, nearby facility accidents, turbine missiles, and other miscellaneous external hazards were also considered in the RMIEP study [Reference12].

⁽¹⁾ Formerly ComEd.

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Aircraft Impact

Section 3.4.2 of Volume 7 of the RMIEP study provides a bounding assessment of the aircraft impact hazard. The assessment approach is consistent with the guidance provided in NUREG/CR-5042, Evaluation of External Hazards to Nuclear Power Plants in the United States.

The LaSalle RMIEP bounding assessment conservatively assumes that any impact to a Category I structure sufficient to cause back face scabbing of an exterior wall results in a core damage probability of 1.0. The resulting bounding core damage frequency was estimated at 4.84E-07/yr.

The LaSalle RMIEP bounding assessment did not include the diesel generator (DG) building in the assessment because it is much smaller than the other key buildings and it is shielded on two sides by other buildings. Using the RMIEP-calculated reactor building aircraft impact CDF contribution of 3.93E-07/yr (obtained from Table 3.4-5 of NUREG/CR-4832 Volume 7), the contribution from an aircraft impact on the DG building is estimated here as follows:

$$3.93\text{E-}07/\text{yr} \times 0.20 \times 0.50 \times 1.00 = 3.93\text{E-}08/\text{yr}$$

where:

0.20 = DG Bldg. area / Reactor Bldg. area (based on review of plant drawings)

0.50 = 2 of the 4 compass directions are protected by other buildings

1.00 = Per the RMIEP assumptions, the CCDP is 1.0

Incorporating the DG building into the RMIEP bounding assessment framework, results in a conservative CDF estimate of 5.23E-07/yr due to aircraft impacts.

If it is assumed here that an aircraft impact sufficient to result in back face scabbing of building exterior walls does not conservatively result in a CCDP of 1.0 (as assumed in the RMIEP framework), but rather a more reasonable value on the order of 0.1 or less, the aircraft impact induced CDF is estimated in the mid to lower E-8/yr range. Such an estimate is approximately 1% of the LaSalle LS06C CDF. Explicit quantification of such accidents would not provide any significant quantitative or qualitative information to most risk applications.

Other External Hazards

The other external hazards are assessed to be non-significant contributors to plant risk:

- Extreme Winds / Tornadoes: The RMIEP study estimated the CDF from extreme wind and tornado hazards at a median value of 3E-08/yr (mean value of 8.0E-8/yr if lognormal distribution and EF=10 assumed). The majority of this estimate is due to tornado induced dual unit loss of offsite power (DLOOP) with failure to recover offsite power. Severe weather induced DLOOP sequences are already modeled in the LS06C PRA.
- Offsite / Transportation Hazards: Bounding assessments in the RMIEP study dispositioned such hazards as non-significant risk contributors.

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- Turbine Missiles: A bounding assessment in the RMIEP study dispositioned turbine missiles as a non-significant risk contributor.
- Extreme Floods: All safety-related structures on the LaSalle site are at a grade elevation of at least 710' mean sea level (MSL). The probable maximum flood elevation at the site (including coincident wave effects) is 522.5' (MSL). The probable maximum precipitation (based on conservative assumptions) results in a water level elevation at the site of 710.3' MSL. The RMIEP study concluded that external flood hazards are a non-significant risk contributor.

A.3.1 LaSalle Interim Fire PRA

The current LaSalle Fire PRA (FPRA) [Reference 13] is an interim implementation of NUREG/CR-6850; that is, not all tasks identified in NUREG/CR-6850 are yet completely addressed or implemented due to the changing state-of-the-art of industry at the time of the 2008-2009 LaSalle FPRA development.

NUREG/CR-6850 task limitations and other precautions regarding the 2008-2009 FPRA upgrade for LaSalle are as follows:

- Multiple Spurious Operation (MSO) Review (NUREG/CR-6850 Task 2) - MSOs are reviewed and considered; however, an expert panel is not used. At the time of the 2008 LaSalle FPRA the BWR Owners' Group was developing a generic list of MSOs to be considered. At future updates the list should be reviewed and incorporated as necessary.
- Instrumentation Review (NUREG/CR-6850 Task 2) - The new requirements of NUREG/CR-6850 regarding the explicit identification and modeling of instrumentation required to support PRA credited operator actions is not addressed. The industry treatment for this task is still being developed.
- The Balance of Plant (BOP) (NUREG/CR-6850 Task 2) - The BOP is not fully treated. BOP support system failure is conservatively assumed. Additional modeling could be conducted to reduce the fire CDF due to this assumption if time and funding is available in future updates.
- Large Early Release Frequency (LERF) (NUREG/CR-6850 Task 2) - LERF is not considered. LERF is expected to be addressed in future updates.
- Limited Analysis Iterations (NUREG/CR-6850 Task 9-12) - The process of conducting a FPRA is iterative, identifying conservative assumptions and high risk compartments and performing analyses to refine the assumptions and reduce those compartment risks. The ability to conduct iterations is limited based on resources. The scenarios developed for the 2008-2009 LaSalle FPRA may benefit from further refinement as necessary for application or for future updates.
- Multi-Compartment Review (NUREG/CR-6850 Task 11) - This subtask reviews the fire analysis compartment boundaries to ensure they are sufficiently robust to prevent the spread of fire between FPRA analysis compartments or that such propagations are adequately addressed by the developed scenarios. The design and plant layout of LaSalle make fire propagation to multiple compartments unlikely compared to the fire risk in individual compartments. RMIEP performed a multi-

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compartment analysis that can be used along with the results of the 2008-2009 FPRA as necessary.

- Seismic Fire Interactions (NUREG/CR-6850 Task 13) - This task reviews previous assessments to identify any specific interaction between suppression system and credited components or adverse impact of fire protection system interactions that should be accounted for in the FPRA. The results of RMIEP are considered appropriate for the LaSalle FPRA.
- Uncertainty and Sensitivity Analysis (NUREG/CR-6850 Task 15) - This task explores the impacts of possible variation of input parameters used in the development of the model and the inputs to the analysis on the FPRA results. This task is not currently addressed because the industry is still developing an appropriate methodology.

Some limitations of these items are:

- Item 1(MSO), represents a source of additional fire CDF contribution (i.e., if the BWROG MSO list includes MSOs not addressed in this update).
- Item 2 (Instrumentation Review) represents a potential additional fire CDF contribution that cannot be estimated at this time because the methodology is not established.
- Items 3 (BOP) and 8 (Uncertainty) are potential sources of conservatism in the results.
- Item 4 (LERF) is a future scope issue not affecting the fire CDF model.
- Items 5 (Iterations) and 6 (Multi-compartment) represent modeling assumptions that should be reviewed with each FPRA application to determine their applicability and/or potential impact on the decision.
- Item 7 (Seismic) is a FPRA application completeness issue for which the methodology is not yet established.

Given the above, the 2008-2009 LaSalle Unit 1 and Unit 2 FPRA models are judged to provide a meaningful representation of fire CDF contributors, and is appropriate for use in risk-informed decision-making, to the extent that these limitations are recognized and addressed in each application, as appropriate. The model is, however, "interim" due to the stated limitations.

A.3.2 Summary of External Events Treatment

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.

Therefore, in performing the assessments for the other hazard groups, the qualitative or bounding approach will be utilized in most cases. The interim fire PRA model will be exercised to obtain quantitative fire risk insights when a qualitative or a bounding analysis is not deemed sufficient, but refinements may need to be made on a case-by-case basis. This approach is consistent with the accepted NEI 04-10 methodology (refer to Figure 2 of NEI 04-10).

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A.4 Summary

The LaSalle PRA maintenance and update processes and technical capability evaluations described above provide a robust basis for concluding that the PRA is suitable for use in risk-informed processes such as that proposed for the implementation of a Surveillance Frequency Control Program. As indicated above, in addition to the standard set of sensitivity studies required per the NEI 04-10 methodology, open items for changes at the site and remaining gaps to specific requirements in the PRA standard will be reviewed to determine which, if any, would merit application-specific sensitivity studies in the presentation of the application results.

A.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 1, January 2007.
- [3] LaSalle PRA, LaSalle PRA Quantification Notebook, LS-PSA-014, Revision 7, January 2008.
- [4] Boiling Water Reactors Owners' Group, BWROG PSA Peer Review Certification Implementation Guidelines, Revision 3, January 1997.
- [5] Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications, (ASME RA-S-2002), Addenda RA-Sa-2003, and Addenda RA-Sb-2005, December 2005.
- [6] LaSalle PRA, Self-Assessment for LaSalle 2006 PRA Update, LS-PSA-016, Revision 1, September 2007.
- [7] LaSalle Generating Station PRA Peer Review Using ASME PRA Standard Requirements, July 2008.
- [8] LaSalle MSPI Basis Document, Revision 6, June 2008.
- [9] U.S. Nuclear Regulatory Commission Memorandum to Michael T. Lesar from Farouk Eltawila, "Notice of Clarification to Revision 1 of Regulatory Guide 1.200," for publication as a Federal Register Notice, July 27, 2007.
- [10] U.S. Nuclear Regulatory Commission, Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making, NUREG-1855, Vol. 1, Main Report, March 2009.
- [11] Treatment of Parameter and Model Uncertainty for Probabilistic Risk Assessments, EPRI, Palo Alto, CA: December 2008. TR-1016737.
- [12] U.S. Nuclear Regulatory Commission, Analysis of the LaSalle Unit 2 Nuclear Power Plant: Risk Methods Integration and Evaluation Program (RMIEP), NUREG/CR-4832, Vols. 1-10, October 1990 - November 1993.
- [13] LaSalle Fire PRA, LaSalle Unit 2 FPRA Summary and Quantification Report, LS-PSA-021.06, Rev. 0, December 2008.

ATTACHMENT 3
Markup of Proposed Technical Specifications Pages

LaSalle County Station, Units 1 and 2

Facility Operating License Nos. NPF-11 and NPF-18

REVISED TECHNICAL SPECIFICATIONS PAGES

3.1.3-4	3.3.3.2-2	3.5.1-4	3.7.2-1	3.8.4-5
3.1.4-2	3.3.4.1-3	3.5.1-5	3.7.3-2	3.8.6-3
3.1.5-3	3.3.4.1-4	3.5.2-3	3.7.4-3	3.8.6-4
3.1.6-2	3.3.4.2-3	3.5.2-4	3.7.4-4	3.8.7-3
3.1.7-1	3.3.5.1-7	3.5.3-2	3.7.5-3	3.8.8-2
3.1.7-2	3.3.5.2-3	3.5.3-3	3.7.6-2	3.9.1-2
3.1.7-3	3.3.6.1-4	3.6.1.1-3	3.7.7-1	3.9.2-1
3.1.8-2	3.3.6.1-5	3.6.1.1-4	3.7.7-2	3.9.2-2
3.2.1-1	3.3.6.2-3	3.6.1.2-4	3.7.8-1	3.9.3-1
3.2.2-1	3.3.7.1-2	3.6.1.3-6	3.8.1-7	3.9.5-1
3.2.3-1	3.3.8.1-2	3.6.1.3-7	3.8.1-8	3.9.6-1
3.3.1.1-3	3.3.8.2-4	3.6.1.3-8	3.8.1-9	3.9.7-1
3.3.1.1-4	3.4.1-3	3.6.1.4-1	3.8.1-10	3.9.8-3
3.3.1.1-5	3.4.2-1	3.6.1.5-1	3.8.1-11	3.9.9-3
3.3.1.1-6	3.4.2-2	3.6.1.6-2	3.8.1-12	3.10.1-2
3.3.1.2-3	3.4.3-2	3.6.1.6-3	3.8.1-13	3.10.2-3
3.3.1.2-4	3.4.5-2	3.6.2.1-2	3.8.1-14	3.10.3-3
3.3.1.2-5	3.4.7-3	3.6.2.2-1	3.8.1-15	3.10.3-4
3.3.1.3-3	3.4.8-2	3.6.2.3-2	3.8.1-16	3.10.4-2
3.3.2.1-3	3.4.9-3	3.6.2.4-2	3.8.1-17	3.10.4-3
3.3.2.1-4	3.4.10-2	3.6.3.2-1	3.8.1-18	3.10.5-2
3.3.2.1-5	3.4.11-3	3.6.4.1-3	3.8.1-19	3.10.7-3
3.3.2.2-2	3.4.11-4	3.6.4.2-4	3.8.3-3	3.10.7-4
3.3.2.2-3	3.4.11-5	3.6.4.3-3	3.8.4-3	5.5-15
3.3.3.1-3	3.4.12-1	3.7.1-2	3.8.4-4	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>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 \geq 800 psig.</p>	<p>120 days cumulative operation in MODE 1</p> <p>In accordance with the Surveillance Frequency Control Program</p>
<p>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.</p>	<p>Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time</p>
<p>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 \geq 800 psig.</p>	<p>Prior to exceeding 40% RTP after fuel movement within the affected core cell</p> <p><u>AND</u></p> <p>Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time</p>

ACTIONS

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 \geq 940 psig.	7 days In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Nine or more OPERABLE control rods not in compliance with the analyzed rod position sequence.	B.1 -----NOTE----- 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 the analyzed rod position sequence.	24 hours In accordance with the Surveillance Frequency Control Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SLC subsystem inoperable.	A.1 Restore SLC subsystem to OPERABLE status.	7 days
B. Two SLC subsystems inoperable.	B.1 Restore one SLC subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 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

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.7.2 Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-2.	24 hours ←
SR 3.1.7.3 Verify temperature of pump suction piping up to the storage tank outlet valves is ≥ 68°F.	24 hours ←
SR 3.1.7.4 Verify continuity of explosive charge.	31 days ←
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 ← <u>AND</u> Once within 24 hours after water or sodium pentaborate is added to solution <u>AND</u> Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.6	Verify each SLC 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.	31 days ←
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1220 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 ←
SR 3.1.7.9	Verify all heat traced piping between storage tank and storage tank outlet valves is unblocked.	24 months ← <u>AND</u> Once within 24 hours after piping temperature is restored within the limits of Figure 3.1.7-2

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>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.</p>	<p>31 days ←</p>
<p>SR 3.1.8.2 Cycle each SDV vent and drain valve to the fully closed and fully open position.</p>	<p>92 days ←</p>
<p>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.</p>	<p>24 months ←</p>

In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

LC0 3.2.1 All APLHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER \geq 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 \geq 25% RTP <u>AND</u> 24 hours thereafter

In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LC0 3.2.2 All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.

APPLICABILITY: THERMAL POWER \geq 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 \geq 25% RTP <u>AND</u> 24 hours thereafter

(continued)

In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

LC0 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER \geq 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 \geq 25% RTP AND 24 hours thereafter

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.	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 ≤ 2% RTP while operating at ≥ 25% RTP.	7 days ←
SR 3.3.1.1.3	Adjust the channel to conform to a calibrated flow signal.	7 days ←
SR 3.3.1.1.4	-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2. Perform CHANNEL FUNCTIONAL TEST.	7 days ←

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	7 days ←
SR 3.3.1.1.6	Verify the source range monitor (SRM and intermediate range monitor (IRM) channels overlap.	Prior to fully withdrawing SRMs
SR 3.3.1.1.7	-----NOTE----- Only required to be met during entry into MODE 2 from MODE 1. ----- Verify the IRM and APRM channels overlap.	7 days ←
SR 3.3.1.1.8	Calibrate the local power range monitors.	2000 effective full power hours ←
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.1.1.10	Perform CHANNEL CALIBRATION.	92 days ←

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.11	<p>-----NOTES-----</p> <p>1. Neutron detectors are excluded.</p> <p>2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	184 days ←
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 months ←
SR 3.3.1.1.13	<p>-----NOTES-----</p> <p>1. Neutron detectors are excluded.</p> <p>2. For Function 1.a, not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	24 months ←
SR 3.3.1.1.14	Verify the APRM Flow Biased Simulated Thermal Power–Upscale time constant is ≤ 7 seconds.	24 months ←
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←

(continued)

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.1.1.16 Verify Turbine Stop Valve-Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure-Low Functions are not bypassed when THERMAL POWER is \geq 25% RTP.	24 months
SR 3.3.1.1.17 -----NOTES----- 1. Neutron detectors are excluded. 2. For Function 5, "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. 3. For Function 9, the RPS RESPONSE TIME is measured from start of turbine control valve fast closure. ----- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

In accordance with the Surveillance Frequency Control Program

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.	12 hours ←
SR 3.3.1.2.2	<p>-----NOTES-----</p> <p>1. Only required to be met during CORE ALTERATIONS.</p> <p>2. One SRM may be used to satisfy more than one of the following.</p> <p>-----</p> <p>Verify an OPERABLE SRM detector is located in:</p> <p>a. The fueled region;</p> <p>b. The core quadrant where CORE ALTERATIONS are being performed when the associated SRM is included in the fueled region; and</p> <p>c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.</p>	12 hours ←
SR 3.3.1.2.3	Perform CHANNEL CHECK.	24 hours ←

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>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. -----</p> <p>Verify count rate is:</p> <p>a. ≥ 3.0 cps; or</p> <p>b. ≥ 0.7 cps with a signal to noise ratio $\geq 20:1$.</p>	<p>12 hours ←</p> <p>during CORE ALTERATIONS</p> <p><u>AND</u></p> <p>24 hours</p>
<p>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. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.</p>	<p>7 days ←</p>
<p>SR 3.3.1.2.6 -----NOTE----- Not required to be performed until 12 hours after IRMs on Range 2 or below. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.</p>	<p>31 days ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.1.2.7 -----NOTES----- 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. ----- Perform CHANNEL CALIBRATION.	<div style="border: 1px solid red; padding: 2px;"> In accordance with the Surveillance Frequency Control Program </div> 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 OPRM maintains trip capability.

SURVEILLANCE	FREQUENCY
SR 3.3.1.3.1 Perform CHANNEL FUNCTIONAL TEST.	184 days ←
SR 3.3.1.3.2 Calibrate the local power range monitors.	2000 effective full power hours ←
SR 3.3.1.3.3 -----NOTE----- Neutron detectors are excluded. ----- Perform CHANNEL CALIBRATION. The setpoints for the trip function shall be as specified in the COLR.	24 months ←
SR 3.3.1.3.4 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←
SR 3.3.1.3.5 Verify OPRM is not bypassed when THERMAL POWER is ≥ 28.6% RTP and recirculation drive flow is < 60% of rated recirculation drive flow.	24 months ←
SR 3.3.1.3.6 -----NOTE----- Neutron detectors are excluded. ----- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS ←

In accordance with the Surveillance Frequency Control Program

ACTIONS

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

SURVEILLANCE REQUIREMENTS

- NOTES -----
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.	92 days In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.1.2 -----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn at $\leq 10\%$ RTP in MODE 2. ----- Perform CHANNEL FUNCTIONAL TEST.</p>	<p>92 days ←</p>
<p>SR 3.3.2.1.3 -----NOTE----- Not required to be performed until 1 hour after THERMAL POWER is $\leq 10\%$ RTP in MODE 1. ----- Perform CHANNEL FUNCTIONAL TEST.</p>	<p>92 days ←</p>
<p>SR 3.3.2.1.4 -----NOTE----- Neutron detectors are excluded. ----- Perform CHANNEL CALIBRATION.</p>	<p>92 days ←</p>
<p>SR 3.3.2.1.5 -----NOTE----- Neutron detectors are excluded. ----- Verify the RBM is not bypassed when THERMAL POWER is $\geq 30\%$ RTP and a peripheral control rod is not selected.</p>	<p>92 days ←</p>
<p>SR 3.3.2.1.6 Verify the RWM is not bypassed when THERMAL POWER is $\leq 10\%$ RTP.</p>	<p>24 months ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>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.</p>	<p style="border: 1px solid red; padding: 2px; display: inline-block;">In accordance with the Surveillance Frequency Control Program</p> 24 months
<p>SR 3.3.2.1.8 Verify control rod sequences input to the RWM are in conformance with analyzed rod position sequence.</p>	<p>Prior to declaring RWM OPERABLE following loading of sequence into RWM</p>
<p>SR 3.3.2.1.9 Verify the bypassing and position of control rods required to be bypassed in RWM by a second licensed operator or other qualified member of the technical staff.</p>	<p>Prior to and during the movement of control rods bypassed in RWM</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 -----NOTE----- Only applicable if inoperable channel is the result of an inoperable motor-driven feedwater pump breaker or feedwater turbine stop valve. ----- Remove affected feedwater pump(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 system and main turbine high water level trip capability is maintained.

SURVEILLANCE	FREQUENCY
SR 3.3.2.2.1 Perform CHANNEL CHECK.	12 hours ←
SR 3.3.2.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days ←

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.2.2.3 Perform CHANNEL CALIBRATION. The Allowable Value shall be \leq 59.5 inches.	24 months
SR 3.3.2.2.4 Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker and valve actuation.	24 months

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

- NOTES -----
- 1. These SRs apply to each Function in Table 3.3.3.1-1.
 - 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 other required channel in the associated Function is OPERABLE.
-

SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1 Perform CHANNEL CHECK.	31 days
SR 3.3.3.1.2 (Deleted)	
SR 3.3.3.1.3 Perform CHANNEL CALIBRATION.	24 months

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When an instrumentation 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.	31 days ←
SR 3.3.3.2.2 Perform CHANNEL CALIBRATION for each required instrumentation channel.	24 months ←

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 EOC-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.4.1.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. TSV-Closure: ≤ 8.9% closed; and b. TCV Fast Closure, Trip Oil Pressure-Low: ≥ 425.5 psig.	24 months ←
SR 3.3.4.1.3	Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	24 months ←
SR 3.3.4.1.4	Verify TSV-Closure and TCV Fast Closure, Trip Oil Pressure-Low Functions are not bypassed when THERMAL POWER is ≥ 25% RTP.	24 months ←

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.4.1.5 -----NOTE----- Breaker arc suppression time may be assumed from the most recent performance of SR 3.3.4.1.6. -----</p> <p>Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.</p>	<p>24 months on a STAGGERED TEST BASIS</p>
<p>SR 3.3.4.1.6 Determine RPT breaker arc suppression time.</p>	<p>60 months</p>

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 3.3.4.2.1	Perform CHANNEL CHECK.	12 hours ←
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level—Low Low, Level 2: \geq -54 inches; and b. Reactor Steam Dome Pressure—High: \leq 1147 psig.	24 months ←
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	24 months ←

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.d, 3.e, and 3.f; and (b) for up to 6 hours for Functions other than 3.c, 3.d, 3.e, and 3.f, provided the associated Function or the redundant Function maintains ECCS initiation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.5.1.1 Perform CHANNEL CHECK.	12 hours ←
SR 3.3.5.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.5.1.3 Perform CHANNEL CALIBRATION.	92 days ←
SR 3.3.5.1.4 Perform CHANNEL CALIBRATION.	24 months ←
SR 3.3.5.1.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←
SR 3.3.5.1.6 Verify ECCS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS ←

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.	12 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	24 months
SR 3.3.5.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status.	Immediately
	<u>OR</u>	
	J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling (SDC) System.	Immediately

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 for up to 6 hours provided the associated Function maintains isolation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	12 hours ←
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.6.1.3 Perform CHANNEL CALIBRATION.	92 days ←

(continued)

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	24 months ←
SR 3.3.6.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←
SR 3.3.6.1.6	Verify the ISOLATION SYSTEM RESPONSE TIME of the Main Steam Isolation Valves is within limits.	24 months on a STAGGERED TEST BASIS ←

In accordance with the Surveillance Frequency Control Program

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 isolation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.6.2.1 Perform CHANNEL CHECK.	12 hours ←
SR 3.3.6.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.6.2.3 Perform CHANNEL CALIBRATION.	24 months ←
SR 3.3.6.2.4 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Place the associated CRAF subsystem in the pressurization mode of operation.	1 hour
	<u>OR</u>	
	B.2 Declare associated CRAF subsystem inoperable.	1 hour

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 CRAF subsystem initiation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.7.1.1 Perform CHANNEL CHECK.	12 hours ←
SR 3.3.7.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days ←
SR 3.3.7.1.3 Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 11.0 mR/hr.	24 months ←
SR 3.3.7.1.4 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.8.1-1 to determine which SRs apply for each LOP 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 2 hours provided the associated Function maintains LOP initiation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.8.1.1 Perform CHANNEL FUNCTIONAL TEST.	18 months ←
SR 3.3.8.1.2 Perform CHANNEL CALIBRATION.	18 months ←
SR 3.3.8.1.3 Perform CHANNEL FUNCTIONAL TEST.	24 months ←
SR 3.3.8.1.4 Perform CHANNEL CALIBRATION.	24 months ←
SR 3.3.8.1.5 Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months ←

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.2.1 -----NOTE----- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	<p>184 days ←</p>
<p>SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:</p> <p>a. Overvoltage ≤ 131.4 V (with time delay set to ≤ 3.92 seconds).</p> <p>b. Undervoltage ≥ 108.7 V (with time delay set to ≤ 3.92 seconds).</p> <p>c. Underfrequency ≥ 57.3 Hz (with time delay set to ≤ 3.92 seconds)</p>	<p>24 months ←</p>
<p>SR 3.3.8.2.3 Perform a system functional test.</p>	<p>24 months ←</p>

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.1.1 -----NOTE----- Not required to be performed until 24 hours after both recirculation loops are in operation. -----</p> <p>Verify recirculation loop jet pump flow mismatch with both recirculation loops in operation is:</p> <p>a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and</p> <p>b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.</p>	<p>24 hours</p> <div style="border: 1px solid red; padding: 2px; width: fit-content;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Flow Control Valves (FCVs)

LC0 3.4.2 A recirculation loop FCV shall be OPERABLE in each operating recirculation loop.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required FCVs inoperable.	A.1 Lock up the FCV.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify each FCV fails "as is" on loss of hydraulic pressure at the hydraulic unit.	24 months In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.2 Verify average rate of each FCV movement is: a. ≤ 11% of stroke per second for opening; and b. ≤ 11% of stroke per second for closing.	24 months <div style="border: 1px solid red; padding: 2px;">In accordance with the Surveillance Frequency Control Program</div>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.3.1 -----NOTES-----</p> <ol style="list-style-type: none"> 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. <p>-----</p> <p>Verify at least two of the following criteria (a, b, and c) are satisfied for each operating recirculation loop:</p> <ol style="list-style-type: none"> a. Recirculation loop drive flow versus flow control valve position differs by $\leq 10\%$ from established patterns. b. Indicated total core flow versus calculated total core flow differs by $\leq 10\%$ from established patterns. c. Each jet pump diffuser to lower plenum differential pressure differs by $\leq 20\%$ from established patterns. 	<p>24 hours</p> <div style="border: 1px solid red; padding: 5px; width: fit-content;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Verify source of unidentified LEAKAGE increase is not intergranular stress corrosion cracking susceptible material.	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 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.5.1 Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	12 hours 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 3.4.7.1	Perform CHANNEL CHECK of required drywell atmospheric monitoring system.	12 hours
SR 3.4.7.2	Perform CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	31 days
SR 3.4.7.3	Perform CHANNEL CALIBRATION of required leakage detection instrumentation.	24 months

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 3.4.8.1 -----NOTE----- Only required to be performed in MODE 1. ----- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is $\leq 0.2 \mu\text{Ci/gm}$.	7 days <div style="border: 1px solid red; padding: 2px; display: inline-block;"> In accordance with the Surveillance Frequency Control Program </div>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.9.1 -----NOTE----- Not required to be met until 2 hours after reactor vessel pressure is less than the RHR cut-in permissive pressure. ----- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.</p>	<p>12 hours In accordance with the Surveillance Frequency Control Program</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. <u>AND</u> No recirculation pump in operation.	B.1 Verify reactor coolant circulating by an alternate method.	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter
	<u>AND</u> B.2 Monitor reactor coolant temperature and pressure.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.10.1 Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	12 hours In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.11.1 -----NOTE----- Only required to be performed during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing. -----</p> <p>Verify:</p> <ul style="list-style-type: none"> a. RCS pressure and RCS temperature are within the applicable limits specified in Figures 3.4.11-1, 3.4.11-2, 3.4.11-3 for Unit 1 up to 20 EFPY, and Figures 3.4.11-4, 3.4.11-5, and 3.4.11-6 for Unit 2 up to 20 EFPY; b. RCS heatup and cooldown rates are $\leq 100^{\circ}\text{F}$ in any 1 hour period; and c. RCS temperature change during system leakage and hydrostatic testing is $\leq 20^{\circ}\text{F}$ in any one hour period when the RCS pressure and RCS temperature are not within the limits of Figure 3.4.11-2 for Unit 1 up to 20 EFPY and Figure 3.4.11-5 for Unit 2 up to 20 EFPY. 	<p>30 minutes</p> <p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.11.2 Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.11-3 for Unit 1 up to 20 EFPY and Figure 3.4.11-6 for Unit 2 up to 20 EFPY.</p>	<p>Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.11.3 -----NOTE----- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. -----</p> <p>Verify the difference between the bottom head coolant temperature and the reactor pressure vessel (RPV) coolant temperature is $\leq 145^{\circ}\text{F}$.</p>	<p>Once within 15 minutes prior to each startup of a recirculation pump</p>
<p>SR 3.4.11.4 -----NOTE----- Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. -----</p> <p>Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is $\leq 50^{\circ}\text{F}$.</p>	<p>Once within 15 minutes prior to each startup of a recirculation pump</p>
<p>SR 3.4.11.5 -----NOTE----- Only required to be performed when tensioning the reactor vessel head bolting studs. -----</p> <p>Verify reactor vessel flange and head flange temperatures are $\geq 72^{\circ}\text{F}$ for Unit 1 and $\geq 86^{\circ}\text{F}$ for Unit 2.</p>	<p>30 minutes In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.11.6 -----NOTE----- Not required to be performed until 30 minutes after RCS temperature $\leq 77^{\circ}\text{F}$ for Unit 1 and $\leq 91^{\circ}\text{F}$ for Unit 2 in MODE 4. -----</p> <p>Verify reactor vessel flange and head flange temperatures are $\geq 72^{\circ}\text{F}$ for Unit 1 and $\geq 86^{\circ}\text{F}$ for Unit 2.</p>	<p>30 minutes ←</p>
<p>SR 3.4.11.7 -----NOTE----- Not required to be performed until 12 hours after RCS temperature $\leq 92^{\circ}\text{F}$ for Unit 1 and $\leq 106^{\circ}\text{F}$ for Unit 2 in MODE 4. -----</p> <p>Verify reactor vessel flange and head flange temperatures are $\geq 72^{\circ}\text{F}$ for Unit 1 and $\geq 86^{\circ}\text{F}$ for Unit 2.</p>	<p>12 hours ←</p>

In accordance with the
Surveillance Frequency
Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Reactor Steam Dome Pressure

LC0 3.4.12 The reactor steam dome pressure shall be \leq 1020 psig.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.12.1 Verify reactor steam dome pressure is \leq 1020 psig.	12 hours In accordance with the Surveillance Frequency Control Program

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.		31 days ←
SR 3.5.1.2	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.		31 days ←
SR 3.5.1.3	Verify ADS accumulator supply header pressure is ≥ 150 psig.		31 days ←
SR 3.5.1.4	Verify ADS accumulator backup compressed gas system bottle pressure is ≥ 500 psig.		31 days ←
SR 3.5.1.5	Verify each ECCS pump develops the specified flow rate against the specified test line pressure.		In accordance with the Inservice Testing Program
	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>TEST LINE PRESSURE</u>
	LPCS	≥ 6350 gpm	≥ 290 psig
	LPCI	≥ 7200 gpm	≥ 130 psig
	HPCS (Unit 1)	≥ 6250 gpm	≥ 370 psig
	HPCS (Unit 2)	≥ 6200 gpm	≥ 330 psig

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.6 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months ←</p>
<p>SR 3.5.1.7 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months ←</p>
<p>SR 3.5.1.8 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify each required ADS valve actuator strokes when manually actuated.</p>	<p>24 months ←</p>

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY															
SR 3.5.2.1	Verify, for each required low pressure ECCS injection/spray subsystem, the suppression pool water level is \geq -12 ft 7 in.	12 hours ←															
SR 3.5.2.2	Verify, for the required High Pressure Core Spray (HPCS) System, the suppression pool water level is \geq -12 ft 7 in.	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.	31 days ←															
SR 3.5.2.4	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.	31 days ←															
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate against the specified test line pressure.	In accordance with the Inservice Testing Program															
	<table border="1"> <thead> <tr> <th><u>SYSTEM</u></th> <th><u>FLOW RATE</u></th> <th><u>TEST LINE PRESSURE</u></th> </tr> </thead> <tbody> <tr> <td>LPCS</td> <td>\geq 6350 gpm</td> <td>\geq 290 psig</td> </tr> <tr> <td>LPCI</td> <td>\geq 7200 gpm</td> <td>\geq 130 psig</td> </tr> <tr> <td>HPCS (Unit 1)</td> <td>\geq 6250 gpm</td> <td>\geq 370 psig</td> </tr> <tr> <td>HPCS (Unit 2)</td> <td>\geq 6200 gpm</td> <td>\geq 330 psig</td> </tr> </tbody> </table>	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>TEST LINE PRESSURE</u>	LPCS	\geq 6350 gpm	\geq 290 psig	LPCI	\geq 7200 gpm	\geq 130 psig	HPCS (Unit 1)	\geq 6250 gpm	\geq 370 psig	HPCS (Unit 2)	\geq 6200 gpm	\geq 330 psig	
<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>TEST LINE PRESSURE</u>															
LPCS	\geq 6350 gpm	\geq 290 psig															
LPCI	\geq 7200 gpm	\geq 130 psig															
HPCS (Unit 1)	\geq 6250 gpm	\geq 370 psig															
HPCS (Unit 2)	\geq 6200 gpm	\geq 330 psig															

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>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.</p>	<p>In accordance with the Surveillance Frequency Control Program 24 months</p>

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.	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.	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 ≤ 1020 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 600 gpm against a system head corresponding to reactor pressure.	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 ≥ 600 gpm against a system head corresponding to reactor pressure.	24 months ←

(continued)

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.5 -----NOTE----- Vessel injection may be excluded. ----- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.</p>	<p style="border: 1px solid red; padding: 2px;">In accordance with the Surveillance Frequency Control Program</p> <p>24 months</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.1.3 Verify drywell-to-suppression chamber bypass leakage is $\leq 10\%$ of the acceptable $A\sqrt{k}$ design value of 0.030 ft^2 at an initial differential pressure of $\geq 1.5 \text{ psid}$.</p>	<p>120 months ←</p> <p><u>AND</u></p> <p>48 months following a test with bypass leakage greater than the bypass leakage limit</p> <p><u>AND</u></p> <p>24 months following 2 consecutive tests with bypass leakage greater than the bypass leakage limit until 2 consecutive tests are less than or equal to the bypass leakage limit</p>
<p>SR 3.6.1.1.4 -----NOTE----- Performance of SR 3.6.1.1.3 satisfies this surveillance. -----</p> <p>Verify individual drywell-to-suppression chamber vacuum relief valve bypass leakage is $\leq 1.2\%$ of the acceptable $A\sqrt{k}$ design value of 0.030 ft^2 at an initial differential pressure of $\geq 1.5 \text{ psid}$.</p>	<p>24 months ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.1.5 -----NOTE----- Performance of SR 3.6.1.1.3 satisfies this surveillance. -----</p> <p>Verify total drywell-to-suppression chamber vacuum relief valve bypass leakage is $\leq 3.0\%$ of the acceptable $A\sqrt{k}$ design value of 0.030 ft^2 at an initial differential pressure of $\geq 1.5 \text{ psid}$.</p>	<p>24 months</p> <p>In accordance with the Surveillance Frequency Control Program</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.3 Restore air lock to OPERABLE status.	24 hours
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 acceptance 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.	24 months <div style="border: 1px solid red; padding: 2px; display: inline-block;"> In accordance with the Surveillance Frequency Control Program </div>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.1 -----NOTE----- Not required to be met when the 8 inch and 26 inch primary containment 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 drywell purge valves and suppression chamber purge valves are not open simultaneously. ----- Verify each 8 inch and 26 inch primary containment purge valve is closed.</p>	<p>31 days ←</p>
<p>SR 3.6.1.3.2 -----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 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.</p>	<p>31 days ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 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. <p>-----</p> <p>Verify each primary containment isolation manual 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.</p>	<p>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</p>
SR 3.6.1.3.4	<p>Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.</p>	<p>31 days In accordance with the Surveillance Frequency Control Program</p>
SR 3.6.1.3.5	<p>Verify the isolation time of each power operated, automatic PCIV, except MSIVs, is within limits.</p>	<p>In accordance with the Inservice Testing Program</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months ←
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on an actual or simulated instrument line break signal.	24 months ←
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS ←
SR 3.6.1.3.10	Verify leakage rate through any one main steam line is ≤ 100 scfh and through all four main steam lines is ≤ 400 scfh when tested at ≥ 25.0 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify combined leakage rate through hydrostatically tested lines that penetrate the primary containment is within limits.	In accordance with the Primary Containment Leakage Rate Testing Program

In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell and Suppression Chamber Pressure

LC0 3.6.1.4 Drywell and suppression chamber pressure shall be ≥ -0.5 psig and $\leq +0.75$ psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell or suppression chamber pressure not within limits.	A.1 Restore drywell and suppression chamber pressure to within limits.	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 and suppression chamber pressure is within limits.	12 hours In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Drywell Air Temperature

LC0 3.6.1.5 Drywell average air temperature shall be $\leq 135^{\circ}\text{F}$.

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
	<u>AND</u> 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.	24 hours In accordance with the Surveillance Frequency Control Program

Suppression Chamber-to-Drywell Vacuum Breakers
3.6.1.6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or more suppression chamber-to-drywell vacuum breakers inoperable.	E.1 Enter LCO 3.0.3.	Immediately

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.	14 days
SR 3.6.1.6.2 Perform a functional test of each vacuum breaker.	92 days <u>AND</u> Within 12 hours after any discharge of steam to the suppression chamber from the safety/relief valves

(continued)

In accordance with the Surveillance Frequency Control Program

Suppression Chamber-to-Drywell Vacuum Breakers
3.6.1.6

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.6.3 Verify the opening setpoint of each vacuum breaker is \leq 0.5 psid.	24 months In accordance with the Surveillance Frequency Control Program

Suppression Pool Average Temperature
3.6.2.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Suppression pool average temperature > 110°F but ≤ 120°F.	C.1 Place the reactor mode switch in the shutdown position.	Immediately
	<u>AND</u>	
	C.2 Verify suppression pool average temperature ≤ 120°F.	Once per 30 minutes
	<u>AND</u>	
	C.3 Be in MODE 4.	36 hours
D. Suppression pool average temperature > 120°F.	D.1 Depressurize the reactor vessel to < 200 psig.	12 hours
	<u>AND</u>	
	D.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.	24 hours In accordance with the Surveillance Frequency Control Program <u>AND</u> 5 minutes when performing testing that adds heat to the suppression pool

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LC0 3.6.2.2 Suppression pool water level shall be ≥ -4.5 inches and $\leq +3$ inches.

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
	<u>AND</u> 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.	24 hours 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 and power operated 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 3.6.2.3.2	Verify each required RHR pump develops a flow rate ≥ 7200 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 each RHR suppression pool spray subsystem manual and power operated 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 3.6.2.4.2	Verify each required RHR pump develops a flow rate ≥ 450 gpm through the spray sparger while operating in the suppression pool spray mode.	In accordance with the Inservice Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LC0 3.6.3.2 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 \leq 15% RTP.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.2.1 Verify primary containment oxygen concentration is within limits.	7 days In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	24 hours ←
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed.	31 days ←
SR 3.6.4.1.3	Verify the secondary containment can be drawn down to ≥ 0.25 inch of vacuum water gauge in ≤ 300 seconds using one standby gas treatment (SGT) subsystem.	24 months on a STAGGERED TEST BASIS for each SGT subsystem ←
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 ≤ 4400 cfm.	24 months on a STAGGERED TEST BASIS for each SGT subsystem ←
SR 3.6.4.1.5	Verify all secondary containment equipment hatches are closed and sealed.	24 months ←

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.1	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 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. <p>-----</p> <p>Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed or otherwise secured in position and is required to be closed during accident conditions is closed.</p>	<p>31 days ←</p>
SR 3.6.4.2.2	<p>Verify the isolation time of each power operated, automatic SCIV is within limits.</p>	<p>92 days ←</p>
SR 3.6.4.2.3	<p>Verify each automatic SCIV actuates to the isolation position on an actual or simulated automatic isolation signal.</p>	<p>24 months ←</p>

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.3.1 Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating.	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.	24 months ←

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
C. Both RHRSW subsystems inoperable.	C.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.4.9 for RHR shutdown cooling subsystems made inoperable by RHRSW System. ----- Restore one RHRSW subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time of Condition C 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 3.7.1.1 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.	31 days <div style="border: 1px solid red; padding: 2px; display: inline-block;">In accordance with the Surveillance Frequency Control Program</div>

3.7 PLANT SYSTEMS

3.7.2 Diesel Generator Cooling Water (DGCW) System

LCO 3.7.2 The following DGCW subsystems shall be OPERABLE:

- a. Three DGCW subsystems; and
- b. The opposite unit Division 2 DGCW subsystem.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each DGCW subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGCW subsystems inoperable.	A.1 Declare supported component(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.2.1 Verify each DGCW 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.	31 days
SR 3.7.2.2 Verify each DGCW pump starts automatically on each required actual or simulated initiation signal.	24 months

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify cooling water temperature supplied to the plant from the CSCS pond is $\leq 101.25^{\circ}\text{F}$.	24 hours
SR 3.7.3.2	Verify sediment level is ≤ 1.5 ft in the intake flume and the CSCS pond.	24 months
SR 3.7.3.3	Verify CSCS pond bottom elevation is ≤ 686.5 ft.	24 months

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Two CRAF subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p> <p><u>OR</u></p> <p>One or more CRAF subsystems inoperable due to inoperable CRE boundary during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p> <p><u>AND</u></p> <p>F.2 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>F.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.4.1 Operate each CRAF subsystem for ≥ 10 continuous hours with the heaters operating.</p>	<p>31 days In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.2	Manually initiate flow through the CRAF recirculation filters for ≥ 10 hours.	31 days ←
SR 3.7.4.3	Perform required CRAF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.4	Verify each CRAF subsystem actuates on an actual or simulated initiation signal.	24 months ←
SR 3.7.4.5	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. -----	
	E.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	E.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.5.1 Monitor control room and auxiliary electric equipment room temperatures.	12 hours ←
SR 3.7.5.2 Verify correct breaker alignment and indicated power are available to the control room area ventilation AC subsystems.	7 days ←

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.6.1 -----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 $\leq 340,000 \mu\text{Ci/second}$ after decay of 30 minutes.</p>	<p>31 days In accordance with the Surveillance Frequency Control Program <u>AND</u> Once within 4 hours after a $\geq 50\%$ increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level</p>

3.7 PLANT SYSTEMS

3.7.7 Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

OR

LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the COLR, are made applicable.

APPLICABILITY: THERMAL POWER \geq 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	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 3.7.7.1 Verify one complete cycle of each main turbine bypass valve.	31 days

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.7.2 Perform a system functional test.	24 months ←
SR 3.7.7.3 Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	24 months ←

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

- NOTES-----
1. SR 3.8.1.1 through SR 3.8.1.20 are applicable only to the given unit's AC electrical power sources.
 2. SR 3.8.1.21 is applicable to the required opposite unit's DG.
-

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.1 Verify correct breaker alignment and indicated power availability for each required offsite circuit.</p>	<p style="text-align: center;">7 days</p> <div style="border: 1px solid red; padding: 2px; display: inline-block; text-align: center;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>
<p>SR 3.8.1.2 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. 3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. <p style="text-align: center;">-----</p> <p>Verify each required DG starts from standby conditions and achieves steady state voltage ≥ 4010 V and ≤ 4310 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	<p style="text-align: center;">31 days</p> <div style="border: 1px solid red; padding: 2px; display: inline-block; text-align: center;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3 -----NOTES-----</p> <ol style="list-style-type: none"> 1. DG 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 DG at a time. 4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. 5. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. <p>-----</p> <p>Verify each required DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2400 kW and ≤ 2600 kW.</p>	<p>31 days ←</p>
<p>SR 3.8.1.4 Verify each required day tank contains ≥ 250 gal of fuel oil for Divisions 1 and 2 and ≥ 550 gal for Division 3.</p>	<p>31 days ←</p>
<p>SR 3.8.1.5 Check for and remove accumulated water from each required day tank.</p>	<p>31 days ←</p>
<p>SR 3.8.1.6 Verify each required fuel oil transfer system operates to automatically transfer fuel oil from storage tanks to the day tank.</p>	<p>92 days ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.7 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. <p>-----</p> <p>Verify each required DG starts from standby condition and achieves:</p> <ol style="list-style-type: none"> a. In ≤ 13 seconds, voltage ≥ 4010 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 4010 V and ≤ 4310 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz. 	<p>184 days ←</p>
<p>SR 3.8.1.8 -----NOTE-----</p> <p>This Surveillance shall not normally be performed in MODE 1 or 2. However, this 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.</p> <p>-----</p> <p>Verify manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.</p>	<p>24 months ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.9 -----NOTES-----</p> <p>1. This Surveillance shall not normally be performed in MODE 1 or 2. However, this 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.</p> <p>2. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</p> <p>-----</p> <p>Verify each required DG rejects a load greater than or equal to its associated single largest post-accident load and following load rejection, the frequency is ≤ 66.7 Hz.</p>	<p>24 months ←</p>
<p>SR 3.8.1.10 -----NOTES-----</p> <p>1. This Surveillance shall not normally be performed in MODE 1 or 2. However, this 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.</p> <p>2. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units.</p> <p>-----</p> <p>Verify each required DG does not trip and voltage is maintained ≤ 5000 V during and following a load rejection of a load ≥ 2600 kW.</p>	<p>24 months ←</p>

(continued)

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.11 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1 or 2. 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. <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses for Divisions 1 and 2 only; and c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 13 seconds, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage ≥ 4010 V and ≤ 4310 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. 	<p>24 months</p> <div style="border: 1px solid red; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.12 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1 or 2. 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. <p>-----</p> <p>Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each required DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> a. In ≤ 13 seconds after auto-start, achieves voltage ≥ 4010 V and frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 4010 V and ≤ 4310 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes. 	<p>24 months</p> <div style="border: 1px solid red; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13 -----NOTE----- This Surveillance shall not normally be performed in MODE 1 or 2. However, this 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 each required DG's automatic trips are bypassed on an actual or simulated ECCS initiation signal except:</p> <ul style="list-style-type: none"> a. Engine overspeed; and b. Generator differential current. 	<p>24 months</p> <div style="border: 1px solid red; padding: 2px; display: inline-block;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.14 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not normally be performed in MODE 1 or 2 unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this Surveillance shall be suspended. However, this 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. 3. 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. 4. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. <p>-----</p> <p>Verify each required DG operating within the power factor limit operates for ≥ 24 hours:</p> <ol style="list-style-type: none"> a. For ≥ 2 hours loaded ≥ 2860 kW; and b. For the remaining hours of the test loaded ≥ 2400 kW and ≤ 2600 kW. 	<p>24 months</p> <div style="border: 1px solid red; padding: 5px; width: fit-content;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.15 -----NOTES-----</p> <ol style="list-style-type: none"> 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2400 kW and ≤ 2600 kW. <p style="padding-left: 40px;">Momentary transients outside of load range do not invalidate this test.</p> <ol style="list-style-type: none"> 2. All DG starts may be preceded by an engine prelube period. 3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. <p>-----</p> <p>Verify each required DG starts and achieves:</p> <ol style="list-style-type: none"> a. In ≤ 13 seconds, voltage ≥ 4010 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 4010 V and ≤ 4310 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz. 	<p>24 months</p> <div style="border: 1px solid red; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.16 -----NOTE----- This Surveillance shall not normally be performed in MODE 1 or 2. However, this 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 each required DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.</p>	<p>24 months</p> <div style="border: 1px solid red; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.17 -----NOTE----- This Surveillance shall not normally be performed in MODE 1 or 2. 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, with a required DG operating in test mode and connected to its bus:</p> <ul style="list-style-type: none"> a. For Division 1 and 2 DGs, an actual or simulated ECCS initiation signal overrides the test mode by returning DG to ready-to-load operation; and b. For Division 3 DG, an actual or simulated DG overcurrent trip signal automatically disconnects the offsite power source while the DG continues to supply normal loads. 	<p>24 months ←</p>
<p>SR 3.8.1.18 -----NOTE----- This Surveillance shall not normally be performed in MODE 1 or 2. However, this 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 interval between each sequenced load block, for Division 1 and 2 DGs only, is ≥ 90% of the design interval for each time delay relay.</p>	<p>24 months ←</p>

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.19 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1 or 2. 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. <p>-----</p> <p>Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses for Divisions 1 and 2 only; and c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 13 seconds, 2. energizes auto-connected emergency loads including through time delay relays, where applicable, 3. maintains steady state voltage ≥ 4010 V and ≤ 4310 V, 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes. 	<p>24 months</p> <div style="border: 1px solid red; padding: 5px; width: fit-content;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.20 -----NOTE----- All DG starts may be preceded by an engine prelube period. ----- Verify, when started simultaneously from standby condition, each required DG achieves, in ≤ 13 seconds, voltage ≥ 4010 V and frequency ≥ 58.8 Hz.</p>	<p>10 years In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.21 -----NOTE----- When the opposite unit is in MODE 4 or 5, or moving irradiated fuel assemblies in secondary containment, the following opposite unit SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.14 through SR 3.8.1.16. ----- For required opposite unit DG, the SRs of the opposite unit's Specification 3.8.1, except SR 3.8.1.12, SR 3.8.1.13, SR 3.8.1.17, SR 3.8.1.18, SR 3.8.1.19, and SR 3.8.1.20, are applicable.</p>	<p>In accordance with applicable SRs</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify:</p> <p>a. ≥ a 7-day supply of fuel in the combined fuel oil storage tank and day tank for the Division 1 and Division 2 DGs and the opposite unit Division 2 DG.</p> <p>b. ≥ a 7-day supply of fuel in the combined fuel oil storage tank and day tank for the Division 3 DG.</p>	<p>31 days ←</p>
<p>SR 3.8.3.2 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.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>
<p>SR 3.8.3.3 Verify each DG air start receiver pressure is ≥ 200 psig.</p>	<p>31 days ←</p>
<p>SR 3.8.3.4 Check for and remove accumulated water from each fuel oil storage tank.</p>	<p>92 days ←</p>

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A not met for the Division 1 or 2 125 VDC electrical power subsystem. <u>OR</u> Required Action and associated Completion Time of Condition E not met.	F.1 Be in MODE 3.	12 hours
	<u>AND</u> F.2 Be in MODE 4.	36 hours
G. Required Action and associated Completion Time of Condition B not met.	G.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

- NOTES -----
- SR 3.8.4.1 through SR 3.8.4.3 are applicable only to the given unit's DC electrical power sources.
 - SR 3.8.4.4 is applicable only to the opposite unit DC electrical power source.
-

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days <div style="border: 1px solid red; padding: 2px; display: inline-block;"> In accordance with the Surveillance Frequency Control Program </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.2 Verify each required battery charger supplies:</p> <p>a. ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the Division 1 and 2 125 V battery chargers;</p> <p>b. ≥ 50 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the Division 3 125 V battery charger; and</p> <p>c. ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the 250 V battery charger.</p> <p><u>OR</u></p> <p>Verify each 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.</p>	<p>24 months</p> <div style="border: 1px solid red; padding: 2px; display: inline-block;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.3 -----NOTES-----</p> <ol style="list-style-type: none"> 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 2. This Surveillance shall not normally be performed in MODE 1 or 2 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. <p>-----</p> <p>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.</p>	<p>24 months In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.4.4 -----NOTE-----</p> <p>When the opposite unit is in MODE 4 or 5, or moving irradiated fuel in the secondary containment, the following opposite unit SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.3.</p> <p>-----</p> <p>For the opposite unit Division 2 DC electrical power subsystem, the SRs of the opposite unit Specification 3.8.4 are applicable.</p>	<p>In accordance with applicable SRs</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One or more batteries with one or more battery cells float voltage < 2.07 V and float current > 2 amps.</p>	<p>F.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. ----- Verify battery float current is ≤ 2 amps.</p>	<p>31 days ←</p>
<p>SR 3.8.6.2 Verify each battery pilot cell voltage is ≥ 2.07 V.</p>	<p>31 days ←</p>
<p>SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.</p>	<p>31 days ←</p>
<p>SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.</p>	<p>31 days ←</p>

(continued)

In accordance with the
Surveillance Frequency
Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.5 Verify each battery connected cell voltage is ≥ 2.07 V.</p>	<p>92 days ←</p>
<p>SR 3.8.6.6 -----NOTES-----</p> <ol style="list-style-type: none"> 1. This Surveillance shall not normally be performed in MODE 1 or 2 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. 2. In MODE 1, 2 or 3, and the opposite unit in MODE 4 or 5, or moving irradiated fuel in the secondary containment, this Surveillance is not required to be performed for the opposite unit Division 2 DC electrical power subsystem. 3. In MODE 4, 5 or during movement of irradiated fuel in the secondary containment in Mode 4, 5 or defueled, this Surveillance is not required to be performed. <p>-----</p> <p>Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months ←</p> <p><u>AND</u></p> <p>12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating</p>

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One or both Division 3 AC or DC electrical power distribution subsystems inoperable.	F.1 Declare associated supported features inoperable.	Immediately
G. Division 1 250 V DC electrical power subsystem inoperable.	G.1 Declare associated supported features inoperable.	Immediately
H. Two or more electrical power distribution subsystems inoperable that, in combination, result in a loss of function.	H.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 DC electrical power distribution subsystems.	7 days <div style="border: 1px solid red; padding: 2px; display: inline-block;">In accordance with the Surveillance Frequency Control Program</div>

ACTIONS

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 DC electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.9.1.1 Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs:</p> <ul style="list-style-type: none"> a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel-loaded, d. Refuel platform frame-mounted hoist, fuel-loaded, e. Refuel platform trolley-mounted hoist, fuel-loaded, and f. Service platform hoist, fuel-loaded. 	<p>7 days</p> <div style="border: 1px solid red; padding: 5px; width: fit-content;"> <p>In accordance with the Surveillance Frequency Control Program</p> </div>

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LC0 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
	<u>AND</u> 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.	12 hours In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.2.2 -----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn. ----- Perform CHANNEL FUNCTIONAL TEST.	<div style="border: 1px solid red; padding: 5px; display: inline-block;"> In accordance with the Surveillance Frequency Control Program </div> 7 days

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LC0 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.	12 hours In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY–Refueling

LC0 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.	7 days ←
SR 3.9.5.2 Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.	7 days ←

In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level—Irradiated Fuel

LC0 3.9.6 RPV water level shall be \geq 22 ft above the top of the RPV flange.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.7 Reactor Pressure Vessel (RPV) Water Level—New Fuel or Control Rods

LC0 3.9.7 RPV water level shall be \geq 23 ft above the top of irradiated fuel assemblies seated within the RPV.

APPLICABILITY: 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 new fuel assemblies and handling of control rods within the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.7.1 Verify RPV water level is \geq 23 ft above the top of irradiated fuel assemblies seated within the RPV.	24 hours In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.8.1 Verify one RHR shutdown cooling subsystem is operating.	12 hours In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.9.1 Verify one RHR shutdown cooling subsystem is operating.	12 hours 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 3.10.1.1 Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	12 hours ←
SR 3.10.1.2 Verify no CORE ALTERATIONS are in progress.	24 hours ←

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.2.2	<p>-----NOTE----- Not required to be met if SR 3.10.2.1 is satisfied for LCO 3.10.2.d.1 requirements. -----</p> <p>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.</p>	24 hours
SR 3.10.2.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	24 hours

In accordance with the Surveillance Frequency Control Program

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 3.10.3.1 Perform the applicable SRs for the required LCOs.	According to 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.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.	24 hours <div style="border: 1px solid red; padding: 2px; display: inline-block;">In accordance with the Surveillance Frequency Control Program</div>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	24 hours
SR 3.10.3.4	<p>-----NOTE----- Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.b.1 requirements. -----</p> <p>Verify a control rod withdrawal block is inserted.</p>	24 hours

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.	Immediately
	<u>OR</u> A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.4.1 Verify all controls rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.	24 hours ←
SR 3.10.4.2 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.	24 hours ←
SR 3.10.4.3 Verify a control rod withdrawal block is inserted.	24 hours ←

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.4.4 Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.4.5 Verify no other CORE ALTERATIONS are in progress.	24 hours In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.5.1 Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	24 hours ←
SR 3.10.5.2 Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	24 hours ←
SR 3.10.5.3 Verify fuel assemblies are not being loaded into or shuffled within the reactor pressure vessel.	24 hours ←

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.7.2	<p>-----NOTE----- Not required to be met if SR 3.10.7.3 satisfied. -----</p> <p>Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 2 of Table 3.3.2.1-1.</p>	According to the applicable SRs
SR 3.10.7.3	<p>-----NOTE----- Not required to be met if SR 3.10.7.2 satisfied. -----</p> <p>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.</p>	During control rod movement
SR 3.10.7.4	Verify no other CORE ALTERATIONS are in progress.	12 hours In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

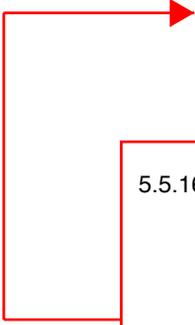
SURVEILLANCE	FREQUENCY
<p>SR 3.10.7.5 Verify each withdrawn control rod does not go to the withdrawn overtravel position.</p>	<p>Each time the control rod is withdrawn to "full out" position</p> <p><u>AND</u></p> <p>Prior to satisfying LCO 3.10.7.c requirement after work on control rod or CRD System that could affect coupling</p>
<p>SR 3.10.7.6 Verify CRD charging water header pressure \geq 940 psig.</p>	<p>7 days In accordance with the Surveillance Frequency Control Program</p>

5.5 Programs and Manuals

5.5.15 Control Room Envelope Habitability Program (continued)

the CRAF System, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

- 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.



5.5.16 Surveillance Frequency Control Program

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

- a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

ATTACHMENT 4
Markup of Proposed Technical Specifications Bases Pages

LaSalle County Station, Units 1 and 2

Facility Operating License Nos. NPF-11 and NPF-18

REVISED TECHNICAL SPECIFICATIONS BASES PAGES

(NOTE: TS Bases pages are provided for information only.)

B 3.1.3-7	B 3.3.2.1-10	B 3.3.7.1-8	B 3.6.1.3-11	B 3.8.1-22	B 3.9.2-3
B 3.1.3-8	B 3.3.2.1-11	B 3.3.8.1-8	B 3.6.1.3-12	B 3.8.1-23	B 3.9.3-2
B 3.1.4-5	B 3.3.2.1-12	B 3.3.8.1-9	B 3.6.1.3-13	B 3.8.1-24	B 3.9.5-3
B 3.1.5-5	B 3.3.2.1-14	B 3.3.8.2-8	B 3.6.1.3-14	B 3.8.1-25	B 3.9.6-3
B 3.1.6-5	B 3.3.2.2-6	B 3.3.8.2-9	B 3.6.1.4-3	B 3.8.1-26	B 3.9.7-3
B 3.1.7-3	B 3.3.2.2-7	B 3.4.1-6	B 3.6.1.5-3	B 3.8.1-27	B 3.9.8-4
B 3.1.7-4	B 3.3.2.2-8	B 3.4.2-4	B 3.6.1.6-6	B 3.8.1-28	B 3.9.9-4
B 3.1.7-5	B 3.3.3.1-10	B 3.4.3-4	B 3.6.2.1-4	B 3.8.1-29	B 3.10.1-5
B 3.1.7-6	B 3.3.3.1-11	B 3.4.5-5	B 3.6.2.1-5	B 3.8.1-31	B 3.10.2-5
B 3.1.8-4	B 3.3.3.2-4	B 3.4.7-4	B 3.6.2.2-3	B 3.8.1-33	B 3.10.3-5
B 3.1.8-5	B 3.3.3.2-5	B 3.4.7-6	B 3.6.2.3-4	B 3.8.1-34	B 3.10.4-5
B 3.2.1-3	B 3.3.4.1-8	B 3.4.7-7	B 3.6.2.4-4	B 3.8.1-36	B 3.10.5-3
B 3.2.2-4	B 3.3.4.1-9	B 3.4.8-4	B 3.6.3.2-3	B 3.8.1-38	B 3.10.7-5
B 3.2.3-2	B 3.3.4.1-10	B 3.4.9-5	B 3.6.4.1-4	B 3.8.1-39	B 3.10.7-6
B 3.2.3-3	B 3.3.4.1-11	B 3.4.10-5	B 3.6.4.1-5	B 3.8.1-40	
B 3.3.1.1-26	B 3.3.4.2-7	B 3.4.11-6	B 3.6.4.1-6	B 3.8.1-41	
B 3.3.1.1-27	B 3.3.4.2-8	B 3.4.11-7	B 3.6.4.2-6	B 3.8.1-42	
B 3.3.1.1-28	B 3.3.4.2-9	B 3.4.11-8	B 3.6.4.2-7	B 3.8.1-43	
B 3.3.1.1-29	B 3.3.5.1-35	B 3.4.11-9	B 3.6.4.3-5	B 3.8.1-45	
B 3.3.1.1-30	B 3.3.5.1-36	B 3.4.12-3	B 3.6.4.3-6	B 3.8.3-5	
B 3.3.1.1-31	B 3.3.5.1-37	B 3.5.1-10	B 3.7.1-6	B 3.8.3-6	
B 3.3.1.1-32	B 3.3.5.2-10	B 3.5.1-11	B 3.7.2-4	B 3.8.3-8	
B 3.3.1.1-33	B 3.3.5.2-11	B 3.5.1-12	B 3.7.2-5	B 3.8.4-3	
B 3.3.1.1-34	B 3.3.5.2-12	B 3.5.1-13	B 3.7.3-4	B 3.8.4-9	
B 3.3.1.2-6	B 3.3.6.1-35	B 3.5.2-4	B 3.7.4-9	B 3.8.4-10	
B 3.3.1.2-7	B 3.3.6.1-36	B 3.5.2-5	B 3.7.4-10	B 3.8.4-11	
B 3.3.1.2-8	B 3.3.6.1-37	B 3.5.3-4	B 3.7.5-6	B 3.8.4-13	
B 3.3.1.2-9	B 3.3.6.1-38	B 3.5.3-5	B 3.7.5-7	B 3.8.6-6	
B 3.3.1.3-7	B 3.3.6.2-10	B 3.5.3-6	B 3.7.6-3	B 3.8.6-7	
B 3.3.1.3-8	B 3.3.6.2-11	B 3.6.1.1-5	B 3.7.7-3	B 3.8.6-9	
B 3.3.1.3-9	B 3.3.6.2-12	B 3.6.1.1-6	B 3.7.7-4	B 3.8.7-11	
B 3.3.2.1-5	B 3.3.7.1-6	B 3.6.1.2-8	B 3.7.8-2	B 3.8.8-4	
B 3.3.2.1-9	B 3.3.7.1-7	B 3.6.1.3-10	B 3.8.1-20	B 3.9.1-4	

BASES

ACTIONS
(continued)

E.1

If any Required Action and associated Completion Time of Condition A, C, or D are not met or nine or more inoperable control rods exist, 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. This ensures all insertable control rods are inserted and places the reactor in a condition that does not require the active function (i.e., scram) of the control rods. The number of control rods permitted to be inoperable when operating above 10% RTP (i.e., no CRDA considerations) could be more than the value specified, but the occurrence of a large number of inoperable control rods could be indicative of a generic problem, and investigation and resolution of the potential problem should be undertaken. 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 3.1.3.1

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 by single notch movement to a position with an OPERABLE indicator (full-in, full-out, or numeric indicator) and then returning the control rods by single notch movement to their original position, or by the use of other appropriate methods. ~~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.~~

(continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.1.3.2

DELETED

SR 3.1.3.3

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. This Surveillances is 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 analyzed rod position sequence (LCO 3.1.6) and the RWM (LCO 3.3.2.1). ~~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 that control rod's trippability (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, to perform the Surveillance. This acknowledges that the control rod must be first withdrawn and THERMAL POWER must be increased to above the LPSP before performance of the Surveillance, and therefore, the Note avoids potential conflicts with SR 3.0.3 and SR 3.0.4.

(continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.4.2 (continued)

10% of the control rods. The sample remains representative if no more than 20% of the control rods in the sample tested are determined to be "slow." If more than 20% of the sample is declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this 20% criterion (i.e., 20% of the entire sample size) is satisfied, or until the total number of "slow" control rods (throughout the core, from all Surveillances) exceeds the LCO limit. For planned testing, the control rods selected for the sample should be different for each test. Data from inadvertent scrams should be used whenever possible to avoid unnecessary testing at power, even if the control rods with data were previously tested in a sample. ~~The 120 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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 that the affected control rod is still within acceptable limits. The scram time 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 reactor pressures ≥ 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 7-second limit of Table 3.1.4-1, Note 2, the control rod can be declared OPERABLE and "slow."

(continued)

BASES

ACTIONS
(continued)

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 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 Required 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

periodically →

SR 3.1.5.1 requires that the accumulator pressure be checked ~~every 7 days~~ 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 inoperable. The minimum accumulator pressure of 940 psig is well below the expected pressure of 980 psig to 1200 psig. Declaring the accumulator inoperable when the minimum pressure is not maintained ensures that significant degradation in scram times does not occur. ~~The 7 day Frequency has been shown to be acceptable through operating experience and takes into account indications available in the control room.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



REFERENCES

1. UFSAR, Section 4.3.2.5.3.
 2. UFSAR, Section 4.6.1.1.2.
 3. UFSAR, Section 5.2.2.2.2.3.
 4. UFSAR, Section 15.4.
-

BASES

ACTIONS

B.1 and B.2 (continued)

With nine or more OPERABLE control rods not in compliance with analyzed rod position sequence, the reactor mode switch must be placed in the shutdown position within 1 hour. With the reactor mode switch in shutdown, the reactor is shut down, and therefore 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

periodically



The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



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

REFERENCES

1. UFSAR, Section 15.4.10.
2. XN-NF-80-19(P)(A), Volume 1, Supplement 2, Section 7.1, Exxon Nuclear Methodology for Boiling Water Reactor-Neutronics Methods for Design and Analysis, (as specified in Technical Specification 5.6.5).
3. NEDE-24011-P-A, "GE Standard Application for Reactor Fuel," (as specified in Technical Specification 5.6.5).
4. 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.
5. NFSR-0091, Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods, Commonwealth Edison Topical Report, (as specified in Technical Specification 5.6.5).

(continued)

BASES

ACTIONS

A.1 (continued)

the remaining OPERABLE subsystem could result in reduced SLC System shutdown capability and inability to meet the requirements of Reference 1. The 7 day Completion Time is based on the availability of an OPERABLE subsystem capable of performing the unit shutdown function and the low probability of a Design Basis Accident (DBA) or severe transient occurring concurrent with the failure of the Control Rod Drive System to shut down the reactor.

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 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,~~ verifying certain characteristics of the SLC System (e.g., the volume and temperature of the borated solution in the storage tank), thereby ensuring the SLC System OPERABILITY without disturbing normal plant operation. These Surveillances ensure the proper borated solution and temperature, including the temperature (using the local indicator) of the pump suction piping up to the storage tank outlet valves, are maintained. Maintaining a minimum specified borated solution temperature is important in

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.7.1, SR 3.1.7.2, and SR 3.1.7.3 (continued)

ensuring that the boron remains in solution and does not precipitate out in the storage tank or in the pump suction piping. ~~The 24 hour Frequency of these SRs is based on operating experience that has shown there are relatively slow variations in the measured parameters of volume and temperature.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 proper operation will occur if required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. ~~The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.~~

SR 3.1.7.6 verifies 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, power operated, and automatic valves in the SLC System flow path ensures 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 were verified to be in the correct position prior to locking, sealing, or securing. This verification of valve alignment 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 positions. ~~The 31 day Frequency is based on engineering judgment and is consistent with the procedural controls governing valve operation that ensure correct valve positions.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.1.7.5

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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

SR 3.1.7.7

Demonstrating each SLC System pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1220 psig ensures that pump performance has not degraded during the fuel cycle. 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 one point on the pump design curve, and is indicative of overall performance. Such inservice tests confirm component OPERABILITY 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. The replacement charge 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 tested~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



~~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 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 test when performed at the 24 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program. If



Demonstrating that all heat traced piping in the flow path between the boron solution storage tank and the storage tank outlet valves to the injection pumps is unblocked ensures that there is a functioning flow path for injecting the sodium pentaborate solution. An acceptable method for verifying that the suction piping up to the storage tank outlet valves is unblocked is to verify flow from the storage tank to the test tank. Upon completion of this verification, the pump suction piping between the storage tank outlet valve and pump suction must be drained and flushed with demineralized water, since the piping is not heat traced. ~~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 daily 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 within the limits of Figure 3.1.7-2.~~

REFERENCES

1. 10 CFR 50.62.
2. UFSAR, Section 9.3.5.3.

BASES

ACTIONS

C.1 (continued)

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 3.1.8.1

During normal operation, the SDV vent and drain valves should be in the open position (except when performing SR 3.1.8.2) to allow for drainage of the SDV piping. Verifying that each valve is in the open position ensures that the SDV vent and drain valves will perform their intended function 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 31 day Frequency is based on engineering judgment and is consistent with the procedural controls governing valve operation, which ensure correct valve positions.~~ Improper valve position (closed) would not affect the isolation function.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 92 day Frequency is based on operating experience and takes into account the level of redundancy in the system design.~~

SR 3.1.8.3

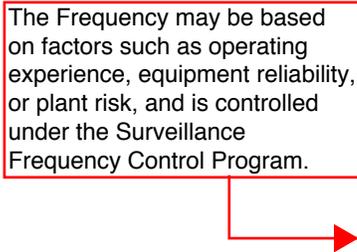
SR 3.1.8.3 is an integrated test of the SDV vent and drain valves to verify total system performance. After receipt of a simulated or actual scram signal, the closure of the SDV vent and drain valves is verified. The closure time of 30 seconds after a receipt of a scram signal is based on the bounding leakage case evaluated in the accident analysis. Similarly, after receipt of a simulated or actual scram

(continued)

BASES

SURVEILLANCE SR 3.1.8.3 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



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, "Control Rod OPERABILITY," overlap this Surveillance to provide complete testing of the assumed safety function. ~~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 4.6.1.1.2.
 2. 10 CFR 100.
 3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.
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BASES

ACTIONS
(continued)

B.1

If the APLHGR 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 must be 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 3.2.1.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

APLHGRs are required to be initially calculated within 12 hours after THERMAL POWER is \geq 25% RTP and ~~then every 24 hours~~ 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 both engineering judgment and recognition of the slowness of changes in power distribution under normal conditions.~~ The 12 hour allowance after THERMAL POWER \geq 25% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels.

periodically



REFERENCES

1. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," (as specified in Technical Specification 5.6.5).
 2. EMF-94-217(NP), Revision 1, "Boiling Water Reactor Licensing Methodology Summary," November 1995.
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BASES

ACTIONS

B.1 (continued)

must be 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 3.2.2.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

periodically

The MCPR is required to be initially calculated within 12 hours after THERMAL POWER is \geq 25% RTP and ~~then every 24 hours~~ 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 both engineering judgment and recognition of the slowness of changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER reaches \geq 25% RTP is acceptable given the inherent margin to operating limits at low power levels.

SR 3.2.2.2

Because the transient analyses may take credit for conservatism in the control rod scram speed performance, it must be demonstrated that the specific scram speed distribution is consistent with that used in the transient analyses. SR 3.2.2.2 determines the actual scram speed distribution and compares it with the assumed distribution. The MCPR operating limit is then determined based either on the applicable limit associated with scram times of LCO 3.1.4, "Control Rod Scram Times," or the realistic scram times. The scram time dependent MCPR limits are contained in the COLR. This determination must be performed within 72 hours after each set of control rod 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 the actual control rod scram speed distribution expected during the fuel cycle.

(continued)

BASES (continued)

LCO The LHGR is a basic assumption in the fuel design analysis. The fuel has been designed to operate at rated core power with sufficient design margin to the LHGR calculated to cause a 1% fuel cladding plastic strain. The operating limit to accomplish this objective is specified in the COLR.

APPLICABILITY The LHGR limits are derived from fuel design analysis that is limiting at high power level conditions. At core thermal power levels < 25% RTP, the reactor is operating with margin to the LHGR limits and, therefore, the Specification is only required when the reactor is operating at \geq 25% RTP.

ACTIONS A.1

If any LHGR exceeds its required limit, an assumption regarding an initial condition of the fuel design analysis is not met. Therefore, prompt action should be taken to restore the LHGR(s) to within its required limits such that the plant is operating within analyzed conditions. The 2 hour Completion Time is normally sufficient to restore the LHGR(s) to within its limits and is acceptable based on the low probability of a transient or Design Basis Accident occurring simultaneously with the LHGR out of specification.

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 must be 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 LHGRs are required to be initially calculated within 12 hours after THERMAL POWER is \geq 25% RTP and ~~then every 24 hours~~ thereafter. They are compared with the LHGR limits in the COLR to ensure that the reactor is operating within

periodically 

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.2.3.1 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

the assumptions of the safety analysis. The 24 hour Frequency is based on both engineering judgment and recognition of the slowness of changes in power distribution under normal conditions. The 12 hour allowance after THERMAL POWER \geq 25% RTP is achieved is acceptable given the inherent margin to operating limits at lower power levels.



REFERENCES

1. UFSAR, Chapter 4.
 2. UFSAR, Chapter 15.
 3. XN-NF-80-19(P)(A), Advanced Nuclear Fuel Methodology for Boiling Water Reactors.
 4. XN-NF-81-58(P)(A), RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model.
 5. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel" (as specified in Technical Specification 5.6.5).
 6. EMF-85-74(P)(A), RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model.
 7. NUREG-0800, Section 4.2.II A.2(g), Revision 2, July 1981.
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BASES

SURVEILLANCE
REQUIREMENTS
(continued)

entered and Required Actions taken. This Note is based on the RPS reliability analysis (Ref. 10) 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 RPS will trip when necessary.

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 the instrument channels could be an indication of excessive instrument drift on 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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 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.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.2 (continued)

An allowance is provided that requires the SR to be performed only at $\geq 25\%$ RTP because it is difficult to accurately maintain APRM indication of core THERMAL POWER consistent with a heat balance when $< 25\%$ RTP. At low power levels, a high degree of accuracy is unnecessary because of the inherent margin to thermal limits (MCPR and APLHGR). At $\geq 25\%$ 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

The Average Power Range Monitor Flow Biased Simulated Thermal Power-Upscale Function uses the recirculation loop drive flows to vary the trip setpoint. This SR ensures that the total loop drive flow signals from the flow unit used to vary the setpoint are appropriately compared to a calibrated flow signal and therefore the APRM Function accurately reflects the required setpoint as a function of flow. Each flow signal from the respective flow unit must be $\leq 100\%$ of the calibrated flow signal. If the flow unit signal is not within the limit, one required APRM that receives an input from the inoperable flow unit must be declared inoperable.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The Frequency of 7 days is based on engineering judgment, operating experience, and the reliability of this instrumentation.~~

SR 3.3.1.1.4

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.4 (continued)

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, SR 3.3.1.1.4 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 24 hours after entering MODE 2 from MODE 1. Twenty-four hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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. 10).~~

SR 3.3.1.1.5

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.5 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

least once per refueling interval with applicable extensions. In accordance with Reference 10, the scram contactors must be tested as part of the Manual Scram Function. ~~A Frequency of 7 days provides an acceptable level of system average availability over the Frequency and is based on the reliability analysis of Reference 10. (The Manual Scram Function's CHANNEL FUNCTIONAL TEST Frequency was credited in the analysis to extend many automatic scram Functions' Frequencies.)~~

SR 3.3.1.1.6 and SR 3.3.1.1.7

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 increased into a region without adequate neutron flux 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 (initiate a rod block) if adequate overlap is not maintained. The IRM/APRM and SRM/IRM overlap are acceptable if a ½ decade overlap exists.

As noted, SR 3.3.1.1.7 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.6 and SR 3.3.1.1.7 (continued)

channel(s) declared inoperable. Only those appropriate channel(s) that are required in the current MODE or condition should be declared inoperable.

~~A Frequency of 7 days is reasonable based on engineering judgment and the reliability of the IRMs and APRMs.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.1.1.8

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 2000 effective full power hours (EFPH) Frequency is based on operating experience with LPRM sensitivity changes. SR 3.3.1.1.8 also ensures the operability of the OPRM system (specification 3.3.1.3).

SR 3.3.1.1.9 and SR 3.3.1.1.12

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 92 day Frequency of SR 3.3.1.1.9 is based on the reliability analysis of Reference 10.~~

~~The 24 month Frequency of SR 3.3.1.1.12 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.9 and SR 3.3.1.1.12 (continued)

~~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 3.3.1.1.10, SR 3.3.1.1.11, and SR 3.3.1.1.13

A CHANNEL CALIBRATION is a complete check of the instrument loop, including associated trip unit, 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.

Note 1 of SR 3.3.1.1.11 and SR 3.3.1.1.13 states that neutron detectors are excluded from CHANNEL CALIBRATION 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 EFPH~~ LPRM calibration against the TIPs (SR 3.3.1.1.8). A second Note to SR 3.3.1.1.11 and SR 3.3.1.1.13 is provided that requires the APRM and IRM SRs to be performed within 24 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Twenty-four hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR. ~~The Frequencies of SR 3.3.1.1.10 and SR 3.3.1.1.11 are based upon the assumption of a 92 day and 184 day calibration interval, respectively, in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.13 is based on 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 3.3.1.1.14

The Average Power Range Monitor Flow Biased Simulated Thermal Power–Upscale Function uses an electronic filter circuit to generate a signal proportional to the core THERMAL POWER from the APRM neutron flux signal. This filter circuit is representative of the fuel heat transfer dynamics that produce the relationship between the neutron flux and the core THERMAL POWER. The filter time constant must be verified to ensure that the channel is accurately reflecting the desired parameter.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The Frequency of 24 months is based on engineering judgment and reliability of the components.~~

SR 3.3.1.1.15

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

~~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 3.3.1.1.16

This SR ensures that scrams initiated from the Turbine Stop Valve–Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure–Low Functions will not be inadvertently bypassed when THERMAL POWER is $\geq 25\%$ RTP. This involves calibration of the bypass channels. Adequate margins for

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.16 (continued)

the instrument setpoint methodology are incorporated into the Allowable Value and 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 in-service calibration at THERMAL POWER \geq 25% RTP, if performing the calibration using actual turbine first stage pressure, to ensure that the calibration is valid.

If any bypass channel setpoint is nonconservative (i.e., the Functions are bypassed at \geq 25% 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, Trip 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The Frequency of 24 months is based on engineering judgment and reliability of the components.~~

SR 3.3.1.1.17

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 11.

RPS RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. However, the sensor for Function 4 is allowed to be excluded from specific RPS RESPONSE TIME measurement if the conditions of Reference 12 are satisfied. If these conditions are satisfied, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design response time. When the requirements of Reference 12 are not satisfied, sensor response time must be measured.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.17 (continued)

Also, regardless of whether or not the sensor response time is measured, the response time for the remaining portion of the channel, including the trip unit and relay logic, is required to be measured. The sensor and relay/logic components for Function 3 are assumed to operate at the design response time and therefore, are excluded from specific RPS RESPONSE TIME measurement. This allowance is supported by References 12 and 14, which determined that significant degradation of the channel response time can be detected during performance of other Technical Specification surveillance requirements. In addition, the response time of the limit switches for Function 8 may be assumed to be the design limit switch response time and therefore, are excluded from the RPS RESPONSE TIME testing. This is allowed, as documented in Reference 13, since the actual measurement of the limit switch response time is not practicable as this test is done during the refueling outage when the turbine stop valves are fully closed, and thus the limit switch in the RPS circuitry is open. The design limit switch response time is 10 ms.

As noted (Note 1), neutron detectors are excluded from RPS RESPONSE TIME testing. The principles of detector operation virtually ensure an instantaneous response time. Note 3 modifies the starting point of the RPS RESPONSE TIME test for Function 9, since this starting point (start of turbine control valve fast closure) corresponds to safety analysis assumptions.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~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 4 channels per trip system, in lieu of the 8 channels specified in Table 3.3.1.1-1 for the MSIV Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. Therefore, staggered testing results in response time verification of these devices every 24 months. 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 time degradation, but not channel failure, are infrequent.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.2.1 and SR 3.3.1.2.3 (continued)

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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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.~~

SR 3.3.1.2.2

To provide adequate coverage of potential reactivity changes in the core, 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 this 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, per Table 3.3.1.2-1, footnote (b), only the a. portion of this SR is effectively required. Note 2 clarifies that more than one of the three requirements can be met by the same OPERABLE SRM. ~~The 12 hour Frequency is based upon operating experience and supplements operational controls over refueling activities, which include steps to ensure that the SRMs required by the LCO are in the proper quadrant.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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 fully inserted. This 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 quadrant, even with a control rod withdrawn the configuration will not be critical. When movable detectors are being used, detector location must be selected such that each group of fuel assemblies is separated by at least two fuel cells from any other fuel assemblies.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~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 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Non-Technical Specifications tests at least once per refueling interval with 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. ~~This 7 day 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 3.3.1.2.6 is required to be met in MODE 2 with IRMs on Range 2 or below and in MODES 3 and 4. ~~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 is 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 a normal 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 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 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.

(continued)

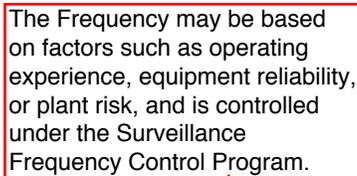
BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

The Note to SR 3.3.1.2.6 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 ~~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. In this event, the 12 hour Frequency 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



SR 3.3.1.2.7

Performance of a CHANNEL CALIBRATION verifies the performance of the SRM detectors 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 ~~24 month~~ 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

(continued)

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SURVEILLANCE
REQUIREMENTS

SR 3.3.1.3.1 (continued)

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

~~A Frequency of 184 days provides an acceptable level of system average unavailability over the Frequency interval and is based on the reliability analysis (Ref. 6).~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.1.3.2

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 OPRM System. ~~The 2000 effective full power hours (EFPH) Frequency is based on operating experience with LPRM sensitivity changes.~~

SR 3.3.1.3.3

The CHANNEL CALIBRATION is a complete check of the instrument loop. 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.

Calibration of the channel provides a check of the internal reference voltage and the internal processor clock frequency. It also compares the desired trip setpoint with those in the processor memory. Since the OPRM is a digital system, the internal reference voltage and processor clock frequency are, in turn, used to automatically calibrate the internal analog to digital converters. The nominal setpoints for the period based detection algorithm are specified in the COLR. As noted, neutron detectors are excluded from CHANNEL CALIBRATION because of difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 2000 effective full power hour (EFPH) calibration against the TIPs (SR 3.3.1.3.2). SR 3.3.1.3.2 thus also ensures the operability of the OPRM instrumentation.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.3.3 (continued)

The nominal setpoints for the OPRM trip function for the period based detection algorithm (PBDA) are specified in the Core Operating Limits Report. The PBDA trip setpoints are the number of confirmation counts required to permit a trip signal and the peak to average amplitude required to generate a trip signal.

~~The Frequency of 24 months is based upon the assumption of the magnitude of equipment drift provided by the equipment supplier (Ref. 6).~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.1.3.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods, in LCO 3.1.3, "Control Rod OPERABILITY," and scram discharge volume (SDV) vent and drain valves, in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," overlaps this Surveillance to provide complete testing of the assumed safety function. The OPRM self-test function may be utilized to perform this testing for those components that it is designed to monitor.

~~The 24 month Frequency is based on engineering judgment and reliability of the components. Operating experience has shown these components usually pass the surveillance when performed at the 24 month Frequency.~~

SR 3.3.1.3.5

This SR ensures that trips initiated from the OPRM System will not be bypassed (i.e., fail to enable) when THERMAL POWER is $\geq 28.6\%$ RTP and recirculation drive flow is $< 60\%$ of rated recirculation drive flow. This normally involves calibration of the bypass channels. The 28.6% RTP value is the plant specific value for the enable region, as described in Reference 9.

These values have been conservatively selected so that specific, additional uncertainty allowances need not be applied. Specifically, the THERMAL POWER, the Average Power Range Monitor (APRM) establishes the reference signal to enable the OPRM system at 28.6% RTP. Thus, the nominal

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BASES

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REQUIREMENTS

SR 3.3.1.3.5 (continued)

setpoints corresponding to the values listed above (28.6% of RTP and 60% of rated recirculation drive flow) will be used to establish the enabled region of the OPRM System trips. (References 1, 2, 5, 9, and 11)

If any bypass channel setpoint is nonconservative (i.e., the OPRM module is bypassed at $\geq 28.6\%$ RTP and $< 60\%$ of rated recirculation drive flow), then the affected OPRM module is considered inoperable. Alternately, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met and the module is considered OPERABLE.

~~The Frequency of 24 months is based on engineering judgment and reliability components.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.1.3.6

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The OPRM self-test function may be utilized to perform this testing for those components it is designed to monitor. The RPS RESPONSE TIME acceptance criteria are included in Reference 10.

RPS RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. As noted, neutron detectors are excluded 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. This Frequency is consistent with the refueling cycle and is based upon operating experience, which shows that random failures of instrumentation components causing serious time degradation, but not channel failure, are infrequent.~~

REFERENCES

1. NEDC-39160, "BWR Owners Group Long-Term Stability Solutions Licensing Methodology," June 1991.
2. NEDO-39160, "BWR Owners Group Long-Term Stability Solutions Licensing Methodology," Supplement 1, March 1992.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

2. Rod Worth Minimizer (continued)

9

When performing a shutdown of the plant, an optional control rod sequence (Ref. 10) may be used if the coupling of each withdrawn control rod has been confirmed. The rods may be inserted without the need to stop at intermediate positions. When using the Reference 10 control rod insertion sequence for shutdown, the rod worth minimizer may be reprogrammed to enforce the requirements of the improved control rod insertion process.

The RWM Function satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

Since the RWM is a system designed to act as a backup to operator control of the rod sequences, only one channel of the RWM is required to be OPERABLE (Ref. 7). For Unit 1, only one channel of RWM is available at a time. For Unit 2, the RWM function is included with the sequence enforcement logic in each of the two RCMS controllers, and so normally operates with two channels. Special circumstances provided for in the Required Action of LCO 3.1.3, "Control Rod OPERABILITY," and LCO 3.1.6 may necessitate bypassing the RWM to allow continued operation with inoperable control rods, or to allow correction of a control rod pattern not in compliance with the analyzed rod position sequence. The RWM may be bypassed as required by these conditions, but then it must be considered inoperable and the Required Actions of this LCO followed.

Compliance with the analyzed rod position sequence, and therefore OPERABILITY of the RWM, is required in MODES 1 and 2 when THERMAL POWER is $\leq 10\%$ RTP. When THERMAL POWER is $> 10\%$ RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the 280 cal/gm fuel design limit during a CRDA (Refs. 6 and 7). In MODES 3 and 4, all control rods are required to be inserted into the core; therefore, a CRDA cannot occur. In MODE 5, since only a single control rod can be withdrawn from a core cell containing fuel assemblies, adequate SDM ensures that the consequences of a CRDA are acceptable, since the reactor will be subcritical.

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BASES

SURVEILLANCE
REQUIREMENTS
(continued)

The Surveillances are modified by a second Note 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 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 applicable extensions.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.1.2 and SR 3.3.2.1.3 (continued)

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 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 and by verifying proper annunciation of the selection error of at least one out-of-sequence control rod. 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 $\leq 10\%$ RTP in MODE 2 and SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is $\leq 10\%$ RTP in MODE 1. The Note to SR 3.3.2.1.2 allows entry into MODE 2 on a startup and entry into MODE 2 concurrent with a power reduction to $\leq 10\%$ RTP during a shutdown to perform the required Surveillance if the ~~92 day~~ Frequency is not met per SR 3.0.2. The Note to SR 3.3.2.1.3 allows a THERMAL POWER reduction to $\leq 10\%$ RTP in MODE 1 to perform the required Surveillance if the ~~92 day~~ Frequency is not met per SR 3.0.2. The 1 hour allowances are based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. ~~Operating experience has shown that these components usually pass the Surveillances when performed at the 92 day Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



SR 3.3.2.1.4

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.

As noted, neutron detectors are excluded 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 3.3.1.1.8.

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.1.4 (continued)

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.2.1.5

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 setpoint must be verified periodically to be < 30% RTP. In addition, it must also be verified that the RBM is not bypassed when a control rod that is not a 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 to enable the RBM. 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 3.3.1.1.8. ~~The 92 day Frequency is based on the actual trip setpoint methodology utilized for these channels.~~

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 signal. 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.~~

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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 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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 3.3.2.1.8

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.

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BASES

REFERENCES
(continued)

9. ~~NEDC-30851-P-A, Supplement 1, "Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation," October 1988.~~
 10. NEDO-33091-A, Revision 2, "Improved BPWS Control Rod Insertion Process," July 2004.
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BASES (continued)

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 Function maintains feedwater system 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. 2) 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, motor-driven feedwater pump, and main turbine will trip when necessary.

SR 3.3.2.2.1

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 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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.

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BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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.

~~The Frequency of 92 days is based on reliability analysis (Ref. 2).~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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 stop valves and the motor-driven feedwater pump breaker is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.2.4 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

complete testing of the assumed safety function. Therefore, if a turbine stop valve or motor feedwater pump breaker is incapable of operating, the associated instrumentation would also be inoperable. ~~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 15.1.2A.
 2. 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.
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BASES

ACTIONS

F.1 (continued)

alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE
REQUIREMENTS

As noted at the beginning of the SRs, the following SRs apply to each PAM instrumentation Function in Table 3.3.3.1-1.

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

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.3.1.1 (continued)

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

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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 (Deleted)

SR 3.3.3.1.3

~~A CHANNEL CALIBRATION is performed every 24 months. For Function 6, the CHANNEL CALIBRATION shall consist of verifying that the position indication conforms to the actual valve position. CHANNEL CALIBRATION is a complete check of the instrument loop including the sensor. The test verifies that the channel responds to the measured parameter with the necessary range and accuracy. The 24 month Frequency for CHANNEL CALIBRATION is based on operating experience and consistency with the refueling cycles.~~

REFERENCES

1. Regulatory Guide 1.97, "Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980.
 2. NRC Safety Evaluation Report, "Commonwealth Edison Company, LaSalle County Station, Unit Nos. 1 and 2, Conformance to Regulatory Guide 1.97," dated August 20, 1987.
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BASES

ACTIONS
(continued)

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 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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.3.2.1 (continued)

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the 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 Frequency is based upon operating experience that demonstrates channel failure is rare.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.3.2.2

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.

~~The 24 month Frequency is based upon operating experience and engineering judgement and is consistent with the refueling cycle.~~

REFERENCES

1. UFSAR, Section 7.4.4.
 2. Technical Requirements Manual.
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BASES

ACTIONS

C.1 and C.2 (continued)

allowed Completion Time of 4 hours is reasonable, based on operating experience, to reduce THERMAL POWER to < 25% RTP 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, provided the associated Function maintains EOC-RPT 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. 5) 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 recirculation pumps will trip when necessary.

SR 3.3.4.1.1

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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The Frequency of 92 days is based on reliability analysis (Ref. 5).~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.4.1.2

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 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.4.1.3

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 a part of this test, overlapping the LOGIC SYSTEM FUNCTIONAL TEST, to provide complete testing of the associated safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel would also be inoperable.

~~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 test when performed at the 24 month Frequency.~~

SR 3.3.4.1.4

This SR ensures that an EOC-RPT initiated from the TSV-Closure and TCV-Fast Closure, Trip Oil Pressure-Low Functions will not be inadvertently bypassed when THERMAL POWER is $\geq 25\%$ 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.1.4 (continued)

nonconservatively (THERMAL POWER is derived from first stage pressure), the main turbine bypass valves must remain closed during an in-service calibration at THERMAL POWER \geq 25% RTP, if performing the calibration using actual turbine first stage pressure, to ensure that the calibration remains valid. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at \geq 25% RTP either due to open main turbine bypass valves or other reasons), the affected TSV-Closure and TCV-Fast Closure, Trip 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 considered OPERABLE.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The Frequency of 24 months is based on engineering judgement and reliability of the components.~~

SR 3.3.4.1.5

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The EOC-RPT SYSTEM RESPONSE TIME acceptance criteria are included in Reference 6.

EOC-RPT SYSTEM RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. However, the response time of the limit switches for the TSV-Closure Function may be assumed to be the design limit switch response time and therefore, is excluded from the EOC-RPT SYSTEM RESPONSE TIME testing. This is allowed, as documented in Reference 7, since the actual measurement of the limit switch response time is not practicable as this test is done during the refueling outage when the turbine stop valves are fully closed, and thus the limit switch in the circuitry is open. The design limit switch response time is 10 ms.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.1.5 (continued)

A Note to the Surveillance states that breaker arc suppression time may be assumed from the most recent performance of SR 3.3.4.1.6. This is allowed since the arc suppression time is short and does not appreciably change, due to the design of the breaker opening device and the fact that the breaker is not routinely cycled.

~~EOC-RPT SYSTEM RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. The STAGGERED TEST BASIS is conducted on a function basis such that each test includes at least the logic of one type of channel input, i.e., TCV Fast Closure, Trip Oil Pressure Low, or TSV Closure, such that both types of channel inputs are tested at least once per 48 months. Response times cannot be determined at power because operation of final actuated devices is required. Therefore, 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 that cause serious response time degradation, but not channel failure, are infrequent occurrences.~~

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.3.4.1.6

This SR ensures that the EOC-RPT breaker arc suppression time is provided to the EOC-RPT SYSTEM RESPONSE TIME test. ~~The 60 month Frequency of the testing is based on the difficulty of performing the test and the reliability of the circuit breakers.~~

REFERENCES

1. UFSAR, Figure G.3.3-2.
2. UFSAR, Sections 7.6.4, G.3.3.3.8.2, and G.5.1.
3. UFSAR, Sections 15.1.2A, 15.2.2A, 15.2.3, and 15.3A.
4. UFSAR, Section 7.6.4.2.1.

(continued)

BASES

ACTIONS
(continued)

D.1 and D.2

With any Required Action and associated Completion Time not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended Function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service 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 provided the associated Function maintains ATWS-RPT 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. 2) 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 recirculation pumps will trip when necessary.

SR 3.3.4.2.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.4.2.1 (continued)

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

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

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 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 3.3.4.2.2

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.

~~The Frequency of 92 days is based on the reliability analysis of Reference 2.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.4.2.3

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 adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.4.2.4

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, included as part of this Surveillance, 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 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, Appendix G.3.1.2.
 2. 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.
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BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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

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

~~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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.5.1.2 (continued)

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 Frequency of 92 days is based on the reliability analyses of Reference 4.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.5.1.3 and SR 3.3.5.1.4

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 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. The Frequency of SR 3.3.5.1.4 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 3.3.5.1.5

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 provide complete testing of the assumed safety function.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.5.1.5 (continued)

~~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 unplanned transients 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.5.1.6

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Reference 5.

ECCS RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. However, the measurement of instrument loop response times may be excluded if the conditions of Reference 6 are satisfied. If these conditions are satisfied, instrument loop response time may be allocated based on either assumed design instrument loop response time or the manufacturer's stated design instrument loop response time. When the requirements of Reference 6 are not satisfied, instrument loop response time must be measured. The instrument loop response times must be added to the remaining equipment response times (e.g., ECCS pump start time) to obtain the ECCS RESPONSE TIME. However, failure to meet the ECCS RESPONSE TIME due to a component other than instrumentation not within limits does not require the associated instrumentation to be declared inoperable; only the affected component (e.g., ECCS pump) is required to be declared inoperable.

~~ECCS RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. 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.~~

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

As noted in the beginning of the SRs, the SRs for each RCIC System instrumentation Function are found in the SRs column of Table 3.3.5.2-1.

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 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. 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. 1) 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 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 that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.5.2.1 (continued)

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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 Frequency of 92 days is based on the reliability analysis of Reference 1.~~

SR 3.3.5.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter with 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 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.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.5.2.4

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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. 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.
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BASES

ACTIONS
(continued)

J.1 and J.2

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path should be closed. However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status or to isolate the RHR Shutdown Cooling System (i.e., provide alternate decay heat removal capabilities so the penetration flow path can be isolated). ACTIONS must continue until the channel is restored to OPERABLE status or the RHR Shutdown Cooling System is isolated.

SURVEILLANCE
REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each Primary Containment Isolation Instrumentation Function are found in the SRs column of Table 3.3.6.1-1.

The Surveillances are also 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 isolation 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 analyses (Refs. 9 and 10) 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.

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

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.1.1 (continued)

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.

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 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.6.1.2

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 Frequency of 92 days is based on reliability analyses described in References 9 and 10.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.6.1.3 and SR 3.3.6.1.4

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 Frequencies are based on the assumption of a 92 day or 24 month calibration interval, as applicable, in the determination of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.6.1.5

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 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 3.3.6.1.6

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 diesel generator (DG) start time. For channels assumed to respond within the DG start time, sufficient margin exists in the 13 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test. The instrument response times must be added to the MSIV closure times to obtain the ISOLATION SYSTEM RESPONSE TIME. However, failure to meet the ISOLATION SYSTEM RESPONSE TIME

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.1.6 (continued)

due to a MSIV closure time not within limits does not require the associated instrumentation to be declared inoperable; only the MSIV is required to be declared inoperable.

ISOLATION SYSTEM RESPONSE TIME acceptance criteria are included in Reference 11.

ISOLATION SYSTEM RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. However, the sensor for Function 1.c is allowed to be excluded from specific ISOLATION SYSTEM RESPONSE TIME measurement if the conditions of Reference 12 are satisfied. If these conditions are satisfied, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design response time. When the requirements of Reference 12 are not satisfied, sensor response time must be measured. Also, regardless of whether or not the sensor response time is measured, the response time of the remaining portion of the channel, including the trip unit and relay logic, is required to be measured. The sensor and relay/logic components for Functions 1.a and 1.b are assumed to operate at the design response time and therefore, are excluded from specific RPS RESPONSE TIME measurement. This allowance is supported by References 12 and 13, which determined that significant degradation of the channel response time can be detected during performance of other Technical Specification surveillance requirements.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~ISOLATION SYSTEM RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. The 24 month test 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.~~

REFERENCES

1. UFSAR, Table 6.2-21.
2. UFSAR, Section 6.2.1.1.
3. UFSAR, Chapter 15.
4. UFSAR, Section 15.1.3.

(continued)

BASES

ACTIONS

C.1.1, C.1.2, C.2.1, and C.2.2 (continued)

One hour is sufficient for plant operations personnel to establish required plant conditions or to declare the associated components inoperable without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each Secondary Containment Isolation instrumentation Function are located in the SRs column of Table 3.3.6.2-1.

The Surveillances are also 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 isolation 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 Action(s) taken.

This Note is based on the reliability analysis (Refs. 3 and 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 SCIVs will isolate the associated penetration flow paths and 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 indicated parameter for one instrument 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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.2.1 (continued)

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

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.6.2.2

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.

~~The Frequency of 92 days is based upon the reliability analysis of References 3 and 4.~~

SR 3.3.6.2.3

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.6.2.3 (continued)

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.6.2.4

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 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 15.6.5.
 2. UFSAR, Section 15.7.4.
 3. NEDC-31677-P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
 4. NEDC-30851-P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentations Common to RPS and ECCS Instrumentation," March 1989.
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BASES (continued)

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 CRAF subsystem 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 (Refs. 4 and 5) 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 CRAF System will initiate when necessary.

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 is normally a comparison of the indicated parameter for one instrument 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.7.1.2

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 Frequency of 92 days is based on the reliability analyses of References 4 and 5.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.7.1.3

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 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 3.3.7.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.7.4, "Control Room Area Filtration (CRAF) System," overlaps this Surveillance to provide complete testing of the assumed safety function.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.7.1.4 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~While the Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance 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.~~

REFERENCES

1. UFSAR, Sections 7.3.4 and 9.4.1.
 2. UFSAR, Section 6.4.
 3. UFSAR, Chapter 15.
 4. GENE-770-06-1A, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," December 1992.
 5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
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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 2 hours provided the associated Function maintains LOP initiation capability. LOP initiation capability is maintained provided the associated Function can perform the load shed and control scheme for two of the three 4.16 kV emergency buses. Upon completion of the Surveillance, or expiration of the 2 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken.

SR 3.3.8.1.1 and SR 3.3.8.1.3

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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The Frequencies of 18 months and 24 months are based on plant operating experience with regard to channel OPERABILITY and drift that demonstrates that failure of more than one channel of a given Function in any 18 month or 24 month interval, as applicable, is rare.~~

SR 3.3.8.1.2 and SR 3.3.8.1.4

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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.8.1.2 and SR 3.3.8.1.4 (continued)

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 Frequency is based on the assumption of an 18 month or 24 month calibration interval, as applicable, in the determination of the magnitude of equipment drift in the setpoint analysis.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.3.8.1.5

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 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 8.2.3.3.
 2. UFSAR, Section 5.2.
 3. UFSAR, Section 6.3.
 4. UFSAR, Chapter 15.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.8.2.1 (continued)

allow for scheduling and proper performance of the Surveillance. ~~The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. 3).~~

is

SR 3.3.8.2.2

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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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

SR 3.3.8.2.3

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 power monitoring assembly circuit breaker. The system functional test shall include actuation of the protective relays, tripping logic, and output circuit breakers. Only one signal per power monitoring 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 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~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.8.2.3 (continued)

~~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 8.3.1.1.3.
 2. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
 3. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electric Protective Assemblies in Power Supplies for the Reactor Protection System."
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BASES

ACTIONS

D.1 (continued)

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 recirculation loop flows are within the allowable limits for mismatch. At low core flow (i.e., < 70% of rated core flow), the APLHGR, LHGR, and 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The mismatch is measured in terms of percent of rated core flow. If the flow mismatch exceeds the specified limits, the loop with the lower flow is considered not in operation. This SR is not required when both loops are not 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 24 hour Frequency is consistent with the 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, Sections 6.3 and 15.6.5.
 2. UFSAR, Appendix G.3.1.2.
 3. UFSAR, Section 6.B.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.2.1 (continued)

to the common open and close lines as well as to the alternate subloop. This Surveillance verifies FCV lockup on a loss of hydraulic pressure.

~~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 SR when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.4.2.2

This SR ensures the overall average rate of FCV movement at all positions is maintained within the analyzed limits.

~~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 SR when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. UFSAR, Section 15.3.2.
 2. UFSAR, Section 15.4.5.
 3. UFSAR, Appendix G.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.3.1 (continued)

loop flow characteristics for two recirculation loop operation. When only one recirculation loop is operating, the established FCV position should include the loop flow characteristics for single loop operation.

Total calculated core flow can be determined from either the established THERMAL POWER-core flow relationship or the core plate differential pressure-core flow relationship. Once this relationship has been established, increased or reduced indicated total core flow from the calculated total core flow may be an indication of failures in one or several jet pumps. When determining calculated total core flow in single recirculation loop operation using the core plate differential pressure-core flow relationship, the calculated total core flow value should be derived using the established core plate differential pressure - core flow relationship for two recirculation loop operation.

Individual jet pumps in a recirculation loop typically 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The deviations from normal are considered indicative of a potential problem in the recirculation drive flow or jet pump system (Ref. 2). Normal flow ranges and established jet pump differential pressure patterns are established by plotting historical data as discussed in Reference 2.

~~The 24 hour Frequency has been shown by operating experience to be adequate to verify jet pump OPERABILITY and is consistent with the 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

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.4.5.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 3.4.7, "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 provided the method has suitable sensitivity to satisfy the requirements of LCO 3.4.5. ~~In conjunction with alarms and other administrative controls, a 12 hour Frequency for this Surveillance is appropriate for identifying changes in LEAKAGE and for tracking required trends (Ref. 7).~~

REFERENCES

1. 10 CFR 50.2.
 2. 10 CFR 50.55a(c).
 3. 10 CFR 50, Appendix A, GDC 55.
 4. GEAP-5620, "Failure Behavior in ASTM A106 B Pipes Containing Axial Through-Wall Flaws," April 1968.
 5. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactor Plants," October 1975.
 6. UFSAR, Section 5.2.5.5.2.
 - ~~7. Generic Letter 88-01, Supplement 1, February 1992.~~
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BASES

ACTIONS
(continued)

With the drywell floor drain sump flow monitoring system inoperable, but with RCS unidentified and total LEAKAGE being determined ~~every 12 hours~~ (SR 3.4.5.1), operation may continue for 30 days. The 30 day Completion Time of Required Action A.1 is acceptable, based on operating experience, considering the multiple forms of leakage detection that are still available.

B.1

With both gaseous and particulate drywell atmospheric monitoring channels inoperable (i.e., the required drywell atmospheric monitoring system), grab samples of the drywell atmosphere shall be taken and analyzed to provide periodic leakage information. Provided a sample is obtained and analyzed every 12 hours, the plant may continue operation since at least one other form of drywell leakage detection (i.e., air cooler condensate flow rate monitor) is available.

The 12 hour interval provides periodic information that is adequate to detect LEAKAGE.

C.1

With the required drywell air cooler condensate flow rate monitoring system inoperable, SR 3.4.7.1 is performed every 8 hours to provide periodic information of activity in the drywell at a more frequent interval than the routine Frequency of SR 3.4.7.1. The 8 hour interval provides periodic information that is adequate to detect LEAKAGE and recognizes that other forms of leakage detection are available. However, this Required Action is modified by a Note that allows this action to be not applicable if the required drywell atmospheric monitoring system is inoperable. Consistent with SR 3.0.1, Surveillances are not required to be performed on inoperable equipment.

D.1 and D.2

With both the gaseous and particulate drywell atmospheric monitor channels and the drywell air cooler condensate flow rate monitor inoperable, the only means of detecting LEAKAGE is the drywell floor drain sump flow monitor. This

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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 3.4.7.1

This SR requires the performance of a CHANNEL CHECK of the required drywell atmospheric monitoring system. The check gives reasonable confidence that the channel is operating properly. ~~The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.4.7.2

This SR requires 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 function and relative accuracy of the instrument string. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. ~~The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~

SR 3.4.7.3

This SR requires the performance of a CHANNEL CALIBRATION of the required RCS leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside the

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.7.3 (continued)

drywell. ~~The Frequency of 24 months is a typical refueling cycle and considers channel reliability. Operating experience has proven this Frequency is acceptable.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
 2. Regulatory Guide 1.45, May 1973.
 3. UFSAR, Section 5.2.5.1.1.
 4. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
 5. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactor Plants," October 1975.
 6. UFSAR, Section 5.2.5.5.2.
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The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS B.1, B.2.1, B.2.2.1, and B.2.2.2 (continued)

operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE SR 3.4.8.1
REQUIREMENTS

This Surveillance is performed to ensure iodine remains within limit during normal operation. ~~The 7 day Frequency is adequate to trend changes in the iodine activity level.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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.

- REFERENCES
1. 10 CFR 100.11.
 2. UFSAR, Section 15.6.4.5.
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BASES

ACTIONS

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

separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

During the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR shutdown cooling subsystem or recirculation pump), the reactor coolant temperature and pressure must be periodically monitored to ensure proper function of the alternate method. The once per hour Completion Time is deemed appropriate.

SURVEILLANCE
REQUIREMENTS

SR 3.4.9.1

This Surveillance verifies that one RHR shutdown cooling subsystem or recirculation pump is in operation and circulating reactor coolant. The required flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability. ~~The Frequency of 12 hours is sufficient in view of other visual and audible indications available to the operator for monitoring the RHR subsystem in the control room.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This Surveillance is modified by a Note allowing sufficient time to align the RHR System for shutdown cooling operation after clearing the pressure interlock that isolates the system, or for placing a recirculation pump in operation. The Note takes exception to the requirements of the Surveillance being met (i.e., forced coolant circulation is not required for this initial 2 hour period), which also allows entry into the Applicability of this Specification in accordance with SR 3.0.4 since the Surveillance will not be "not met" at the time of entry into the Applicability.

REFERENCES

None.

BASES

ACTIONS B.1 and B.2 (continued)

During the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR shutdown cooling subsystem or recirculation pump), the reactor coolant temperature and pressure must be periodically monitored to ensure proper function of the alternate method. The once per hour Completion Time is deemed appropriate.

SURVEILLANCE
REQUIREMENTS SR 3.4.10.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This Surveillance verifies that one RHR shutdown cooling subsystem or recirculation pump is in operation and circulating reactor coolant. The required flow rate is determined by the flow rate necessary to provide sufficient decay heat removal capability. ~~The Frequency of 12 hours is sufficient in view of other visual and audible indications available to the operator for monitoring the RHR subsystem in the control room.~~

REFERENCES None.

BASES

ACTIONS

B.1 and B.2 (continued)

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 engineering 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 > 200°F. Several methods may be used, including comparison with pre-analyzed transients, new analyses, or inspection of the components. ASME 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 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 3.4.11.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Verification that operation is within limits is required ~~every 30 minutes~~ when RCS pressure and temperature conditions are undergoing planned changes. ~~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 assessment and correction of~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.11.1 (continued)

~~minor deviations.~~ The limits of Figures 3.4.11-1, 3.4.11-2, 3.4.11-3, 3.4.11-4, 3.4.11-5, and 3.4.11-6 are met when operation is to the right of the applicable curve.

Surveillance for heatup, cooldown, or inservice leak and hydrostatic testing may be discontinued when the criteria given in the relevant plant procedure for ending the activity are satisfied.

This SR has been modified by a Note that requires this Surveillance to be performed only during system heatup and cooldown operations and inservice leak and hydrostatic testing.

SR 3.4.11.2

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. The limits of Figures 3.4.11-3 and 3.4.11-6 are met when operation is to the right of the applicable curve.

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 3.4.11.3 and SR 3.4.11.4

Differential temperatures within the applicable limits ensure that thermal stresses resulting from the startup of an idle recirculation pump will not exceed design allowances. In addition, compliance with these limits ensures that the assumptions of the analysis for the startup of an idle recirculation loop (Ref. 8) are satisfied.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.11.3 and SR 3.4.11.4 (continued)

Performing the Surveillance within 15 minutes before starting the idle recirculation pump provides adequate assurance that the limits will not be exceeded between the time of the Surveillance and the time of the idle pump start.

An acceptable means of demonstrating compliance with the temperature differential requirement in SR 3.4.11.3 is to compare temperatures of the reactor pressure vessel steam space coolant and the bottom head drain line coolant.

An acceptable means of demonstrating compliance with the temperature differential requirement in SR 3.4.11.4 is to compare the temperatures of the operating recirculation loop and the idle loop.

SR 3.4.11.3 and SR 3.4.11.4 have been modified by a Note that requires the Surveillance to be met only in MODES 1, 2, 3, and 4 during a recirculation pump startup since this is when the stresses occur. In MODE 5, the overall stress on limiting components is lower; therefore, ΔT limits are not required.

SR 3.4.11.5, SR 3.4.11.6, and SR 3.4.11.7

Limits on the reactor vessel flange and head flange temperatures are generally bounded by the other P/T limits during system heatup and cooldown. However, operations approaching MODE 4 from MODE 5 and in MODE 4 with RCS 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 ~~every 30 minutes thereafter~~ while tensioning the vessel head bolting studs to ensure that once the head is tensioned the limits are satisfied. When in MODE 4 with RCS temperature $\leq 77^{\circ}\text{F}$ for Unit 1 and $\leq 91^{\circ}\text{F}$ for Unit 2, ~~30 minute~~ checks of the flange temperatures are required because of the reduced margin to the limits. When in MODE 4 with RCS temperature $\leq 92^{\circ}\text{F}$ for

periodically

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.11.5, SR 3.4.11.6, and SR 3.4.11.7 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Unit 1 and $\leq 106^{\circ}\text{F}$ for Unit 2, monitoring of the flange temperature is required ~~every 12 hours~~ to ensure the temperatures are within the specified limits.

~~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 3.4.11.5 is modified by a Note that requires the Surveillance to be performed only when tensioning the reactor vessel head bolting studs. SR 3.4.11.6 is modified by a Note that requires the Surveillance to be initiated 30 minutes after RCS temperature $\leq 77^{\circ}\text{F}$ for Unit 1 and $\leq 91^{\circ}\text{F}$ for Unit 2 in MODE 4, SR 3.4.11.7 is modified by a Note that requires the Surveillance to be initiated 12 hours after RCS temperature $\leq 92^{\circ}\text{F}$ for Unit 1 and $\leq 106^{\circ}\text{F}$ for Unit 2 in MODE 4. The Notes contained in these SRs are necessary to specify when the reactor vessel flange and head flange temperatures are required to be verified to be within the specified limits.

REFERENCES

1. 10 CFR 50, Appendix G.
2. ASME, Boiler and Pressure Vessel Code, Section III, Appendix G.
3. ASTM E 185.
4. 10 CFR 50, Appendix H.
5. Regulatory Guide 1.99, Revision 2, May 1988.
6. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.
7. UFSAR, Section 15.4.4.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.4.12.1

Verification that reactor steam dome pressure is ≤ 1020 psig ensures that the initial condition of the vessel overpressure protection analysis is met. ~~Operating experience has shown the 12 hour Frequency to be sufficient for identifying trends and verifying operation within safety analyses assumptions.~~

REFERENCES

1. UFSAR, Section 5.2.2.2.1.
 2. UFSAR, Chapter 15.
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The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES (continued)

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 HPCS System, LPCS System, and LPCI subsystems full of water ensures that the systems will perform properly, injecting their full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring the lines are full is to vent at the high points. ~~The 31 day Frequency is based on operating experience, on the procedural controls governing system operation, and on the gradual nature of void buildup in the ECCS piping.~~

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 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 potentially 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 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 alignment would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.~~

SR 3.5.1.3

Verification ~~every 31 days~~ that ADS accumulator supply header pressure is ≥ 150 psig assures adequate pneumatic pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve

(continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.3 (continued)

actuation. The ADS valve accumulators are sized to provide two cycles of the ADS valves upon loss of the nitrogen supply (Ref. 13). The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. The accumulator supply header pressure verification may be accomplished by monitoring control room alarms. ~~The 31 day Frequency takes into consideration alarms for low pneumatic pressure.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.5.1.4

Verification ~~every 31 days~~ that ADS accumulator backup compressed gas system bottle pressure is ≥ 500 psig assures availability of an adequate backup pneumatic supply to the ADS accumulators following a loss of the drywell pneumatic supply. ~~The 31 day frequency is adequate because each ADS bottle bank is monitored by a low pressure alarm. Also, unless the normal drywell pneumatic supply is lost, the only expected losses from the bottles are due to leakage, which is minimal.~~

SR 3.5.1.5

The performance requirements of the ECCS pumps are determined through application of the 10 CFR 50, Appendix K, criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME OM Code requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of 10 CFR 50.46 (Ref. 10).

The pump flow rates are verified against a test line pressure that was determined during preoperational testing to be equivalent to the RPV pressure expected during a LOCA. Under these conditions, 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 LOCAs. The Frequency for this Surveillance is in accordance with the Inservice Testing Program requirements.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.5.1.6

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 HPCS, LPCS, 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 position. This Surveillance also ensures that the HPCS System injection valve will automatically reopen on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) injection valve closure signal. 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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 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 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 3.5.1.7

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 an

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.1.7 (continued)

actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.8 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 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 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 3.5.1.8. This also prevents an RPV pressure blowdown.

SR 3.5.1.8

A manual actuation of each required ADS actuator is performed to verify that the valve, actuator, and solenoids are functioning properly. SR 3.4.4.1, SR 3.5.1.7 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 Frequency of 24 months is based on the need to perform this Surveillance under the conditions that apply just prior to or 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 a Note that excludes the valve actuation since valve OPERABILITY is demonstrated for ADS valves by successful operation of a sample of S/RVs. The sample population of S/RVs tested each refueling outage to satisfy SR 3.4.4.1 are stroked in the relief mode during “as

(continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS

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

releases (i.e., one secondary containment isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability. The administrative controls consist of stationing a dedicated operator, who is in continuous communication with the control room at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.) This may be performed by an administrative check, by examining logs or other information, to determine if the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillances 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The minimum water level of -12 ft 7 in (referenced to a plant elevation of 699 ft 11 in) required for the suppression pool, equivalent to a contained water volume of 70,000 ft³, is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the ECCS pumps, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, all ECCS injection/spray subsystems are inoperable.

~~The 12 hour Frequency of these SRs was developed considering operating experience related to suppression pool water level variations and instrument drift during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications in the control room to alert the operator to an abnormal suppression pool water level condition.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

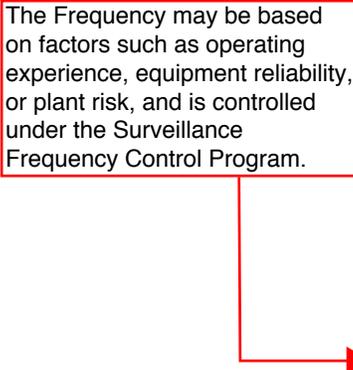
SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6

The Bases provided for SR 3.5.1.1, SR 3.5.1.4, and SR 3.5.1.5 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 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



REFERENCES

1. UFSAR, Section 6.3.3.2.

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 HPCS 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 ≤ 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. ~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves (including the RCIC pump flow controller) 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 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. For the RCIC System, this SR also includes the steam flow path for
(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.3.2 (continued)

the turbine and the flow controller position.

~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 test line pressure 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 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. Reactor steam pressure must be ≥ 920 psig to perform SR 3.5.3.3 and ≥ 135 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve opened 50%. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time 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 test has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, 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 the flow tests after the required pressure and flow are reached are sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SRs.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

~~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 this Surveillance under the conditions that apply during 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 to perform its design function. This Surveillance verifies that with a required system initiation signal (actual or simulated) the automatic initiation logic of RCIC will cause the system to operate as designed, i.e., actuation of the system throughout its emergency operating sequence, which includes automatic pump startup and actuation of all automatic valves to their required positions. This Surveillance also ensures that the RCIC System will automatically restart on an actual or simulated RPV low water level (Level 2) signal received subsequent to an actual or simulated RPV high water level (Level 8) shutdown signal, 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.

~~While this Surveillance can be 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 vessel injection 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.1.3

Maintaining the pressure suppression function of the 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 measures drywell-to-suppression chamber differential pressure during a 1 hour period to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

Satisfactory performance of this SR can be achieved by establishing a known differential pressure (≥ 1.5 psid) between the drywell and the suppression chamber and verifying that the measured bypass leakage is $\leq 10\%$ of the acceptable A/\sqrt{k} design value of 0.030 ft^2 . ~~The leakage test is performed every 120 months. The Frequency was developed considering it is prudent that this Surveillance be performed during a unit outage and also in view of the fact that component failures that might have affected this test are identified by other primary containment SRs. One test failure increases the test Frequency to 48 months. Two consecutive test failures, however, would indicate unexpected primary containment degradation, in this event, increasing the Frequency to once every 24 months is required until the situation is remedied as evidenced by passing two consecutive tests.~~

SR 3.6.1.1.4

Maintaining the pressure suppression function of the primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurizes the drywell, the steam would be directed through the downcomers into the suppression pool. This SR measures the individual drywell to suppression chamber vacuum relief valve bypass leakage to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

Satisfactory performance of this SR can be achieved by establishing a known differential pressure (≥ 1.5 psid) between the drywell side and the suppression chamber side of the drywell to suppression chamber vacuum relief valve and verifying that the measured bypass leakage is $\leq 1.2\%$ of the acceptable A/\sqrt{k} design value of 0.030 ft^2 . ~~The leakage test is performed every 24 months. The 24 month Frequency was~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.1.4 (continued)

~~developed considering it is prudent that this Surveillance be performed during a unit outage.~~

The SR is modified by a Note stating that performance of SR 3.6.1.1.3 satisfies this Surveillance Requirement. This is acceptable since drywell to suppression chamber vacuum relief valve leakage is included in the measurement of the drywell to suppression chamber bypass leakage required by SR 3.6.1.1.3.

SR 3.6.1.1.5

Maintaining the pressure suppression function of the primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurizes the drywell, the steam would be directed through the downcomers into the suppression pool. This SR determines the total drywell to suppression chamber vacuum relief valve bypass leakage to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Satisfactory performance of this SR can be achieved by summing the individual drywell to suppression chamber vacuum relief valve bypass leakage from SR 3.6.1.1.4 and verifying that the measured bypass leakage is $\leq 3.0\%$ of the acceptable A/\sqrt{k} design value of 0.030 ft². ~~The acceptable bypass leakage of this Surveillance is performed every 24 months. The 24 month Frequency was developed considering it is prudent that this Surveillance be performed during a unit outage.~~

The SR is modified by a Note stating that performance of SR 3.6.1.1.3 satisfies this Surveillance Requirement. This is acceptable since drywell to suppression chamber vacuum relief valve leakage is included in the measurement of the drywell to suppression chamber bypass leakage required by SR 3.6.1.1.3.

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.2.2 (continued)

containment pressure (Ref. 2), 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. ~~Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when the primary containment air lock door 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 3.8.1.1.3.5.1.
 2. UFSAR, Section 6.2.6.1.
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BASES

ACTIONS F.1 and F.2 (continued)

and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended. If suspending the OPDRVs 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 valves 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 verifies that the 8 inch and 26 inch primary containment purge valves are closed as required or, if open, opened for an allowable reason.

The SR is modified by a Note stating that the SR is not required to be met when the 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 for Surveillances that require the valves to be open, provided the drywell purge valves and suppression chamber purge valves are not open simultaneously. This is required to prevent a bypass path between the suppression chamber and the drywell, which would allow steam and gases from a LOCA to bypass the downcomers to the suppression pool. These primary containment purge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. ~~The 31 day Frequency is consistent with other primary containment isolation valve requirements discussed in SR 3.6.1.3.2.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



SR 3.6.1.3.2

This SR verifies 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.3.2 (continued)

accident leakage of radioactive fluids or gases outside of the primary containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those PCIVs outside primary containment, and capable of being mispositioned, are in the correct position. ~~Since verification of position for PCIVs outside primary containment is relatively easy, the 31 day Frequency was chosen to provide added assurance that the PCIVs 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Two Notes are 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 PCIVs, once they have been verified to be in the proper position, is low. A second Note is included to clarify that PCIVs open under administrative controls are not required to meet the SR during the time 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 3.6.1.3.3

This SR verifies that each primary containment manual isolation valve and blind flange located inside primary containment and not locked, sealed, or otherwise secured and 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 PCIVs inside primary

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.3.3 (continued)

containment, the Frequency of "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 PCIVs 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 otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

Two Notes are 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 and personnel safety. Therefore, the probability of misalignment of these PCIVs, once they have been verified to be in their proper position, is low. A second Note is 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 and operating life, as applicable, of the explosive charges, must be followed. ~~The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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 each valve will isolate in a time period less than or equal to that assumed in the safety analysis. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.1.3.6

Verifying that the full closure isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The full closure isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA and transient analyses. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.1.3.7

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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 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
(continued)

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line EFCV is OPERABLE by verifying that the valve actuates to the isolation position on an actual or simulated instrumentation line break condition. This SR provides assurance that the reactor instrumentation line EFCVs will perform as designed. ~~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 this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

Instrumentation lines that connect to the containment atmosphere, such as those which measure drywell pressure, or monitor the containment atmosphere or suppression pool water level, are considered extensions of primary containment. A failure of one of these instrumentation lines during normal operation would not result in the closure of the associated EFCV, since normal operating containment pressure is not sufficient to operate the valve. Such EFCVs will only close with a downstream line break concurrent with a LOCA. Since these conditions are beyond the plant design basis, EFCV closure is not needed and containment atmospheric instrumentation line EFCVs need not be tested (Ref. 6).

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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. Other administrative controls, such as those that limit the shelf life and operating life, as applicable, of the explosive charges, must be followed. ~~The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequency checks of circuit continuity (SR 3.6.1.3.4).~~

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.4.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Verifying that drywell and suppression chamber internal pressure is within limits ensures that operation remains within the limits assumed in the primary containment analysis. ~~The 12 hour Frequency of this SR was developed based on operating experience related to trending primary containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal primary containment pressure condition.~~

REFERENCES

1. UFSAR, Section 6.2.1.1.3.
 2. UFSAR, Section 6.2.1.1.3.1.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.5.1 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The 24 hour Frequency of this SR was developed based on operating experience related to drywell average air temperature variations and temperature dependent drift of instrumentation located in the drywell 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 drywell air temperature condition.~~

REFERENCES

1. UFSAR, Section 6.2.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.6.1 (continued)

drywell is maintained for 1 hour without makeup. ~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.6.1.6.2

Each vacuum breaker must be manually 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 92 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once every 92 days.~~ In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the safety/relief valves.

SR 3.6.1.6.3

Verification of the vacuum breaker opening setpoint of ≤ 0.5 psid from the closed position is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of 1.0 psid is valid. 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. ~~The 24 month Frequency has been shown to be acceptable, based on operating experience, and is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.~~

(continued)

BASES

ACTIONS

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

normal cooldown rates (provided pool temperature remains $\leq 120^{\circ}\text{F}$). Additionally, when pool temperature is $> 110^{\circ}\text{F}$, increased monitoring of pool temperature is required to ensure that it remains $\leq 120^{\circ}\text{F}$. The once per 30 minute Completion Time is adequate, based on operating experience. Given the high pool temperature in this condition, the monitoring Frequency is increased to twice that of Condition A. Furthermore, the 30 minute Completion Time is considered adequate in view of other indications available in the control room to alert the operator to an abnormal suppression pool average temperature condition.

D.1 and D.2

If suppression pool average temperature cannot be maintained $\leq 120^{\circ}\text{F}$, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the reactor pressure must be reduced to < 200 psig within 12 hours and the plant must be brought 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 without challenging plant systems.

Continued addition of heat to the suppression pool with pool temperature $> 120^{\circ}\text{F}$ could result in exceeding the design basis maximum allowable values for primary containment temperature or pressure. Furthermore, if a blowdown were to occur when temperature was $> 120^{\circ}\text{F}$, the maximum allowable bulk and local temperatures could be exceeded very quickly.

SURVEILLANCE
REQUIREMENTS

SR 3.6.2.1.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The suppression pool average temperature is regularly monitored to ensure that the required limits are satisfied. Average temperature is determined by taking an arithmetic average of the OPERABLE suppression pool water temperature channels, and may include an allowance for temperature stratification. ~~The 24 hour Frequency has been shown to be acceptable based on operating experience. When heat is being added to the suppression pool by testing, however, it~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.2.1.1 (continued)

Frequency is

~~is necessary to monitor suppression pool temperature more frequently.~~ The 5 minute Frequency during testing is justified by the rates at which testing 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 ~~Frequencies are~~ 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 6.2.
 2. LaSalle County Station Mark II Design Assessment Report, Section 6.2, June 1981.
 3. NUREG-0783.
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BASES

ACTIONS
(continued)

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

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Verification of the suppression pool water level is to ensure that the required limits are satisfied. ~~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 6.2.
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BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.6.2.3.1

Verifying the correct alignment for manual and power operated 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 being locked, sealed, or secured. 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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 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 each required RHR pump develops a flow rate ≥ 7200 gpm, while operating in the suppression pool cooling mode with flow through the associated heat exchanger, ensures that peak suppression pool temperature can be maintained below the design limits during a DBA (Ref. 1). The flow verification is also a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice tests confirm component OPERABILITY and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.2.4.1 (continued)

correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.6.2.4.2

Verifying each required RHR pump develops a flow rate ≥ 450 gpm through the spray sparger while operating in the suppression pool spray mode helps ensure that the primary containment pressure can be maintained below the design limits during a DBA (Ref. 1). The normal test of centrifugal pump performance required by the ASME OM Code (Ref. 2) is covered by the requirements of LCO 3.6.2.3, "RHR Suppression Pool Cooling." The Frequency of this SR is in accordance with the Inservice Testing Program.

REFERENCES

1. UFSAR, Section 6.2.1.1.3.
 2. ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).
 3. NEDC-32998-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
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BASES

ACTIONS
(continued)

B.1

If oxygen concentration 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, power must be reduced to $\leq 15\%$ RTP within 8 hours. The 8 hour Completion Time is reasonable, based on operating experience, to reduce reactor power from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.6.3.2.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The primary containment must be determined to be inerted by verifying that oxygen concentration is < 4.0 v/o. ~~The 7 day Frequency is based on the slow rate at which oxygen concentration can change and on other indications of abnormal conditions (which could 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 6.2.5.
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BASES

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

Required Action C.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving 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 irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE
REQUIREMENTS SR 3.6.4.1.1

This SR ensures that the secondary containment boundary is sufficiently leak tight to preclude exfiltration. ~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~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 3.6.4.1.2 and SR 3.6.4.1.5

Verifying that one secondary containment access door in each access opening is closed and each equipment hatch is closed and sealed 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. In this application, the term "sealed" has no connotation of leak tightness. In addition, for equipment hatches that are floor plugs, the "sealed" requirement is effectively met by gravity. 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 a secondary containment barrier contains multiple inner or multiple outer doors. For these cases, the access openings share the inner door or the outer door, i.e., the access openings have

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.1.2 and SR 3.6.4.1.5 (continued)

a common inner door or outer door. 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, i.e., all inner doors closed or all outer doors closed. Thus each access opening has one door closed. However, each secondary containment access door is normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on the access opening. ~~The 31 day Frequency for SR 3.6.4.1.2 has been shown to be adequate based on operating experience, and is considered adequate in view of the existing administrative controls on door status. The 24 month Frequency for SR 3.6.4.1.5 is considered adequate in view of the existing administrative controls on equipment hatches.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.1.3 and SR 3.6.4.1.4

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. Each SGT subsystem is designed to drawdown pressure in the secondary containment to ≥ 0.25 inches of vacuum water gauge in ≤ 300 seconds and maintain pressure in the secondary containment at ≥ 0.25 inches of vacuum water gauge for 1 hour at a flow rate of ≤ 4400 cfm. To ensure that all fission products released to secondary containment are treated, SR 3.6.4.1.3 and SR 3.6.4.1.4 verify that a pressure in the secondary containment that is less than the pressure external to the secondary containment boundary can rapidly be established and maintained. When the SGT System is operating as designed, the establishment and maintenance of secondary containment pressure cannot be accomplished if the secondary containment boundary is not intact. Establishment of this pressure is confirmed by SR 3.6.4.1.3, which demonstrates that the secondary containment can be drawn down to ≥ 0.25 inches of vacuum water gauge in ≤ 300 seconds using one SGT subsystem. 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 ≤ 4400 cfm. This flow rate is the assumed secondary containment leak rate during the drawdown period. The 1 hour test period allows secondary containment to be in thermal equilibrium at

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.1.3 and SR 3.6.4.1.4 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

steady state conditions. The primary purpose of the SRs is to ensure secondary containment boundary integrity. The secondary purpose of these SRs is to ensure that the SGT subsystem being tested functions as designed. There is a separate LCO with Surveillance Requirements that serves the primary purpose of ensuring OPERABILITY of the SGT System. These SRs need not be performed with each SGT subsystem. The SGT subsystem used for these Surveillances 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 System does not necessarily constitute a failure of these Surveillances relative to secondary containment OPERABILITY. ~~Operating experience has shown the secondary containment boundary usually passes these Surveillances when performed at the 24 month Frequency. Therefore the Frequency was concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. UFSAR, Section 15.6.5.
 2. UFSAR, Section 15.7.4.
 3. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
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BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.2.1

This SR verifies 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. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the secondary containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those SCIVs in secondary containment that are capable of being mispositioned are in the correct position.

~~Since these SCIVs are readily accessible to personnel during normal unit 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.4.2.2

Verifying 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 Frequency of this SR is 92 days.~~

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. ~~While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 15.6.5.
 2. UFSAR, Section 15.7.4.
 3. Technical Requirements Manual.
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BASES

ACTIONS

D.1 (continued)

to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1, E.2, and E.3

When two SGT subsystems are inoperable, if applicable, CORE ALTERATIONS and movement of irradiated fuel assemblies in the secondary containment must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until OPDRVs are suspended.

Required Action E.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving 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 irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE
REQUIREMENTS

SR 3.6.4.3.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Operating (from the control room) each SGT subsystem 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~~ eliminates moisture on the adsorbers and HEPA filters. ~~The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.~~

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BASES

SURVEILLANCE
REQUIREMENTS
(continued)

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 SGT System filter tests are in accordance with ANSI/ASME N510-1989 (Ref. 6). 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). Specified test frequencies and additional information are discussed in detail in the VFTP.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.3.3

This SR requires verification that each SGT subsystem starts upon receipt of an actual or simulated initiation 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. ~~While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance 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.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
 2. UFSAR, Section 6.5.1.
 3. UFSAR, Section 15.6.5.
 4. UFSAR, Section 15.7.4
 5. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
 6. ANSI/ASME N510-1989.
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BASES (continued)

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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.~~

REFERENCES

1. UFSAR, Section 9.2.1.
 2. UFSAR, Chapter 6.
 3. UFSAR, Chapter 15.
 4. UFSAR, Section 6.2.2.3.1.
 5. Risk Management Document SA-1354, Rev. 0, "LaSalle Division 1 and 2 CSCS Valve Replacement Project - Temporary Extension of Technical Specification Completion Times", December 02, 2004.
 6. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
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BASES

ACTIONS
(continued)

A.1

If one or more DGCW subsystems are inoperable, the associated DG(s) and ECCS components supported by the affected DGCW loop, including LPCS pump motor cooling coils or ECCS cubicle area cooling coils, as applicable, cannot perform their intended function and must be immediately declared inoperable. In accordance with LCO 3.0.6, this also requires entering into the Applicable Conditions and Required Actions for LCO 3.4.9, "RHR Shutdown Cooling System -Hot Shutdown," LCO 3.5.1, "ECCS-Operating," LCO 3.5.3, "RCIC System," LCO 3.6.2.3, "RHR Suppression Pool Cooling," LCO 3.6.2.4, "RHR Suppression Pool Spray," and LCO 3.8.1, "AC Sources-Operating," as appropriate.

SURVEILLANCE
REQUIREMENTS

SR 3.7.2.1

Verifying the correct alignment for manual, power operated, and automatic valves in each DGCW subsystem flow path provides assurance that the proper flow paths will exist for DGCW subsystem 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 be 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.7.2.2

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR ensures that each DGCW subsystem pump will automatically start to provide required cooling to the associated DG, LPCS pump motor cooling coils, and ECCS cubicle area cooling coils, as applicable, when the associated DG starts and the respective bus is energized. For the Division 1 DGCW subsystem, this SR also ensures the DGCW pump automatically starts on receipt of a start signal for the unit LPCS pump. These starts may be performed using actual or simulated initiation signals.

~~Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based at the refueling cycle. Therefore, this Frequency is concluded to be acceptable from a reliability standpoint.~~

REFERENCES

1. UFSAR, Section 9.2.1.
 2. UFSAR, Chapter 6.
 3. UFSAR, Chapter 15.
 4. Risk Management Document SA-1354, Rev. 0, "LaSalle Division 1 and 2 CSCS Valve Replacement Project - Temporary Extension of Technical Specification Completion Times", December 02, 2004.
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BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.7.3.1 (continued)

without makeup, while taking into account solar heat loads and plant decay heat during the worst historical weather conditions. In addition, since the lake temperature follows a diurnal cycle (it heats up during the day and cools off at night), the allowable initial UHS temperature varies with the time of day. The allowable initial UHS temperatures, based on the actual sediment level and the time of day have been determined by analysis (Ref. 5). The limiting initial UHS temperature of 102.3°F determined in this analysis ensures the maximum post-accident temperature of 104°F is not exceeded. These temperatures are analytical limits that do not include instrument uncertainty or additional margin. For example, if the lake temperature uncertainty and additional margin are determined to be 0.5°F, the limiting initial UHS temperature becomes 101.8°F. This limiting initial temperature remains bounded by the SR 3.7.3.1 limit of $\leq 101.25^\circ\text{F}$. ~~The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.7.3.2

This SR ensures adequate long term (30 days) cooling can be maintained, by verifying the sediment level in the intake flume and the CSCS pond is ≤ 1.5 feet. Sediment level is determined by a series of sounding cross-sections compared to as-built soundings. ~~The 24 month Frequency is based on historical data and engineering judgment regarding sediment deposition rate.~~

SR 3.7.3.3

This SR ensures adequate long term (30 days) cooling can be maintained, by verifying the CSCS pond bottom elevation is ≤ 686.5 feet. ~~The 24 month Frequency is based on historical data and engineering judgment regarding pond bottom elevation changes.~~

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems 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 month provides an adequate check on this system. Monthly heater operation for ≥ 10 continuous hours during system operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.~~

Heater

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.7.4.2

This SR verifies that flow can be manually realigned through the CRAF System recirculation filters and maintained for ≥ 10 hours. Standby systems should be checked periodically to ensure that they function. ~~Monthly operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. Furthermore, the 31 day Frequency is based on the known reliability of the equipment and two subsystem redundancy available.~~

Operation

SR 3.7.4.3

This SR verifies that the required CRAF testing is performed in accordance with Specification 5.5.8, "Ventilation Filter Testing Program (VFTP)." The CRAF filter tests are in accordance with ANSI/ASME N510-1989 (Ref. 7). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, 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.

SR 3.7.4.4

This SR verifies that each CRAF subsystem automatically switches to the pressurization mode of operation on an actual or simulated air intake radiation monitors initiation

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.4.4 (continued)

signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 overlaps this SR to provide complete testing of the safety function. ~~Operating experience has shown that these components normally pass the SR when performed at the 24 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.7.4.5

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem whole body or its equivalent to any part of the body and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rates assumed in the licensing basis analyses of DBA consequences. When the unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3 (Ref. 8), which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 9). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 10). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

(continued)

BASES

ACTIONS
(continued)

E.1, E.2, and E.3

The Required Actions of Condition E.1 are 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 sufficient reason to require a reactor shutdown.

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs if Required Actions B.1 and B.2 cannot be met within the required Completion Times action must be taken to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and handling of irradiated fuel in the secondary containment must be suspended immediately. Suspension of these activities 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 3.7.5.1

This SR monitors the control room and AEER temperatures for indication of Control Room Area Ventilation AC System performance. Trending of control room area temperature will provide a qualitative assessment of refrigeration unit OPERABILITY. Limiting the average temperature of the Control Room and AEER to less than or equal to 85°F provides a threshold beyond which the operating control room area ventilation AC subsystem is no longer demonstrating capability to perform its function. This threshold provides margin to temperature limits at which equipment qualification requirements could be challenged. Subsystem operation is routinely alternated to support planned maintenance and to ensure each subsystem provides reliable service. ~~The 12 hour Frequency is adequate considering the continuous manning of the control room by the operating staff.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.



(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.7.5.2

Verifying proper breaker alignment and power available to the control room area ventilation AC subsystems provides assurance of the availability of the system function. ~~The 7 day Frequency is appropriate in view of other administrative controls that assure system availability.~~

REFERENCES

1. UFSAR, Section 6.4.
2. UFSAR, Section 9.4.1.
3. UFSAR, Section 9.4.1.1.1.1.
4. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS

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

OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state. The allowed Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTS

SR 3.7.6.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR, ~~on a 31 day Frequency~~, requires an isotopic analysis of a representative offgas sample taken prior to the holdup line to ensure that the required limits are satisfied. The noble gases to be sampled are Xe-133, Xe-135, Xe-135m, Xe-138, Kr-85m, Kr-87, and Kr-88. If the measured rate of radioactivity increases significantly (by $\geq 50\%$ 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 (as indicated by the offgas pre-treatment noble gas activity monitor), to ensure that the increase is not indicative of a sustained increase in the radioactivity rate. ~~The 31 day Frequency is adequate in view of other instrumentation that continuously monitor the offgas, and is acceptable based on operating experience.~~

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 Offgas System at significant rates.

REFERENCES

1. UFSAR, Section 15.7.1.
 2. 10 CFR 100.
 3. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
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BASES

ACTIONS
(continued)

B.1

If the Main Turbine Bypass System cannot be restored to OPERABLE status and the MCPR limits for an inoperable Main Turbine Bypass System are not applied, THERMAL POWER must be reduced to < 25% RTP. As discussed in the Applicability section, operation at < 25% RTP results in sufficient margin to the required limits, and the Main Turbine Bypass System is not required to protect fuel integrity during the turbine trip, turbine generator load rejection, and feedwater controller failure maximum demand transients. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE
REQUIREMENTS

SR 3.7.7.1

Cycling each main turbine bypass valve through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will function when required. ~~The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions. Operating experience has shown that these components usually pass the SR when performed at the 31 day frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.7.7.2

The Main Turbine Bypass System is required to actuate automatically to perform its design function. This SR demonstrates that, with the required simulated system initiation signals, the valves will actuate to their required position. ~~The 24 month Frequency is based on the need to perform this Surveillance under conditions that apply during a unit outage and because of 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.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.7.7.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME, as defined in the transient analysis inputs for the cycle, is in compliance with the assumptions of the appropriate safety analyses. The response time limits are specified in the Technical Requirements Manual (Ref. 6).
~~The 24 month Frequency is based on the need to perform this Surveillance under conditions that apply during a unit outage and because of 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 7.7.5.2.
 2. UFSAR, Section 10.4.4.
 3. UFSAR, Section 15.2.3.
 4. UFSAR, Section 15.2.2A.
 5. UFSAR, Section 15.1.2A.
 6. Technical Requirements Manual.
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BASES (continued)

LCO The specified water level preserves the assumption of the fuel handling accident analysis (Ref. 2). As such, it is the minimum required for fuel movement within the spent fuel storage pool.

APPLICABILITY This LCO applies whenever movement of irradiated fuel assemblies occurs in the spent fuel storage pool or whenever movement of new fuel assemblies occurs in the spent fuel storage pool with irradiated fuel assemblies seated in the spent fuel storage pool, since the potential for a release of fission products exists.

ACTIONS A.1

Required Action A.1 is modified by a Note indicating that LCO 3.0.3 does not apply. If moving fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of fuel assemblies is not a sufficient reason to require a reactor shutdown.

When the initial conditions for an accident cannot be met, steps should be taken to preclude the accident from occurring. With the spent fuel storage pool level less than required, the movement of fuel assemblies in the spent fuel storage pool is suspended immediately. Suspension of this activity shall not preclude completion of movement of a fuel assembly to a safe position. This effectively precludes a spent fuel handling accident from occurring.

SURVEILLANCE
REQUIREMENTS SR 3.7.8.1

This SR verifies that sufficient water is available in the event of a fuel handling accident. The water level in the spent fuel storage pool must be checked periodically. ~~The 7 day Frequency is acceptable, based on operating experience, considering that the water volume in the pool is normally stable and water level changes are controlled by unit procedures.~~

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The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS

F.1 (continued)

In the event the unit Division 3 DG in conjunction with a unit Division 1 or 2 DG is inoperable, with a unit Division 1 or 2 DG remaining, a significant spectrum of breaks would be capable of being responded to with onsite power. Even the worst case event would be mitigated to some extent—an extent greater than a typical two division design in which this condition represents a complete loss of function. Given the remaining function, a 72 hour Completion Time is appropriate. At the end of this 72 hour period, the unit Division 3 system (HPCS System) could be declared inoperable (See Applicability Note 1) and this Condition could be exited with only one remaining required unit DG inoperable. However, with a unit Division 1 or 2 DG remaining inoperable and the HPCS System declared inoperable, a redundant required feature failure exists, according to Required Action B.3 or C.2.

In the event the required opposite unit Division 2 DG is inoperable in conjunction with a unit Division 2 DG inoperable, the opposite unit Division 2 subsystems (e.g., SGT subsystem) could be declared inoperable at the end of the 2 hour Completion Time (see Applicability Note 2) and this Condition could be exited with only one required unit DG remaining inoperable. However, with the given unit Division 2 DG remaining inoperable and the opposite unit Division 2 subsystems declared inoperable, redundant required feature failures exist, according to Required Action C.2.

G.1

If the inoperable AC electrical power sources cannot be restored to OPERABLE status within the associated Completion Time, the unit must be brought to a MODE in which the overall plant risk is minimized. To achieve this status, the unit must be brought to MODE 3 within 12 hours. Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 14) and because the time

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(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

specified as 90% of name plate rating. The specified maximum steady state output voltage of 4310 V is within the maximum operating voltage of 110% specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to $\pm 2\%$ of the 60 Hz nominal frequency and are derived from the recommendations given in Regulatory Guide 1.9 (Ref. 3).

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected or capable of being connected to their power source and that appropriate independence of offsite circuits is maintained. ~~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.~~

SR 3.8.1.2 and SR 3.8.1.7

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, these SRs have been modified by Notes (Note 1 for SR 3.8.1.7 and Note 1 for SR 3.8.1.2) to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup period prior to loading, as recommended by the manufacturer.

For the purposes of SR 3.8.1.2, the DGs are started from normal standby conditions and for the purposes of SR 3.8.1.7, the DGs are started from ambient standby conditions. Normal standby conditions for a DG means that the diesel engine jacket water and lube oil are being continuously circulated and temperature is being maintained

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.2 and SR 3.8.1.7 (continued)

consistent with manufacturer recommendations. Ambient standby conditions for a DG mean that the diesel engine jacket water and lube oil temperatures are within the prescribed temperature bands of these subsystems when the DG has been at rest for an extended period with the pre-lube oil and jacket water circulating systems operational.

In order to reduce stress and wear on diesel engines, the manufacturer has recommended that the starting speed of DGs be limited, that warmup be limited to this lower speed, and that DGs be gradually accelerated to synchronous speed prior to loading. These start procedures are the intent of Note 2 of SR 3.8.1.2.

SR 3.8.1.7 requires that, ~~at a 184 day Frequency,~~ the DG starts from standby conditions and achieves required voltage and frequency within 13 seconds. The 13 second start requirement supports the assumptions in the design basis LOCA analysis (Ref. 5). The 13 second start requirement may not be applicable to SR 3.8.1.2 (see Note 2 of SR 3.8.1.2), when a modified start procedure as described above is used. If a modified start is not used, the 13 second start requirement of SR 3.8.1.7 applies. Since SR 3.8.1.7 does require a 13 second start, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2.

In addition, the DG is required to maintain proper voltage and frequency limits after steady state is achieved. The voltage and frequency limits are normally achieved within 13 seconds. The time for the DG to reach steady state operation, unless the modified DG start method is employed, is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

To minimize testing of the common DG, Note 3 of SR 3.8.1.2 and Note 2 of SR 3.8.1.7 allow a single test for the common DG (instead of two tests, one for each unit) to satisfy the requirements of both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit. However, to the extent practicable, the tests should be alternated between units. If the DG fails one of these Surveillances, the DG should be

(continued)

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SURVEILLANCE
REQUIREMENTS

SR 3.8.1.2 and SR 3.8.1.7 (continued)

considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

~~The 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.9 (Ref. 3). The 184 day Frequency for SR 3.8.1.7 is a reduction in cold testing consistent with Generic Letter 84 15 (Ref. 7). These Frequencies provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~

SR 3.8.1.3

This Surveillance demonstrates that the DGs are capable of synchronizing and accepting greater than or equal to 90% of the DG continuous load rating. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Although no power factor requirements are established by this SR, the DG is normally operated at a power factor between 0.8 lagging and 1.0 when running synchronized with the grid. The 0.8 power factor value is the design rating of the machine at a particular kVA. The 1.0 power factor value is an operational limitation condition where the reactive power component is zero, which minimizes the reactive heating of the generator. Operating the generator at a power factor between 0.8 lagging and 1.0 avoids adverse conditions associated with underexciting the generator and more closely represents the generator operating requirements when performing its safety function (running isolated on its associated 4160 V emergency bus). The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

~~The 31 day Frequency for this Surveillance is consistent with Regulatory Guide 1.9 (Ref. 3).~~

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REQUIREMENTS

SR 3.8.1.3 (continued)

Note 1 modifies this Surveillance 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 Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test.

Note 3 indicates that this Surveillance must be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

To minimize testing of the common DG, Note 5 allows a single test of the common DG (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit. However, to the extent practicable, the test should be alternated between units. If the DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 50 minutes of DG operation at rated capacity.

~~The 31 day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low level alarms are provided and facility operators would be aware of any large uses of fuel oil during this period.~~

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REQUIREMENTS
(continued)

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. Removal of water from the fuel oil day tanks ~~once every 31 days~~ eliminates the necessary environment for bacterial survival. This is most effective means in controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, 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 established by 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and automatically transfers fuel oil from its associated storage tank to its associated day tank. It is required to support the continuous operation of standby 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.

~~The Frequency for this SR corresponds to the testing requirements for pumps as contained in the ASME OM Code (Ref. 11).~~

SR 3.8.1.8

Transfer of each Division 1 and 2 4.16 kV emergency bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of

(continued)

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SURVEILLANCE
REQUIREMENTS

SR 3.8.1.8 (continued)

~~the alternate circuit distribution network to power the Division 1 and 2 shutdown loads. 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modifications, 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 Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the 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 the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.1.9

Each DG 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 DG load

(continued)

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SURVEILLANCE
REQUIREMENTS

SR 3.8.1.9 (continued)

response characteristics and capability to reject the largest single load without exceeding predetermined frequency and while maintaining a specified margin to the overspeed trip. The load referenced for the Division 1 DG is the 1190 kW low pressure core spray pump; for the Division 2 DG, the 638 kW residual heat removal (RHR) pump; and for the Division 3 DG the 2421 kW HPCS pump. This Surveillance may be accomplished by:

- a. Tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power, or while solely supplying the bus; or
- b. Tripping its associated single largest post-accident load with the DG solely supplying the bus.

Consistent with Regulatory Guide 1.9 (Ref. 3), the load rejection test is acceptable if the diesel speed does not exceed 75% of the difference between nominal speed and the overspeed trip setpoint, or 15% above nominal speed, whichever is lower. This corresponds to 66.7 Hz, which is the nominal speed plus 75% of the difference between nominal speed and the overspeed trip setpoint. ~~The 24 month Frequency takes into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR has been modified by two Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow 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 Surveillance, a

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.9 (continued)

successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the 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 the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. To minimize testing of the common DG, Note 2 allows a single test of the common DG (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit. If the DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.10

Consistent with Regulatory Guide 1.9 (Ref. 3), paragraph C.2.2.8, this Surveillance demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine generator load response under the simulated test conditions. This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide DG damage protection. While the DG is not expected to experience this transient during an event, and continues to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The 24 month Frequency takes into consideration the 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)

shedding of the nonessential loads (Divisions 1 and 2 only) and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time.

The DG auto-start and energization of permanently connected loads time of 13 seconds is derived from requirements of the accident analysis for responding to a design basis large break LOCA (Ref. 5). 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 permanently connected loads and auto-connected loads is intended to satisfactorily show the relationship of these loads to the DG 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, 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 DG system 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 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The prelube period shall be consistent with manufacturer recommendations. For the purpose of this testing, the DGs must be started from normal standby conditions, that is, with the engine jacket water and lube oil being continuously circulated and temperature is being maintained consistent with manufacturer recommendations. The reason for Note 2 is

(continued)

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REQUIREMENTS

SR 3.8.1.12 (continued)

~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with the expected fuel cycle lengths.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The prelube period shall be consistent with manufacturer recommendations. For the purpose of this testing, the DGs must be started from normal standby conditions, that is, with the engine jacket water and lube oil being continuously circulated and temperature is being maintained consistent with manufacturer recommendations. The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 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 on-site 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 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.13

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Consistent with Regulatory Guide 1.9 (Ref. 3) paragraph C.2.2.12, this Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on a loss of voltage signal concurrent with an ECCS initiation test signal and critical protective functions (engine overspeed and generator differential current) trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

~~The 24 month Frequency is based on engineering judgment, taking 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. The reason for the Note is that performing the Surveillance removes a required DG from service. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow 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 Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the 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 the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.14 (continued)

endurance tests envelope the accident kVAR load and therefore, the power factor requirements. This power factor is chosen to bound the actual worst case inductive loading that the DG could experience under design basis accident conditions.

~~The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This Surveillance is modified by four Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. Similarly, momentary power factor transients above the limit do not invalidate the test. The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. However, it is acceptable to perform this SR in MODES 1 and 2 provided the other two DGs are OPERABLE, since a perturbation can only affect one divisional DG. If during performance of this SR one of the other DGs becomes inoperable, this Surveillance is to be suspended. In addition, this restriction from normally performing the Surveillance in MODE 1 or 2 with any of the remaining two DGs inoperable is further amplified to allow 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 Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the 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

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.15 (continued)

13 seconds. The time for the DG to reach the steady state voltage and frequency limits is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

~~The 24 month Frequency takes into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR has been modified by three Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The requirement that the diesel has operated for at least 2 hours at 92% to 100% of full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing. The prelube period shall be consistent with manufacturer recommendations. To minimize testing of the common DG, Note 3 allows a single test of the common DG (instead of two tests, one for each unit) to satisfy the requirements for both units. This is allowed since the main purpose of the Surveillance can be met by performing the test on either unit. If the DG fails one of these Surveillances, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

SR 3.8.1.16

Consistent with Regulatory Guide 1.9 (Ref. 3), paragraph C.2.2.11, this Surveillance ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.16 (continued)

ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the individual load time delay relays are reset.

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow 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 Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the 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 the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.1.17

Consistent with Regulatory Guide 1.9 (Ref. 3), paragraph C.2.2.13, demonstration of the parallel test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the Divisions 1 and 2 DGs to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.17 (continued)

mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 12), paragraph 6.2.6(2).

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The Division 3 DG overcurrent trip of the SAT feeder breaker to the respective Division 3 emergency bus demonstrates the ability of the Division 3 DG to remain connected to the emergency bus and supplying the necessary loads.

~~The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR has been modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 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 on-site 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 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.18

Under accident conditions with loss of offsite power 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 DGs due to high motor starting currents. The -10% load sequence time interval limit ensures that a sufficient time interval exists for the DG to restore frequency and voltage prior to applying the next load. 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 DG 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 (-10%) will ensure that sufficient time exists for the DG to restore frequency and voltage prior to applying the remaining load blocks (i.e., all load intervals must be $\geq 90\%$ of the design interval). Reference 2 provides a summary of the automatic loading of emergency buses. Since only the Division 1 and 2 DGs have more than one load block, this SR is only applicable to these DGs.

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance during these MODES would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 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

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.18 (continued)

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 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

SR 3.8.1.19

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates the DG operation, as discussed in the Bases for SR 3.8.1.11, during a loss of offsite power actuation test 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 DG system 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 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The prelube period shall be consistent with manufacturer recommendations. For the purpose of this testing, the DGs must be started from normal standby conditions, that is, with the engine jacket water and lube oil being continuously circulated and temperature is being maintained consistent

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.19 (continued)

with manufacturer recommendations. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 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 on-site 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 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.20

This Surveillance demonstrates that the unit DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper frequency and voltage within the specified time when the unit DGs are started simultaneously.

~~The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.9, paragraph C.2.2.14 (Ref. 3).~~

(continued)

BASES (continued)

- REFERENCES
1. 10 CFR 50, Appendix A, GDC 17.
 2. UFSAR, Chapter 8.
 3. Regulatory Guide 1.9.
 4. UFSAR, Chapter 6.
 5. UFSAR, Chapter 15.
 6. Regulatory Guide 1.93.
 7. Generic Letter 84-15, July 2, 1984.
 8. 10 CFR 50, Appendix A, GDC 18.
 9. Regulatory Guide 1.137.
 10. ANSI C84.1, 1982.
 - ~~11. ASME Code for Operation and Maintenance for Nuclear Power Plants (OM Code).~~
 - 11 → ~~12.~~ IEEE Standard 308.
 - 12 → ~~13.~~ Risk Management Document SA-1354, Rev. 0, “LaSalle Division 1 and 2 CSCS Valve Replacement Project - Temporary Extension of Technical Specification Completion Times,” December 2, 2004.
 - 13 → ~~14.~~ NEDC-32988-A, Revision 2, “Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants,” December 2002.
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BASES

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D.1 (continued)

for at least one start, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

E.1

With a Required Action and associated Completion Time of Condition A, B, C, or D not met, or the stored diesel fuel oil or starting air subsystem not within limits of this Specification for reasons other than addressed by Conditions A through D, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE
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SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the associated fuel oil storage tank and day tank for the Division 1 and 2 DGs and the opposite unit Division 2 DG to support each DG's operation for 7 days at rated load. This SR provides verification that there is an adequate inventory of fuel oil in the associated fuel oil storage tank and day tank for the Division 3 DG to support its operation for 7 days at maximum expected load profile. Each DG's storage tank supplies fuel to ensure an adequate supply is maintained in its respective day tank. Each DG's day tank supplies fuel to the DG. The usable fuel oil volume equivalent to a 7 day supply for the Division 1 and Division 2 DGs, the opposite unit Division 2 DG, and the Division 3 DG is the Seven-day Fuel Oil Supply listed in Table B 3.8.3-1. The volumes listed in Table B 3.8.3-1 are the usable volumes of the associated fuel oil storage tank and day tank combined. The usable tank volume plus the unusable tank volume equals the actual tank volume. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

~~The 31 day Frequency is adequate to ensure that a sufficient~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.1 (continued)

~~supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.~~

SR 3.8.3.2

The tests of new fuel 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 and operation. 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). The tests, limits, and applicable ASTM Standards are as follows:

- a. Sample the new fuel oil in accordance with ASTM D4057-95 (Ref. 6);
- b. Verify in accordance with the tests specified in ASTM D975-06b (Ref. 6) that the sample has: 1) an absolute specific gravity at 60°F of ≥ 0.83 and ≤ 0.89 (or an API gravity at 60°F of ≥ 27 and ≤ 39) when tested in accordance with ASTM D1298-99 (Ref. 6); 2) a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes when tested in accordance with ASTM D445-97 (Ref. 6); and 3) a flash point of $\geq 125^\circ\text{F}$ when tested in accordance with ASTM D93-99c (Ref. 6); and
- c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-93 (Ref. 6) or a water and sediment content within limits when tested in accordance with ASTM D2709-96e (Ref. 6). The clear and bright appearance with proper color test is only applicable to fuels that meet the ASTM color requirement (i.e., ASTM color 5 or less).

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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.3 (continued)

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.8.3.4

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil storage tank ~~once every 92 days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and 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 established by Regulatory Guide 1.137 (Ref. 2).~~ 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.

REFERENCES

1. UFSAR, Section 9.5.4.
2. Regulatory Guide 1.137.
3. ANSI N195, Appendix B, 1976.
4. UFSAR, Chapter 6.
5. UFSAR, Chapter 15.
6. ASTM Standards: D4057-95; D975-06b; D1298-99; D445-97; D93-99c; D4176-93; D2709-96e; D1552-95; D2622-98; D4294-98; D5452-98; D5453-06.

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additional capacity above that required by the design duty cycle to allow for temperature variations and other factors.

Based on LaSalle Station battery sizing calculations, Divisions 1 and 2 batteries have a design margin of at least 5% (Ref. 10). The Division 3 batteries have a design margin of at least 10% (Ref. 10).

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The backup battery chargers associated with the Division 1 and Division 2 125 VDC system are fully qualified chargers that are powered from a diesel generator backed safety related (Class 1E) distribution system, and are fully capable of supporting system design requirements. These 100% capacity battery chargers are the “alternate means” for supporting the Division 1 and Division 2 125 VDC systems.

The batteries for a DC electrical power subsystem are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. The minimum design voltage limit is 105/210 V.

The battery cells are of flooded lead acid construction with a nominal specific gravity of 1.215. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for a 58 cell battery and 240 V for a 116 cell battery (i.e., cell voltage of 2.065 volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ 2.065 Vpc, the battery will maintain its capacity for 30 days without further charging per manufacturers instructions. Optimal long term performance however, is obtained by maintaining a float voltage 2.17 Vpc to 2.25 Vpc for Division 1 and Division 2 and maintaining a float voltage of 2.20 Vpc to 2.25 Vpc for Division 3. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge. The nominal float voltage of 2.23 Vpc corresponds to a total float voltage output of 129.3 V for a 58 cell battery and 258.7 V for a 116 cell battery as discussed in the UFSAR, Section 8.3.2 (Ref. 4).

Each Division 1, 2, and 3 DC electrical power subsystem battery charger has ample power output capacity for the steady state operation of connected loads required during

(continued)

BASES

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(continued)

F.1 and F.2

If the inoperable Division 1, Division 2, or opposite unit Division 2 DC electrical power subsystem cannot be restored to OPERABLE status within the associated Completion Time, the unit 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 unit to MODE 4 is consistent with the time specified in Regulatory Guide 1.93 (Ref. 7).

G.1

If a Division 1 or 2 125 VDC electrical power subsystem is inoperable for reasons other than Condition A and not restored within the provided Completion Time, the plant must be brought to a condition in which the overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 11) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state. The allowed 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.

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SURVEILLANCE
REQUIREMENTS

The Surveillances are modified by two Notes to clearly identify how the Surveillances apply to the given unit and opposite unit DC electrical power sources. Note 1 states that SR 3.8.4.1 through SR 3.8.4.3 are applicable only to the given unit DC electrical power sources and Note 2 states that SR 3.8.4.4 is applicable only to the opposite unit DC electrical power sources. These Notes are necessary since opposite unit DC electrical power sources are not required to perform all of the requirements of the given unit DC electrical power sources (e.g., the opposite unit battery is not required to perform SR 3.8.4.2 and 3.8.4.3 under certain conditions when not in MODE 1, 2, or 3).

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.4.1

Verifying battery terminal voltage while on float charge 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 continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally maintain a charge on 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 125.86 V for the 125 V Div 1 and Div 2 batteries, 2.20 Vpc or 127.60 V for the 125 V Div 3 battery and 2.17 Vpc or 251.72 for the 250 volt battery at the 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 consistent with manufacturers recommendations and IEEE 450 (Ref. 8).~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.8.4.2

8

This SR verifies the design capacity of the battery chargers. According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensure that these requirements can be satisfied.

This SR provides two options. One option requires that each 125 V and 250 V Division 1 and 2 battery charger be capable of supplying 200 amps (50 amps for the 125 V Division 3 charger) 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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.2 (continued)

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 be normally 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 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 acceptable, given the 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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 correspond to the design duty cycle requirements as specified in Reference 4.

~~The Surveillance Frequency of 24 months is acceptable, given unit conditions required to perform the test and the other requirements existing to ensure adequate battery performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test 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 SR 3.8.4.3. The reason for Note 2 is that performing the Surveillance would remove a required 125 VDC electrical power subsystem from service,

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.4 (continued)

As noted, if the opposite unit is in MODE 4 or 5, or moving irradiated fuel assemblies in secondary containment, SR 3.8.4.2 and SR 3.8.4.3 are not required to be performed. This ensures that a given unit SR will not require an opposite unit SR to be performed, when the opposite unit Technical Specifications exempts performance of an opposite unit SR (however, as stated in the opposite unit SR 3.8.5.1 Note 1, while performance of an SR is exempted, the SR must still be met).

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6, March 10, 1971.
3. IEEE Standard 308, 1971.
4. UFSAR, Section 8.3.2.
5. UFSAR, Chapter 6.
6. UFSAR, Chapter 15.
7. Regulatory Guide 1.93, December 1974.
- ~~8. IEEE Standard 450, 1975.~~

8 → 9. Regulatory Guide 1.32, August 1972.

9 → 10. NRC Regulatory Commitment documented in letter from D. M. Benyak to NRC, "Additional Information Supporting the License Amendment Request Associated with Direct Current Electrical Request," dated September 13, 2006.

10 → 11. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.

BASES

ACTIONS

E.1 (continued)

specified for battery parameters on non-redundant batteries not within limits are therefore not appropriate, and the parameters must be restored to within limits on at least one affected division within 2 hours. Although the High Pressure Core Spray (HPCS) System is typically considered a single division system, for this Condition, the Division 3 (HPCS System) battery is considered redundant to Division 1 and 2 batteries for the Emergency Core Cooling function.

F.1

When any battery parameter is outside the allowances of the Required Actions for Condition A, B, C, D, or E, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding battery must be declared inoperable. Additionally, discovering a battery with one or more battery cells float voltage less than 2.07 V and float current greater than 2 amps indicates that the battery capacity may not be sufficient to perform the intended functions. The battery must therefore be declared inoperable immediately.

SURVEILLANCE
REQUIREMENTS

SR 3.8.6.1

Verifying battery float current while on float charge is used to determine the state of charge of the battery. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state. The float current requirements are based on the float current indicative of a charged battery. ▲

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained, the Required Actions of LCO 3.8.4 or LCO 3.8.5 ACTION A, as applicable, are being taken, which provide the necessary and appropriate verifications of battery condition. Furthermore, the float current limit of 2 amps is established based on the nominal float voltage and is not directly applicable when this voltage is not maintained.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the manufacturer, which corresponds to 125.86 V for the Division 1 and 2 125 V batteries, 127.60 V for the Division 3 125 V battery and 251.72 V for the 250 V battery at the battery terminals or 2.17 Vpc for Division 1 and 2 and 2.20 Vpc for Division 3. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltage in this range or less, but greater than 2.07 Vpc, is addressed in Specification 5.5.14.

SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of 2.07 V. ~~The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE 450 (Ref. 4).~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.8.6.3

The limit specified for electrolyte level ensures that the plates suffer no physical damage and maintains adequate electron transfer capability. ~~The Frequency is consistent with IEEE 450 (Ref. 4).~~

SR 3.8.6.4

This Surveillance verifies that the pilot cell temperature is greater than or equal to the minimum established design limit (i.e., 60°F for 125 V batteries and 65°F for the 250 V battery). Pilot cell electrolyte temperature is maintained above this temperature to assure the battery can provide the required current and voltage to meet the design requirements. Temperatures lower than assumed in the battery sizing calculations may act to inhibit or reduce battery capacity. ~~The Frequency is consistent with IEEE 450 (Ref. 4).~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.6.6 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 4) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating, since IEEE-485 (Ref. 5) recommends using an aging factor of 125% in the battery sizing calculation. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements. Furthermore, the battery is sized to meet the assumed duty cycle loads when the battery design capacity reaches this 80% limit. If an aging factor other than 125% is used, the minimum capacity should be adjusted accordingly.

~~The Surveillance Frequency for this test is normally 60 months.~~ If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturers 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 manufacturers rating. Degradation is indicated, consistent with IEEE-450 (Ref. 4), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is ≥ 10% below the manufacturers rating. The 12 month and 60 month Frequencies are consistent with the recommendations in IEEE-450 (Ref. 4).

This SR is modified by three Notes. The reason for the first Note is that performing the Surveillance would remove a required 125 VDC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 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

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.8.7.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Meeting this Surveillance verifies that the AC and DC 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 divisions is 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 7 day Frequency takes into account the redundant capability of the AC and DC 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 15.
 3. Regulatory Guide 1.93, Revision 0, December 1974.
 4. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.
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BASES

ACTIONS A.1, A.2.1, A.2.2, A.2.3, A.2.4, and A.2.5 (continued)

Notwithstanding performance of the above conservative Required Actions, a required residual heat removal—shutdown cooling (RHR-SDC) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.4 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the RHR-SDC ACTIONS would not be entered. Therefore, Required Action A.2.5 is provided to direct declaring RHR-SDC inoperable, which results in taking the appropriate RHR-SDC ACTIONS.

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

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This Surveillance verifies that the AC and DC electrical power distribution subsystem is 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 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 15.

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

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 since an electrical or hydraulic block to control rod withdrawal is in place. Required Action A.2.2 is normally performed after placing the rod withdrawal block in effect and provides a verification that all control rods are fully inserted. Like Required Action A.1, Required Actions A.2.1 and A.2.2 ensure that unacceptable operations are prohibited (e.g., loading fuel into a core 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. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and 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 unit operations personnel.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
 2. UFSAR, Section 7.7.13.
 3. UFSAR, Section 15.4.1.1.
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BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.9.2.1

Proper functioning of the refueling position one-rod-out interlock requires the reactor mode switch to be in Refuel. During control rod withdrawal in MODE 5, improper positioning of the reactor mode switch could, in some instances, allow improper bypassing of required 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 Frequency of 12 hours is sufficient in view of other administrative controls utilized during refueling operations to ensure safe operation.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and visual indications available in the control room to alert the operator of 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.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued) Control rod position satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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 A.1

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 SR 3.9.3.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 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.~~

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.9.5.1 and SR 3.9.5.2 (continued)

~~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.~~

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.9.5.1 is modified by a Note that allows 7 days after withdrawal of the control rod to perform the Surveillance. This acknowledges that the control rod must first be withdrawn before performance of the Surveillance, and therefore avoids potential conflicts with SR 3.0.1.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
 2. UFSAR, Section 15.4.1.1.
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BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.9.6.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Verification of a minimum water level of 22 ft above the top of the RPV flange ensures that the design basis for the postulated fuel handling accident analysis during refueling operations is met. Water at the required level limits the consequences of damaged fuel rods, which are postulated to result from a fuel handling accident in containment (Ref. 2).

~~The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls on valve positions, which make significant unplanned level changes unlikely.~~

REFERENCES

1. Regulatory Guide 1.25, March 23, 1972.
 2. UFSAR, Section 15.7.4.
 3. NUREG-0800, Section 15.7.4.
 4. 10 CFR 100.11.
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BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.9.7.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Verification of a minimum water level of 23 ft above the top of the irradiated fuel assemblies seated within the RPV ensures that the design basis for the postulated fuel handling accident analysis during refueling operations is met. Water at the required level limits the consequences of damaged fuel rods, which are postulated to result from a fuel handling accident in containment (Ref. 2).

~~The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls on valve positions, which make significant unplanned level changes unlikely.~~

REFERENCES

1. Regulatory Guide 1.25, March 23, 1972.
 2. UFSAR, Section 15.7.4.
 3. NUREG-0800, Section 15.7.4.
 4. 10 CFR 100.11.
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BASES

ACTIONS

B.1, B.2, B.3, and B.4 (continued)

This may be performed as an administrative check, 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, a surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

C.1 and C.2

If no RHR shutdown cooling subsystem is in operation, an alternate method of coolant circulation is required to be established within 1 hour. The Completion Time is modified such that 1 hour is applicable separately for each occurrence involving a loss of coolant circulation.

During the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR shutdown cooling subsystem), the reactor coolant temperature must be periodically monitored to ensure proper functioning of the alternate method. The once per hour Completion Time is deemed appropriate.

SURVEILLANCE
REQUIREMENTS

SR 3.9.8.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This Surveillance demonstrates that the required RHR shutdown cooling subsystem is in operation and circulating reactor coolant in accordance with normal procedural requirements. ~~The Frequency of 12 hours is sufficient in view of other visual and audible indications available to the operator for monitoring the RHR shutdown cooling subsystem in the control room.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 34.

BASES

ACTIONS

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

In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated). This may be performed as an administrative check, 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, a surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

C.1 and C.2

If no RHR shutdown cooling subsystem is in operation, an alternate method of coolant circulation is required to be established within 1 hour. The Completion Time is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation.

During the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR shutdown cooling subsystem), the reactor coolant temperature must be periodically monitored to ensure proper function of the alternate method. The once per hour Completion Time is deemed appropriate.

SURVEILLANCE
REQUIREMENTS

SR 3.9.9.1

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

This Surveillance demonstrates that one RHR shutdown cooling subsystem is in operation and circulating reactor coolant in accordance with normal procedural requirements. ~~The Frequency of 12 hours is sufficient in view of other visual and audible indications available to the operator for monitoring the RHR shutdown cooling subsystem in the control room.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 34.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.10.1.1 and SR 3.10.1.2 (continued)

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

The administrative controls are to be periodically verified to ensure that the operational requirements continue to be met. In addition, the all rods fully inserted Surveillance (SR 3.10.1.1) must be verified by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other task qualified member of the technical staff (e.g., a shift technical advisor or reactor engineer). ~~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 verify compliance with these Special Operations LCO requirements.~~

REFERENCES

1. UFSAR, Section 7.2.
 2. UFSAR, Section 15.4.1.1.
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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.10.2.1, SR 3.10.2.2, and SR 3.10.2.3 (continued)

control rod being withdrawn are fully inserted. ~~The 24 hour Frequency is acceptable because of the administrative controls on control rod withdrawals, the protection afforded by the LCOs involved, and hardware interlocks that preclude additional control rod withdrawals.~~

REFERENCES

1. UFSAR, Section 15.4.1.1.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS B.1, B.2.1, and B.2.2 (continued)

insertable, the Required Actions require the most expeditious action be taken to either initiate action to restore the CRD and insert its control rod, or restore compliance with this Special Operations LCO.

SURVEILLANCE REQUIREMENTS SR 3.10.3.1, SR 3.10.3.2, SR 3.10.3.3, and SR 3.10.3.4

The other LCOs made applicable by this Special Operations LCO are required to have their associated 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 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 Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

Electrically, the control rods can be 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 24 hour Frequency is acceptable because of the administrative controls on control rod withdrawals, the protection afforded by the LCOs involved, and hardware interlocks to preclude an additional control rod withdrawal.~~

SR 3.10.3.2 and SR 3.10.3.4 have been modified by Notes, which clarify that these SRs are not required to be met if the alternative requirements demonstrated by SR 3.10.3.1 are satisfied.

REFERENCES 1. UFSAR, Section 15.4.1.1.

BASES

SURVEILLANCE REQUIREMENTS SR 3.10.4.1, SR 3.10.4.2, SR 3.10.4.3, SR 3.10.4.4, and SR 3.10.4.5 (continued)

Periodic verification of the administrative controls established by this Special Operations LCO is prudent to preclude the possibility of an inadvertent criticality. ~~The 24 hour Frequency is acceptable, given the administrative controls on control rod removal and hardware interlocks to block an additional control rod withdrawal.~~

REFERENCES 1. UFSAR, Section 15.4.1.1.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES (continued)

ACTIONS

A.1, A.2.1, and A.2.2

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.2.1, and Required Action A.2.2 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 3.10.5.1, SR 3.10.5.2, and SR 3.10.5.3

Periodic verification of the administrative controls established by this Special Operations LCO is prudent to preclude the possibility of an inadvertent criticality. ~~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 15.4.1.1.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS

B.1 (continued)

switch in the shutdown or refuel position. This results in a condition that is consistent with the requirements for MODE 5 where the provisions of this Special Operations LCO are no longer required.

SURVEILLANCE
REQUIREMENTS

SR 3.10.7.1, SR 3.10.7.2, and SR 3.10.7.3

LCO 3.3.1.1, Functions 2.a and 2.d, made applicable in this Special Operations LCO, are required to have applicable Surveillances met to establish that this Special Operations LCO is being met (SR 3.10.7.1). However, the control rod withdrawal sequences during the SDM tests may be enforced by the RWM (LCO 3.3.2.1, Function 2, MODE 2 requirements) or by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other task qualified member of the technical staff (e.g., technical advisor or reactor engineer). As noted, either the applicable SRs for the RWM (LCO 3.3.2.1) must be satisfied according to the applicable Frequencies (SR 3.10.7.2), or the proper movement of control rods must be verified (SR 3.10.7.3). This latter verification (i.e., SR 3.10.7.3) 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.

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

SR 3.10.7.4

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 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 3.10.7.5

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

(continued)

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SR 3.10.7.5 (continued)

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 3.10.7.6

The Frequency may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

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 required, capability for rapid control rod insertion would exist. The minimum pressure of 940 psig is well below the expected pressure of 1400 psig to 1500 psig while still ensuring sufficient pressure for rapid control rod insertion. ~~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 15.4.10.
2. XN-NF-80-19(P)(A), Volume 1, Supplement 2, Section 7.1, Exxon Nuclear Methodology for Boiling Water Reactor Neutronics Methods for Design Analysis, (as specified in Technical Specification 5.6.5).
3. NEDE-24011-P-A-US, General Electric Standard Application for Reactor Fuel, (as specified in Technical Specification 5.6.5).
4. Letter, 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.

(continued)

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Control Rod Operability	3.1.3	3.1.3
Control rod position	3.1.3.1	3.1.3.1
Notch test - fully withdrawn control rod one notch	3.1.3.2	3.1.3.3
Notch test - partially withdrawn control rod one notch	3.1.3.3	3.1.3.3
Control Rod Scram Times	3.1.4	3.1.4
Scram time testing	3.1.4.2	3.1.4.2
Control Rod Scram Accumulators	3.1.5	3.1.5
Control rod scram accumulator pressure	3.1.5.1	3.1.5.1
Rod Pattern Control	3.1.6	3.1.6
Analyzed rod position sequence	3.1.6.1	3.1.6.1
Standby Liquid Control (SLC) System	3.1.7	3.1.7
Volume of sodium pentaborate [Level of pentaborate in SLC tank]	3.1.7.1	3.1.7.1
Temperature of sodium pentaborate solution	3.1.7.2	3.1.7.2
Temperature of pump suction piping	3.1.7.3	3.1.7.3
Continuity of explosive charge	3.1.7.4	3.1.7.4
Concentration of boron solution	3.1.7.5	3.1.7.5
Manual/power operated valve position	3.1.7.6	3.1.7.6
Pump flow rate	3.1.7.7	3.1.7.7**
Flow through one SLC subsystem	3.1.7.8	3.1.7.8
Heat traced piping is unblocked	3.1.7.9	3.1.7.9
Scram Discharge Volume (SDV) Vent & Drain Valves	3.1.8	3.1.8
Each SDV vent & drain valve open	3.1.8.1	3.1.8.1
Cycle each SDV vent & drain valve fully closed/fully open position	3.1.8.2	3.1.8.2
Each SDV vent & drain valve closes on receipt of scram	3.1.8.3	3.1.8.3
Average Planar Linear Heat Generation Rate (APLHGR)	3.2.1	3.2.1
APLHGR less than or equal to limits	3.2.1.1	3.2.1.1
Minimum Critical Power Ratio (MCPR)	3.2.2	3.2.2
MCPR greater than or equal to limits	3.2.2.1	3.2.2.1
Linear Heat Generation Rate (LHGR)	3.2.3	3.2.3
LHGR less than or equal to limits	3.2.3.1	3.2.3.1
Average Power Range Monitor (APRM) Gain & Setpoints	3.2.4	-----
MFLPD is within limits	3.2.4.1	-----
APRM setpoints or gain are adjusted for calculated MFLPD	3.2.4.2	-----
Reactor Protection System (RPS) Instrumentation	3.3.1.1	3.3.1.1
Channel Check	3.3.1.1.1	3.3.1.1.1
Absolute diff. between APRM channels & calculated power	3.3.1.1.2	3.3.1.1.2
Adjust channel to conform to calibrated flow (APRM STP – Hi)	3.3.1.1.3	3.3.1.1.3
Channel Functional Test (12 hours after entering Mode 2)	3.3.1.1.4	3.3.1.1.4
Channel Functional Test (weekly)	3.3.1.1.5	3.3.1.1.5
IRM/APRM channel overlap	-----	3.3.1.1.7
Calibrate local power range monitors	3.3.1.1.6	3.3.1.1.8
Channel Functional Test (quarterly)	3.3.1.1.7	3.3.1.1.9
Calibrate trip units (quarterly)	3.3.1.1.8	-----
Channel Calibration (Steam Dome Pressure-High) (quarterly)	-----	3.3.1.1.10
Channel Calibration (APRMs/WRNMs)	3.3.1.1.9	3.3.1.1.11

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Channel Functional Test (Reactor Mode Switch)	3.3.1.1.10	3.3.1.1.12
Channel Calibration	3.3.1.1.11	3.3.1.1.13
Verify APRM Flow Biased STP – High	3.3.1.1.12	3.3.1.1.14
Logic System Functional Test	3.3.1.1.13	3.3.1.1.15
Verify TSV/TCV closure/Trip Oil Press-Low Not Bypassed	3.3.1.1.14	3.3.1.1.16
Verify RPS Response Time	3.3.1.1.15	3.3.1.1.17
Source Range Monitor (SRM) Instrumentation	3.3.1.2	3.3.1.2
Channel Check	3.3.1.2.1	3.3.1.2.1
Verify Operable SRM Detector	3.3.1.2.2	3.3.1.2.2
Channel Check	3.3.1.2.3	3.3.1.2.3
Verify count rate	3.3.1.2.4	3.3.1.2.4
Channel Functional Test (Mode 5) (7 days)	3.3.1.2.5	3.3.1.2.5
Channel Functional Test (Modes 2, 3, 4) (31 days)	3.3.1.2.6	3.3.1.2.6
Channel Calibration	3.3.1.2.7	3.3.1.2.7
OPRM Instrumentation	-----	3.3.1.3
Channel Functional Test	-----	3.3.1.3.1
Calibrate LPRMs	-----	3.3.1.3.2
Channel Calibration	-----	3.3.1.3.3
Logic System Functional Test	-----	3.3.1.3.4
Verify OPRM not bypassed	-----	3.3.1.3.5
Verify RPS Response Time	-----	3.3.1.3.6
Control Rod Block Instrumentation	3.3.2.1	3.3.2.1
Channel Functional Test (routine)	3.3.2.1.1	3.3.2.1.1
Channel Functional Test (rod withdrawal at \leq 10% RTP)	3.3.2.1.2	3.3.2.1.2
Channel Functional Test (thermal power \leq 10%)	3.3.2.1.3	3.3.2.1.3
Verify RBM not bypassed	3.3.2.1.4	3.3.2.1.5
Verify RWM not bypassed (thermal power \leq 10%)	3.3.2.1.5	3.3.2.1.6
Channel Functional Test	3.3.2.1.6	3.3.2.1.7
Channel Calibration	3.3.2.1.7	3.3.2.1.4
Feedwater & Main Turbine High Water Level Trip Instrumentation	3.3.2.2	3.3.2.2
Channel Check	3.3.2.2.1	3.3.2.2.1
Channel Functional Test	3.3.2.2.2	3.3.2.2.2
Channel Calibration	3.3.2.2.3	3.3.2.2.3
Logic System Functional Test	3.3.2.2.4	3.3.2.2.4
Post Accident Monitor (PAM) Instrumentation	3.3.3.1	3.3.3.1
Channel Check	3.3.3.1.1	3.3.3.1.1
Calibration	3.3.3.1.2	3.3.3.1.3
Remote Shutdown System	3.3.3.2	3.3.3.2
Channel Check	3.3.3.2.1	3.3.3.2.1
Verify control circuit and transfer switch capable of function	3.3.3.2.2	-----
Channel Calibration	3.3.3.2.3	3.3.3.2.2
End-of-Cycle-Recirculation Pump Trip (RPT) Instrumentation	3.3.4.1	3.3.4.1
Channel Functional Test	3.3.4.1.1	3.3.4.1.1
Calibrate trip units	3.3.4.1.2	-----
Channel Calibration	3.3.4.1.3	3.3.4.1.2

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Logic System Functional Test	3.3.4.1.4	3.3.4.1.3
Verify TSV/TCV Closure/Trip Oil Press-Low Not Bypassed	3.3.4.1.5	3.3.4.1.4
Verify EOC-RPT System Response Time	3.3.4.1.6	3.3.4.1.5
Determine RPT breaker interruption time	3.3.4.1.7	3.3.4.1.6
Anticipated Trip Without Scram-RPT Instrumentation	3.3.4.2	3.3.4.2
Channel Check	3.3.4.2.1	3.3.4.2.1
Channel Functional Test	3.3.4.2.2	3.3.4.2.2
Calibrate trip units	3.3.4.2.3	-----
Channel Calibration	3.3.4.2.4	3.3.4.2.3
Logic System Functional Test	3.3.4.2.5	3.3.4.2.4
Emergency Core Cooling System (ECCS) Instrumentation	3.3.5.1	3.3.5.1
Channel Check	3.3.5.1.1	3.3.5.1.1
Channel Functional Test	3.3.5.1.2	3.3.5.1.2
Calibrate trip units	3.3.5.1.3	-----
Channel Calibration (HPCI: Condensate Storage Tank Level - Low)	3.3.5.1.4	-----
Channel Calibration (LPCS/LPCI Pump Discharge Flow-Low (Bypass)– HPCS System Flow Rate-Low (Bypass))	-----	3.3.5.1.3
Channel Calibration	3.3.5.1.5	3.3.5.1.4
Logic System Functional Test	3.3.5.1.6	3.3.5.1.5
Verify ECCS Response Time	3.3.5.1.7	3.3.5.1.6
Reactor Core Isolation Cooling (RCIC) System Instrumentation	3.3.5.2	3.3.5.2
Channel Check	3.3.5.2.1	3.3.5.2.1
Channel Functional Test	3.3.5.2.2	3.3.5.2.2
Calibrate trip units	3.3.5.2.3	-----
Channel Calibration (Condensate Storage Tank Level – Low)	3.3.5.2.4	-----
Channel Calibration	3.3.5.2.5	3.3.5.2.3
Logic System Functional Test	3.3.5.2.6	3.3.5.2.4
Primary Containment Isolation Instrumentation	3.3.6.1	3.3.6.1
Channel Check	3.3.6.1.1	3.3.6.1.1
Channel Functional Test	3.3.6.1.2	3.3.6.1.2
Calibrate trip units	3.3.6.1.3	-----
Channel Calibration	3.3.6.1.4	3.3.6.1.3
Channel Functional Test (HPCI/RCIC Suppr. Pool Area Temp.)	3.3.6.1.5	-----
Channel Calibration	3.3.6.1.6	3.3.6.1.4
Logic System Functional Test	3.3.6.1.7	3.3.6.1.5
Verify Isolation Response Time [Main Steam Isolation Valves]	3.3.6.1.8	3.3.6.1.6
Secondary Containment Isolation Instrumentation	3.3.6.2	3.3.6.2
Channel Check	3.3.6.2.1	3.3.6.2.1
Channel Functional Test	3.3.6.2.2	3.3.6.2.2
Calibrate trip units	3.3.6.2.3	-----
Channel Calibration (Refueling Floor [Rx Bldg] Exhaust Rad. – High)	3.3.6.2.4	-----
Channel Calibration	3.3.6.2.5	3.3.6.2.3
Logic System Functional Test	3.3.6.2.6	3.3.6.2.4
Verify Isolation Response Time	3.3.6.2.7	-----

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Low-Low-Set (LLS) Instrumentation	3.3.6.3	-----
Channel Check	3.3.6.3.1	-----
Channel Functional Test	3.3.6.3.2	-----
Channel Functional Test	3.3.6.3.3	-----
Channel Functional Test	3.3.6.3.4	-----
Calibrate trip units	3.3.6.3.5	-----
Channel Calibration	3.3.6.3.6	-----
Logic System Functional Test	3.3.6.3.7	-----
Main Control Room Environmental Control (MCREC) [Control Room Area Filtration (CRAF) System] Instrumentation	3.3.7.1	3.3.7.1
Channel Check	3.3.7.1.1	3.3.7.1.1
Channel Functional Test	3.3.7.1.2	3.3.7.1.2
Calibrate trip units	3.3.7.1.3	-----
Channel Calibration	3.3.7.1.4	3.3.7.1.3
Logic System Functional Test	3.3.7.1.5	3.3.7.1.4
Loss of Power (LOP) Instrumentation	3.3.8.1	3.3.8.1
Channel Check	3.3.8.1.1	-----
Channel Functional Test	3.3.8.1.2	3.3.8.1.1 3.3.8.1.3
Channel Calibration	3.3.8.1.3	3.3.8.1.2 3.3.8.1.4
Logic System Functional Test	3.3.8.1.4	3.3.8.1.5
RPS Electric Power Monitoring	3.3.8.2	3.3.8.2
Channel Functional Test	3.3.8.2.1	3.3.8.2.1
Channel Calibration	3.3.8.2.2	3.3.8.2.2
System functional test	3.3.8.2.3	3.3.8.2.3
Recirculation Loops Operating	3.4.1	3.4.1
Recirc loop jet pump flow mismatch with both loops operating	3.4.1.1	3.4.1.1
Flow Control Valves (FCVs)	3.4.2***	3.4.2
Verify FCVs fail "as-is"	3.4.2.1	3.4.2.1
Verify average FCV stroke rate	3.4.2.2	3.4.2.2
Jet Pumps	3.4.2	3.4.3
Criteria satisfied for each operating recirc loop	3.4.2.1	3.4.3.1
Safety/Relief Valves (SRVs)	3.4.3	3.4.3
Safety function lift setpoints	3.4.3.1	3.4.3.1**
SRV opens when manually actuated	3.4.3.2	-----
Reactor Coolant System (RCS) Operational Leakage	3.4.4	3.4.5
RCS unidentified and total leakage increase within limits	3.4.4.1	3.4.5.1
RCS Pressure Isolation Valve (PIV) Leakage	3.4.5	3.4.6
Equivalent leakage of each PIV	3.4.5.1	3.4.6.1**
RCS Leakage Detection Instrumentation	3.4.6	3.4.7
Channel Check	3.4.6.1	3.4.7.1
Channel Functional Test	3.4.6.2	3.4.7.2
Channel Calibration	3.4.6.3	3.4.7.3

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
RCS Specific Activity	3.4.7	3.4.8
Dose Equivalent I-131 specific activity	3.4.7.1	3.4.8.1
Residual Heat Removal (RHR) Shutdown Cooling - Hot Shutdown	3.4.8	3.4.9
One RHR Shutdown cooling subsystem operating	3.4.8.1	3.4.9.1
RHR Shutdown Cooling - Cold Shutdown	3.4.9	3.4.10
One RHR Shutdown cooling subsystem operating	3.4.9.1	3.4.10.1
RCS Pressure/Temperature Limit	3.4.10	3.4.11
RCS pressure, temperature, heatup and cooldown rates	3.4.10.1	3.4.11.1
RPV flange/head flange temperatures (tensioning head bolt stud)	3.4.10.7	3.4.11.5
RPV flange/head flange temperatures (after RCS temp \leq 80°F [LSCS - 77°F for Unit 1, 91°F for Unit 2])	3.4.10.8	3.4.11.6
RPV flange/head flange temperatures (after RCS temp \leq 100°F [LSCS - 92°F for Unit 1, 106°F for Unit 2])	3.4.10.9	3.4.11.7
Reactor Steam Dome Pressure	3.4.11	3.4.12
Verify reactor steam dome pressure	3.4.11.1	3.4.12.1
ECCS - Operating	3.5.1	3.5.1
Verify injection/spray piping filled with water	3.5.1.1	3.5.1.1
Verify each valve in flow path is in correct position	3.5.1.2	3.5.1.2
Verify ADS nitrogen pressure	3.5.1.3	3.5.1.3
Verify RHR (LPCI) cross tie valve is closed and power removed	3.5.1.4	-----
Verify ADS backup compressed gas system bottle pressure	-----	3.5.1.4
Verify LPCI inverter output voltage	3.5.1.5	-----
Verify ECCS pumps develop specified flow	3.5.1.7	3.5.1.5**
Verify HPCI flow rate (Rx press < 1020 [1053], > 920 [940])	3.5.1.8	-----
Verify HPCI flow rate (Rx press < 165 [175])	3.5.1.9	-----
Verify ECCS actuates on initiation signal	3.5.1.10	3.5.1.6
Verify ADS actuates on initiation signal	3.5.1.11	3.5.1.7
Verify each ADS valve opens [actuator strokes] when manually actuated	3.5.1.12	3.5.1.8
ECCS - Shutdown	3.5.2	3.5.2
Verify, for LPCI, suppression pool water level	3.5.2.1	3.5.2.1
Verify, for CS, suppression pool water level and CST water level	3.5.2.2	-----
Verify for HPCS, suppression pool level	-----	3.5.2.2
Verify ECCS piping filled with water	3.5.2.3	3.5.2.3
Verify each valve in flow path is in correct position	3.5.2.4	3.5.2.4
Verify each ECCS pump develops flow	3.5.2.5	3.5.2.5**
Verify ECCS actuates on initiation signal	3.5.2.6	3.5.2.6
RCIC System	3.5.3	3.5.3
Verify RCIC piping filled with water	3.5.3.1	3.5.3.1
Verify each valve in flow path is in correct position	3.5.3.2	3.5.3.2
Verify RCIC flow rate (Rx press < 1020, > 920)	3.5.3.3	3.5.3.3
Verify RCIC flow rate (Rx press < 165)	3.5.3.4	3.5.3.4
Verify RCIC actuates on initiation signal	3.5.3.5	3.5.3.5

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Primary Containment	3.6.1.1	3.6.1.1
Verify drywell to suppression chamber differential pressure [bypass leakage]	3.6.1.1.2	3.6.1.1.3
Verify individual drywell to suppression chamber bypass leakage	-----	3.6.1.1.4
Verify total drywell to suppression chamber bypass leakage	-----	3.6.1.1.5
Primary Containment Air Lock	3.6.1.2	3.6.1.2
Verify only one door can be opened at a time	3.6.1.2.2	3.6.1.2.2
Primary Containment Isolation Valves (PCIVs)	3.6.1.3	3.6.1.3
Verify purge valve is closed except one valve in a penetration	3.6.1.3.1	-----
Verify each 18 inch (6 inch & 18 inch) PC purge valve is closed	3.6.1.3.2	3.6.1.3.1
Verify each manual PCIV outside containment is closed	3.6.1.3.3	3.6.1.3.2
Verify continuity of traversing incore probe (TIP) shear valve	3.6.1.3.5	3.6.1.3.4
Verify isolation time of each power operated PCIV	3.6.1.3.6	3.6.1.3.5**
Perform leakage rate testing on each PC purge valve	3.6.1.3.7	-----
Verify isolation time of MSIVs	3.6.1.3.8	3.6.1.3.6**
Verify automatic PCIV actuates to isolation position	3.6.1.3.9	3.6.1.3.7
Verify sample of Excess Flow Check Valves actuate to isolation position	3.6.1.3.10	3.6.1.3.8
Test explosive squib from each shear valve	3.6.1.3.11	3.6.1.3.9
Verify steam leakage rate through main steam lines (individual and total)	-----	3.6.1.3.10
Verify each purge valve is blocked	3.6.1.3.15	-----
Verify combined leakage through hydrostatically tested lines	-----	3.6.1.3.11
Drywell [and Suppression Chamber] Pressure	3.6.1.4	3.6.1.4
Verify drywell [and suppression chamber] pressure is within limit	3.6.1.4.1	3.6.1.4.1
Drywell Average Air Temperature	3.6.1.5	3.6.1.5
Verify drywell average air temperature is within limit	3.6.1.5.1	3.6.1.5.1
LLS Valves	3.6.1.6	-----
Verify each LLS valve opens when manually actuated	3.6.1.6.1	-----
Verify LLS system actuates on initiation signal	3.6.1.6.2	-----
Reactor Building - Suppression Chamber Vacuum Breakers	3.6.1.7	-----
Verify each vacuum breaker is closed	3.6.1.7.1	-----
Perform functional test on each vacuum breaker	3.6.1.7.2	-----
Verify opening setpoint for each vacuum breaker	3.6.1.7.3	-----
Suppression Chamber - Drywell Vacuum Breakers	3.6.1.8	3.6.1.6
Verify each vacuum breaker is closed	3.6.1.8.1	3.6.1.6.1
Perform functional test on each vacuum breaker	3.6.1.8.2	3.6.1.6.2
Verify opening setpoint for each vacuum breaker	3.6.1.8.3	3.6.1.6.3
Main Steam Isolation Valve (MSIV) Leakage Control System	3.6.1.9	-----
Operate each MSIV LCS blower	3.6.1.9.1	-----
Verify continuity of inboard MSIV LCS heater element	3.6.1.9.2	-----
Perform functional test of each MSIV LCS subsystem	3.6.1.9.3	-----
Suppression Pool Average Temperature	3.6.2.1	3.6.2.1
Verify suppression pool average temperature within limits	3.6.2.1.1	3.6.2.1.1
Suppression Pool Water Level	3.6.2.2	3.6.2.2

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Verify suppression pool water level within limits	3.6.2.2.1	3.6.2.2.1
RHR Suppression Pool Cooling	3.6.2.3	3.6.2.3
Verify each valve in flow path is in correct position	3.6.2.3.1	3.6.2.3.1
Verify each RHR pump develops flow rate	3.6.2.3.2	3.6.2.3.2**
RHR Suppression Pool Spray	3.6.2.4	3.6.2.4
Verify each valve in flow path is in correct position	3.6.2.4.1	3.6.2.4.1
Verify RHR pump develops flow rate	3.6.2.4.2	3.6.2.4.2**
Drywell - Suppression Chamber Differential Pressure	3.6.2.5	-----
Verify differential pressure is within limit	3.6.2.5.1	-----
Drywell Cooling System Fans	3.6.3.1	-----
Operate each fan \geq 15 minutes	3.6.3.1.1	-----
Verify each fan flow rate	3.6.3.1.2	-----
Primary Containment Oxygen Concentration	3.6.3.2	3.6.3.2
Verify PC oxygen concentration is within limits	3.6.3.2.1	3.6.3.2.1
Containment Atmosphere Dilution (CAD) System	3.6.3.3	-----
Verify CAD liquid nitrogen storage	3.6.3.3.1	-----
Verify each CAD valve in flow path is in correct position	3.6.3.3.2	-----
Secondary Containment	3.6.4.1	3.6.4.1
Verify SC vacuum is > 0.25 inch of vacuum water gauge	3.6.4.1.1	3.6.4.1.1
Verify all SC equipment hatches closed and sealed	3.6.4.1.2	3.6.4.1.5
Verify one SC access door in each opening is closed	3.6.4.1.3	3.6.4.1.2
Verify SC drawn down using one SGTS	3.6.4.1.4	3.6.4.1.3
Verify SC can be maintained using one SGTS	3.6.4.1.5	3.6.4.1.4
Secondary Containment Isolation Valves	3.6.4.2	3.6.4.2
Verify each SC isolation manual valve is closed	3.6.4.2.1	3.6.4.2.1
Verify isolation time of each SCIV	3.6.4.2.2	3.6.4.2.2
Verify each automatic SCIV actuates to isolation position	3.6.4.2.3	3.6.4.2.3
Standby Gas Treatment (SGT) System	3.6.4.3	3.6.4.3
Operate each SGT subsystem with heaters operating	3.6.4.3.1	3.6.4.3.1
Verify each SGT subsystem actuates on initiation signal	3.6.4.3.3	3.6.4.3.3
Verify each SGT filter cooler bypass damper can be opened	3.6.4.3.4	-----
Residual Heat Removal Service Water (RHRSW) System [High Pressure Service Water (HPSW) System]	3.7.1	3.7.1
Verify each RHRSW valve in flow path in correct position	3.7.1.1	3.7.1.1
Plant Service Water (PSW) System and Ultimate Heat Sink (UHS) [Ultimate Heat Sink (UHS)]	3.7.2	3.7.3
Verify water level in cooling tower basin	3.7.2.1	-----
Verify water level in pump well of pump structure	3.7.2.2	-----
Verify average water temperature of heat sink	3.7.2.3	-----
Operate each cooling tower fan	3.7.2.4	-----
Verify each PSW valve in flow path is in correct position	3.7.2.5	-----
Verify PSW actuates on initiation signal	3.7.2.6	-----
Verify cooling water temperature supplied to plant	-----	3.7.3.1
Verify sediment level in intake flume and CSCS popnd	-----	3.7.3.2
Verify CSCS pond bottom elevation	-----	3.7.3.3

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Diesel Generator (DG) Standby Service Water (SSW) [Diesel Generator Cooling Water (DGCW)] System	3.7.3	3.7.2
Verify each valve in flow path is in correct position	3.7.3.1	3.7.2.1
Verify SSW System pump starts automatically	3.7.3.2	3.7.2.2
MCREC [CRAF] System	3.7.4	3.7.4
Operate each MCREC [CRAF] subsystem	3.7.4.1	3.7.4.1
Verify each subsystem actuates on initiation signal	3.7.4.3	3.7.4.4
Verify each subsystem can maintain positive pressure	3.7.4.4	-----
Control Room Air Conditioning System	3.7.5	3.7.5
Verify each subsystem has capability to remove heat load	3.7.5.1	-----
Monitor control room and auxiliary electric equipment room temperatures	-----	3.7.5.1
Verify correct breaker alignment and indicated power available	-----	3.7.5.2
Main Condenser Offgas	3.7.6	3.7.6
Verify gross gamma activity rate of the noble gases	3.7.6.1	3.7.6.1
Main Turbine Bypass System	3.7.7	3.7.7
Verify one complete cycle of each main turbine bypass valve	3.7.7.1	3.7.7.1
Perform system functional test	3.7.7.2	3.7.7.2
Verify Turbine Bypass System Response Time within limits	3.7.7.3	3.7.7.3
Spent Fuel Storage Pool Water Level	3.7.8	3.7.8
Verify spent fuel storage pool water level	3.7.8.1	3.7.8.1
AC Sources - Operating	3.8.1	3.8.1
Verify correct breaker alignment	3.8.1.1	3.8.1.1
Verify each DG starts from standby conditions/steady state	3.8.1.2	3.8.1.2
Verify each DG is synchronized and loaded	3.8.1.3	3.8.1.3
Verify each day tank level	3.8.1.4	3.8.1.4
Check for and remove accumulated water from day tank	3.8.1.5	3.8.1.5
Verify fuel oil transfer system operates	3.8.1.6	3.8.1.6
Verify each DG starts from standby conditions/quick start	3.8.1.7	3.8.1.7
Verify transfer of power from offsite circuit to alternate circuit	3.8.1.8	3.8.1.8
Verify DG rejects load greater than single largest load	3.8.1.9	3.8.1.9
Verify DG maintains load following load reject	3.8.1.10	3.8.1.10
Verify on loss of offsite power signal	3.8.1.11	3.8.1.11
Verify DG starts on ECCS initiation signal	3.8.1.12	3.8.1.12
Verify DG automatic trips bypassed on ECCS initiation signal	3.8.1.13	3.8.1.13
Verify each DG operates for > 24 hours	3.8.1.14	3.8.1.14
Verify each DG starts from standby conditions/quick restart	3.8.1.15	3.8.1.15
Verify each DG synchronizes with offsite power	3.8.1.16	3.8.1.16
Verify ECCS initiation signal overrides test mode	3.8.1.17	3.8.1.17
Verify interval between each timed load block	3.8.1.18	3.8.1.18
Verify on LOOP in conjunction with ECCS initiation signal	3.8.1.19	3.8.1.19
Verify simultaneous DG starts	3.8.1.20	3.8.1.20
Diesel Fuel Oil, Lube Oil, and Starting Air	3.8.3	3.8.3
Verify fuel oil storage tank volume	3.8.3.1	3.8.3.1
Verify lube oil inventory	3.8.3.2	-----

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Verify each DG air start receiver pressure	3.8.3.4	3.8.3.3
Check/remove accumulated water from fuel oil storage tank	3.8.3.5	3.8.3.4
DC Sources – Operating	3.8.4	3.8.4
Verify battery terminal voltage	3.8.4.1	3.8.4.1
Verify each battery charger supplies amperage	3.8.4.2	3.8.4.2
Verify battery capacity is adequate to maintain emergency loads	3.8.4.3	3.8.4.3
Battery Parameters	3.8.6	3.8.6
Verify battery float current	3.8.6.1	3.8.6.1
Verify battery pilot cell voltage	3.8.6.2	3.8.6.2
Verify battery connected cell electrolyte level	3.8.6.3	3.8.6.3
Verify battery pilot cell temperature	3.8.6.4	3.8.6.4
Verify battery connected cell voltage	3.8.6.5	3.8.6.5
Verify battery capacity during performance discharge test	3.8.6.6	3.8.6.6
Inverters - Operating	3.8.7	-----
Verify correct inverter voltage, frequency and alignment	3.8.7.1	-----
Inverters - Shutdown	3.8.8	-----
Verify correct inverter voltage, frequency and alignment	3.8.8.1	-----
Distribution System - Operating	3.8.9	3.8.7
Verify correct breaker alignment/power to distribution subsystems	3.8.9.1	3.8.7.1
Distribution System - Shutdown	3.8.10	3.8.8
Verify correct breaker alignment/power to distribution subsystems	3.8.10.1	3.8.8.1
Refueling Equipment Interlocks	3.9.1	3.9.1
Channel Functional Test of refueling equip interlock inputs	3.9.1.1	3.9.1.1
Refuel Position One-Rod-Out Interlock	3.9.2	3.9.2
Verify reactor mode switch locked in refuel position	3.9.2.1	3.9.2.1
Perform Channel Functional Test	3.9.2.2	3.9.2.2
Control Rod Position	3.9.3	3.9.3
Verify all control rods fully inserted	3.9.3.1	3.9.3.1
Control Rod Operability - Refuel	3.9.5	3.9.5
Insert each withdrawn control rod one notch	3.9.5.1	3.9.5.1
Verify each withdrawn control rod scram accumulator press	3.9.5.2	3.9.5.2
Reactor Pressure Vessel (RPV) Water Level - Irradiated Fuel	3.9.6	3.9.6
Verify RPV water level	3.9.6.1	3.9.6.1
Reactor Pressure Vessel (RPV) Water Level - New Fuel	3.9.7	3.9.7
Verify RPV water level	3.9.7.1	3.9.7.1
RHR - High Water Level	3.9.8	3.9.8
Verify one RHR shutdown cooling subsystem operating	3.9.8.1	3.9.8.1
RHR - Low Water Level	3.9.9	3.9.9
Verify one RHR shutdown cooling subsystem operating	3.9.9.1	3.9.9.1
Reactor Mode Switch Interlock Testing	3.10.2	3.10.1
Verify all control rods fully inserted in core cells	3.10.2.1	3.10.1.1
Verify no core alterations in progress	3.10.2.2	3.10.1.2
Single Control Rod Withdrawal - Hot Shutdown	3.10.3	3.10.2
Verify all control rods in five-by-five array are disarmed	3.10.3.2	3.10.2.2
Verify all control rods other than withdrawn rod are fully inserted	3.10.3.3	3.10.2.3

ATTACHMENT 5
TSTF-425 vs. LaSalle County Station Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	LSCS
Single Control Rod Withdrawal - Cold Shutdown	3.10.4	3.10.3
Verify all control rods in five-by-five array are disarmed	3.10.4.2	3.10.3.2
Verify all control rods other than withdrawn rod are fully inserted	3.10.4.3	3.10.3.3
Verify a control rod withdrawal block is inserted	3.10.4.4	3.10.3.4
Single Control Rod Drive (CRD) Removal - Refuel	3.10.5	3.10.4
Verify all control rods other than withdrawn rod are fully inserted	3.10.5.1	3.10.4.1
Verify all control rods in five-by-five array are disarmed	3.10.5.2	3.10.4.2
Verify a control rod withdrawal block is inserted	3.10.5.3	3.10.4.3
Verify no core alterations in progress	3.10.5.5	3.10.4.5
Multiple CRD Removal-Refuel	3.10.6	3.10.5
Verify four fuel assemblies removed from core cells	3.10.6.1	3.10.5.1
Verify all other rods in core cells inserted	3.10.6.2	3.10.5.2
Verify fuel assemblies being loaded comply with reload sequence	3.10.6.3	3.10.5.3
Shutdown Margin Test - Refueling	3.10.8	3.10.7
Verify no other core alterations in progress	3.10.8.4	3.10.7.4
Verify CRD charging water header pressure	3.10.8.6	3.10.7.6
Recirculation Loops - Testing	3.10.9	-----
Verify LCO 3.4.1 requirements suspended for < 24 hours	3.10.9.1	-----
Verify Thermal power < 5% RTP during Physics Test	3.10.9.2	-----
Training Startups	3.10.10	-----
Verify all operable IRM channels are <25/40 div. of full scale	3.10.10.1	-----
Verify average reactor coolant temperature < 200 F	3.10.10.2	-----
Programs (Surveillance Frequency Control Program)	5.5.15	5.5.16

* The Technical Specification (TS) Section Title/Surveillance Description portion of this attachment is a summary description of the referenced TSTF-425/LSCS TS Surveillances which is provided for information purposes only and is not intended to be a verbatim description of the TS Surveillances.

** This LSCS Surveillance Frequency is provided in the LSCS Inservice Testing (IST) Program. This LSCS Surveillance Frequency is not proposed for inclusion in the Surveillance Frequency Control Program.

*** NUREG-1434 requirement.

ATTACHMENT 6
Proposed No Significant Hazards Consideration

Description of Amendment Request: This amendment request involves the adoption of approved changes to the Standard Technical Specifications (STS) for General Electric Plants, BWR/4 (NUREG-1433) and BWR/6 (NUREG-1434), to allow relocation of specific TS surveillance frequencies to a licensee-controlled program. The proposed changes are described in Technical Specification Task Force (TSTF) Traveler, TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b," (ADAMS Accession No. ML090850642), and are described in the Notice of Availability published in the Federal Register on July 6, 2009 (74 FR 31996).

The proposed changes are consistent with NRC-approved Industry/TSTF Traveler, TSTF-425, Revision 3. The proposed changes relocate surveillance frequencies to a licensee-controlled program, the Surveillance Frequency Control Program. The changes are applicable to licensees using probabilistic risk guidelines contained in NRC-approved NEI 04-10, Revision 1, "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), the EGC analysis of the issue of no significant hazards consideration is presented below:

1. Do the proposed changes involve a significant increase in the probability or consequences of any accident previously evaluated?

Response: No.

The proposed changes relocate 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 changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes 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 changes. 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.

ATTACHMENT 6
Proposed No Significant Hazards Consideration

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

3. Do the proposed changes 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 Updated Final Safety Analysis Report and Bases to the Technical Specifications), because 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, EGC will perform a probabilistic risk evaluation using the guidance contained in NRC approved NEI 04-10, Revision 1 in accordance with the TS Surveillance Frequency Control Program. NEI 04-10, Revision 1, methodology provides reasonable acceptance guidelines and methods for evaluating the risk increase of proposed changes to surveillance frequencies consistent with Regulatory Guide 1.177.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above, EGC concludes that the requested changes do not involve a significant hazards consideration as set forth in 10 CFR 50.92, "Issuance of amendment," paragraph (c).