Exelon Generation
4300 Winfield Road
Warrenville, IL 60555

www.exeloncorp.com

Exelon Nuclear

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

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

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, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1, dated April 2007

2. Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change TSTF-425, "Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b," Revision 3, 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 Appendix A, Technical Specifications (TS) of Renewed Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, respectively. The proposed amendment would modify the DNPS TS by relocating specific surveillance frequencies to a licensee-controlled program with the implementation of Nuclear Energy Institute (NEI) 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1 (i.e., Reference 1).

The changes are consistent with NRC-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) change TSTF-425, "Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b," 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 that was 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 (CLIIP).

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 marked-up DNPS Unit 2 and Unit 3 TS pages with the proposed changes indicated.
- Attachment 4 provides marked-up DNPS Unit 2 and Unit 3 TS Bases pages with the proposed changes indicated. The TS Bases pages are provided for information only and do not require NRC approval.
- Attachment 5 provides a TSTF-425 (NUREG-1433) versus DNPS TS cross-reference.
- Attachment 6 provides the proposed No Significant Hazards Consideration.

The proposed change has been reviewed by the DNPS 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 16, 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. John L. Schrage at (630) 657-2821.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th day of February 2010.

Respectfully,

Jeffrey L. Hansen
Manager – Licensing

Attachments:
1. Evaluation of Proposed Changes
2. Documentation of Probabilistic Risk Assessment Technical Adequacy
3. Markup of Proposed Technical Specifications Pages
4. Markup of Proposed Technical Specifications Bases Pages (for information only)
5. TSTF-425 (NUREG-1433) vs. DNPS Cross-Reference
6. Proposed No Significant Hazards Consideration

ATTACHMENT 1
Evaluation of Proposed Changes

1.0 DESCRIPTION

The proposed amendment would modify the Dresden Nuclear Power Station (DNPS), Units 2 and 3, Technical Specifications (TS) by relocating specific surveillance frequencies to a licensee-controlled program with the adoption of Technical Specification Task Force (TSTF)-425, "Relocate Surveillance Frequencies to Licensee Control - Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b," Revision 3 (TSTF-425). Additionally, the change would add a new program, the "Surveillance Frequency Control Program" (SFCP), to TS Section 5, "Administrative Controls."

The proposed changes are consistent with NRC-approved TSTF Standard Technical Specifications (STS) change TSTF-425 (ADAMS Accession No. ML090850642). The Federal Register notice published on July 6, 2009 (74 FR 31996) announced the availability of this TS improvement as part of the Consolidated Line Item Improvement Process (CLIIP). The changes are applicable to licensees using probabilistic risk guidelines contained in NRC-approved Nuclear Energy Institute (NEI) 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1, dated April 2007 (NEI 04-10) (ADAMS Accession No. 071360456).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Exelon Generation Company, LLC (EGC) has reviewed the NRC safety evaluation (SE) dated July 6, 2009. This review included a review of the NRC's evaluation, TSTF-425, and the requirements specified in NEI 04-10.

Attachment 2 includes EGC's documentation with regard to Probabilistic Risk Assessment (PRA) technical adequacy, consistent with the requirements of Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 1 (ADAMS Accession No. ML070240001), Section 4.2. This includes the description of 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 TSTF-425 and the corresponding NRC SE are applicable to DNPS, Units 2 and 3, and justify this license amendment request (LAR) to incorporate the changes to the DNPS 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 LAR given the number of TS pages affected, the straightforward nature of the proposed changes, and outstanding DNPS LARs that will impact some of the same TS pages. By providing only mark-ups of the proposed TS changes, EGC 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 SE published in the same Federal Register notice. As a result of this deviation, the contents and numbering of the attachments for this LAR differ from the attachments specified in the NRC's model application. Mark-ups of the proposed TS changes are provided in Attachment 3 for DNPS, Units 2 and 3. Additionally, mark-ups of the proposed changes to TS Bases pages are provided in Attachment 4 for DNPS, Units 2 and 3. The proposed changes to the TS Bases are provided for information only. Changes to the TS Bases are incorporated in accordance with the DNPS TS Bases Control Program and, therefore, do not require NRC approval.

2. The insert provided in TSTF-425 to replace text in the TS Bases describing the basis for each frequency relocated to the SFCP 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 DNPS basis for frequencies which do not, in all cases, base frequency on operating experience, equipment reliability, and plant risk.

3. Attachment 5 provides a cross-reference between the NUREG-1433 Surveillance Requirements (SRs) included in TSTF-425 versus the DNPS SRs included in this LAR. Attachment 5 includes a summary description of the referenced TSTF-425 (NUREG-1433)/DNPS 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. NUREG-1433 SRs included in TSTF-425 and corresponding DNPS SRs with identical SR numbers;

    b. NUREG-1433 SRs included in TSTF-425 and corresponding DNPS SRs with differing SR numbers;

    c. NUREG-1433 SRs included in TSTF-425 that are not contained in the DNPS TS; and

    d. DNPS plant-specific SRs that are not contained in NUREG-1433, and therefore, are not included in the TSTF-425 mark-ups.

    Concerning the above, DNPS SRs that have SR numbers identical to the corresponding NUREG-1433 SRs are not deviations from TSTF-425.

    DNPS SRs with SR numbers that differ from the corresponding NUREG-1433 SRs are administrative deviations from TSTF-425 with no impact on the NRC's model SE dated July 6, 2009 (74 FR 31996).

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

For DNPS plant-specific SRs that are not contained in NUREG-1433, and therefore, are not included in the NUREG-1433 mark-ups provided in TSTF-425, EGC has determined that the relocation of the frequencies for these DNPS plant-specific SRs is consistent with the intent of TSTF-425, Revision 3, and with the NRC's model SE dated July 6, 2009 (74 FR 31996), including the scope exclusions identified in Section 1.0, "Introduction," of the model SE, 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 SFCP. The SFCP 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 SFCP 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 NEI 04-10, methodology includes qualitative considerations, risk analyses, sensitivity studies and bounding analyses, as necessary, and recommended monitoring of the performance of systems, components, and structures (SSCs) for which Frequencies are changed to assure that reduced testing does not adversely impact the SSCs. In addition, the NEI 04-10, Revision 1 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 (ADAMS Accession No. ML003740176), relative to changes in Surveillance 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 DNPS, Units 2 and 3, and is provided as Attachment 6 to this amendment request, which satisfies the requirements of 10 CFR 50.91(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 (ADAMS Accession No. ML090850642) and the NRC's model SE published in the Notice of Availability dated July 6, 2009 (74 FR 31996). EGC has concluded that the relationship of the proposed changes to the applicable regulatory requirements presented in the Federal Register notice is applicable to DNPS, Units 2 and 3.

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 SE published in the Federal Register on July 6, 2009 (74 FR 31996). EGC has concluded that the NRC's findings presented therein are applicable to DNPS, Units 2 and 3, and the determination is hereby incorporated by reference for this application.

5.0 REFERENCES

1. TSTF-425, "Relocate Surveillance Frequencies to Licensee Control - RITSTF Initiative 5b," Revision 3, dated March 18, 2009 (ADAMS Accession Number: ML090850642).

2. "NRC 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 notice 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 (ADAMS Accession Number: ML071360456).

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 (ADAMS Accession Number: ML070240001).

5. Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," dated August 1998 (ADAMS Accession No. ML003740176).

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2.1 Overview

The implementation of the Surveillance Frequency Control Program (also referred to as Technical Specification Initiative 5b) at Dresden Nuclear Power Station (DNPS), Units 2 and 3, will follow the guidance provided in NEI 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1 (Reference 1) in evaluating proposed surveillance test interval (STI), also referred to as "surveillance frequency" changes.

The following steps of the risk-informed STI revision process are common to 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 NEI 04-10, Revision 1.
- Each STI revision is reviewed by an Expert Panel, referred to as the Integrated Decision-making Panel (IDP), which may be the same panel as is used for Maintenance Rule implementation, but with the addition of specialists with experience in surveillance tests and system or component reliability. If the IDP approves the STI revision, the change is documented and implemented and available for 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 PRA evaluations (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, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities,” (Reference 2). The guidance in RG 1.200 indicates that the following steps should be followed when performing PRA assessments.

(NOTE: Because of the broad scope of potential Initiative 5b applications and the fact that the risk assessment details will differ from application to application, each of the issues encompassed in Items 1 through 3 will be covered with the preparation of each individual PRA assessment made in support of the individual STI interval requests. Item 3 satisfies one of the requirements of Section 4.2 of RG 1.200; the remaining requirements of Section 4.2 are addressed by item 4 below.):

1. Identify the parts of the PRA used to support the application.
   - Structures, systems and components (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, external events all modes), 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, RG 1.200 Revision 1, includes only 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.

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

2.2 Technical Adequacy of the PRA Model

The 2009A update to the DNPS PRA model is the most recent evaluation of the risk profile at DNPS for internal event challenges.

The DNPS 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 DNPS PRA is based on the event tree / fault tree methodology, which is a well-known methodology in the industry.

Exelon Generation Company, LLC (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 generating sites. This approach includes both a proceduralized PRA maintenance and update process, and the use of self-assessments and independent peer reviews. The following information describes this approach as it applies to the DNPS PRA.

<u>PRA Maintenance and Update</u>

The EGC risk management process ensures that the applicable PRA model remains an accurate reflection of the as-built and as-operated DNPS. This process is defined in the EGC Risk Management program, which consists of a governing procedure (i.e., 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, industry operating experience, etc.), 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 activities. This guidance includes:

- Guidelines for the documentation of the PRA model, PRA products, and technical 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 generating 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 SSCs within the scope of the Maintenance Rule (10 CFR 50.65 (a)(4)).

In accordance with this guidance, regularly scheduled PRA model updates nominally occur on an approximately four year cycle; longer intervals may be justified if it can be shown that the PRA continues to adequately represent the as-built, as-operated plant. EGC completed the 2009A revision to the DNPS PRA in 2009 as a result of a regularly scheduled update to the previous 2005B PRA model.

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

2.2.1 Plant Changes Not Yet Incorporated into the PRA Model

A PRA updating requirements evaluation (URE), which is the 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 one of the types of issues incorporated.

As part of the PRA evaluation for each STI change request, a review of open items in the URE database for DNPS 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.

2.2.2 Applicability of Peer Review Findings and Observations

Several assessments of technical capability have been made, and continue to be planned for the DNPS 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 January 2001, following the Industry PRA Peer Review process (Reference 3). This peer review included an assessment of the PRA model maintenance and update process.
- In 2004, prior to the DNPS 2005 PRA update, a self-assessment analysis was performed against the available version of the ASME PRA Standard, Addendum A (Reference 4).
- During 2005 and 2006, the DNPS 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 (Reference 5).

- In March 2009, a focused PRA Peer Review was performed on the internal flooding element of the DNPS 2005B full power internal events PRA.

  The results of the focused internal flood PRA Peer Review indicated a small number of the Internal Flood Supporting Requirements were not met. The associated findings were added to the URE database to ensure resolution and have been included in the 2009 DNPS PRA self-assessment.

- In 2009, an update of the PRA self-assessment analysis was performed against ASME PRA Standard, Addendum B (Reference 6) following completion of the DNPS 2009A PRA update. The self-assessment considered all of the findings from the 2009 focused PRA Peer Review on Internal Flooding. The 2009 self-assessment also addressed the updated Supporting Requirements associated with PRA Model Uncertainty as provided in the "Combined PRA Standard" (Reference 7).

A summary of the disposition of the 2001 Industry PRA Peer Review facts and observations (F&Os) for the DNPS PRA models was documented as part of the statement of PRA capability for MSPI in the DNPS MSPI Basis Document (Reference 5). 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 previous DNPS 2005B PRA model. Also noted in that submittal was the fact that, after allowing for plant-specific features, there were no MSPI cross-comparison outliers for DNPS (i.e., as described in the third bulleted item above).

A Self-Assessment (Gap Analysis) for the DNPS PRA model was completed in 2004 in preparation for the 2005 PRA update. This Gap Analysis was performed against the ASME PRA Standard (Reference 4). This gap analysis defined a list of 94 supporting requirements from the Standard for which potential gaps to Capability Category II of the Standard were identified. For each such potential gap, a PRA updating requirements evaluation (URE) (i.e., EGC model update tracking database) was documented for resolution.

A previous DNPS PRA model update was completed in 2005. In updating the PRA, changes were made to the PRA to address most of the identified gaps, as well as to address other open UREs. Following the update, an assessment of the status of the gap analysis relative to the new model and the updated requirements in Addendum B of the ASME PRA Standard concluded that 69 of the gaps were fully resolved (i.e., are no longer gaps), and one (1) was partially resolved. After accounting for the number of Supporting Requirements that were added or deleted as part of Addendum B, the DNPS PRA contained 25 gaps to Capability Category II of the Standard.

2.2.3 Consistency with Applicable PRA Standards

As indicated above, a recent DNPS PRA model update was completed in 2009, resulting in the 2009A updated DNPS PRA model. In updating the PRA, changes were made to address most of the previously identified gaps as well as to address other open UREs. Following the update, an assessment of the status of the gap analysis relative to the new PRA model and the requirements in Addendum B of the ASME PRA Standard (Reference 6) concluded that 22 of the gaps were fully resolved (i.e., are no longer gaps). The DNPS 2009A PRA contains three (3) potential gaps to Capability Category II of the Standard (Reference 6). These Supporting Requirements are summarized in Table 2-1 along with an assessment of the impact for the STI evaluations.

All remaining gaps will be reviewed for consideration during the next DNPS PRA model update (anticipated to be 2013) but are judged to have low impact on the PRA model or its ability to support a full range of PRA applications. The remaining gaps 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.

2.2.4 Identification of Key Assumptions

The overall Initiative 5b process is a risk-informed process with the PRA model results providing one of the inputs to the IDP to determine if an STI change is warranted. The methodology recognizes that a key area of uncertainty for this application is the standby failure rate utilized in the determination of the STI extension impact. Therefore, the methodology requires the performance of selected sensitivity studies on the standby failure rate of the component(s) of interest for the STI assessment.

The results of the standby failure rate sensitivity study plus the results of any additional sensitivity studies identified during the performance of the reviews as outlined in 2.2.1, 2.2.2 and 2.2.3 above will be documented and included in the results of the risk analysis that goes to the IDP. This will include, for each STI change assessment, a review of identified sources of uncertainty that were developed for DNPS based on the guidance in EPRI TR-1016737, "Treatment of Parameter and Model Uncertainty for Probabilistic Risk Assessments," August 2008 (Draft) (Reference 8).

ATTACHMENT 2
Documentation of Probabilistic Risk Assessment Technical Adequacy

Table 2-1
Status of Identified Gaps to Capability Category II of the ASME PRA Standard

Title	Description of Gap	Applicable Supporting Requirements	Current Status / Comment	Importance to Application
Gap #1	Mission times are discussed in Success Criteria (DR-PSA-003). The mission times for failure to run calculations are assessed at 24 hours or less if specifically justified. Extending the fail-to-run (FTR) mission time beyond 24 hours for loss of decay heat removal (DHR) sequences is considered to be an unnecessary complication and does not affect PRA insights nor does it significantly affect its quantitative evaluation. The evaluation of safe stable states in a probabilistic safety assessment (PSA) has generally involved the assessment of equipment operation and operator actions over an extended period of time. This extended period of time is nominally taken to be sufficiently long such that offsite resources can be brought to bear to mitigate or further prevent accident progression. The considerations that have dominated the choice of the mission time are as follows: • Equipment failure rates (failures/hour) are judged to be too conservative for times greater than a few hours of operation. • For times greater than a few hours, the ability to repair and recover equipment can compete with the failure rate such that there can be considered to be a steady state equilibrium condition reached. • For times greater than 24 hours, the TSC and EOF would be manned, and additional expertise could be available by phone or transported to these facilities. • For times greater than 24 hours, it is considered highly likely that offsite resources (e.g., equipment, power, vehicles) would be available as back-ups to primary methods of prevention and mitigation.	SC-A5	Open. Enhance documentation to justify why extending FTR mission times beyond 24 hours for loss of DHR sequences is not necessary. The considerations that support the choice of the mission time are as follows: Equipment failure rates (failures/hour) are judged to be too conservative for times greater than a few hours of operation. For times greater than a few hours, the ability to repair and recover equipment can compete with the failure rate such that there can be considered to be a steady state equilibrium condition reached.	The current approach is judged to be reasonable for long term scenarios (e.g., long term loss of DHR).

Table 2-1
Status of Identified Gaps to Capability Category II of the ASME PRA Standard

Title	Description of Gap	Applicable Supporting Requirements	Current Status / Comment	Importance to Application
	• From a risk perspective, actual data from natural and man-caused disasters have indicated that public evacuations can be effectively carried out in time frames of less than 24 hours. Therefore, prevention of accidents through 24 hours of mission time has the largest potential for early health effects risk reduction. • Finally, beyond time frames of 24 hours, "ad hoc" procedures can be written and reviewed to perform alignments and equipment usage that are not part of current plant practices or training. Such ad hoc procedures and equipment usage can cover such a wide spectrum of possibilities that it is judged not useful to develop all possible contingencies at this time. Based on the above considerations, it has been considered in past PSAs that it is appropriate to use an equipment mission time of 24 hours. This consideration dictates the use of equipment "run" failure rates (per hour) coupled with a 24 hour mission time to calculate the "run" failure probability of equipment. This calculated "run" failure probability is then treated conservatively by applying this "run" failure probability as a failure that is postulated at time zero.			
Gap #2	Plant specific operational records were not used to quantify the time systems or trains were in standby. A detailed determination is judged to require a significant level of resources with marginal quantitative benefit. An estimate of the time that components were in standby is judged to be sufficient.	DA-C8	Open.	The PRA model is judged to appropriately estimate the time that components were in standby for calculating the standby failure rate. Additionally, the NEI 04-10 methodology requires in Step 8 that an appropriate time-related failure contribution be utilized in the STI change assessment and Step 14 requires that sensitivity studies regarding the choice of that value be performed.

Table 2-1
Status of Identified Gaps to Capability Category II of the ASME PRA Standard

Title	Description of Gap	Applicable Supporting Requirements	Current Status / Comment	Importance to Application
Gap #3	No interviews of plant staff were performed to generate uncertainty estimates of unavailability per maintenance act. An exception is taken to DA-C12. The plant staff does not have reasonable insights applicable to the level of uncertainty associated with the maintenance durations. Most plant staff have rotated positions and do not have sufficient longevity to provide this insight.	DA-C12	Open.	The model is consistent with data from the plant MR database, so there will not be a significant impact on unavailability hours used in the model.

2.3 External Events Considerations

2.3.1 Individual Plant Examination of External Events (IPEEE)

The NEI 04-10 methodology allows for STI change evaluations to be performed in the absence of quantifiable PRA models for all external hazards. For those cases where the STI cannot be modeled in the plant PRA (or where a particular PRA model does not exist for a given hazard group), a qualitative or bounding analysis is performed to provide justification for the acceptability of the proposed test interval change.

External hazards were evaluated in the DNPS Individual Plant Examination of External Events (IPEEE) submittal in response to the NRC IPEEE Program (i.e., NRC Generic Letter 88-20, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities - 10 CFR 50.54(f)," Supplement 4) (Reference 9). The IPEEE Program was a one-time review of external hazard risk and was limited in its purpose to the identification of potential plant vulnerabilities and the understanding of associated severe accident risks.

The results of the DNPS IPEEE study are documented in the DNPS IPEEE Report (Reference 10). However, the internal fire assessment is based on the Updated DNPS Fire IPEEE (Rev. 1) (Reference 11). Each of the DNPS external event evaluations were reviewed by the NRC and compared to the requirements of NUREG-1407 "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," (Reference 12).

Consistent with Generic Letter 88-20, the DNPS IPEEE submittal does not screen out seismic or fire hazards, but provides qualitative or quantitative analyses.

The seismic evaluations were performed in accordance with the EPRI Seismic Margins Analysis (SMA) methodology (Reference 13). The internal fire events were addressed by using the Fire Induced Vulnerability Evaluation (FIVE) methodology (Reference 14). There is no currently maintained quantitative Seismic PRA for DNPS. In addition, the DNPS Fire PRA from the IPEEE has not been maintained current to the as-built, as-operated plant. As such, there are no comprehensive CDF and LERF values available from the IPEEE to support the STI risk assessment.

In addition to internal fires and seismic events, the DNPS IPEEE analysis of high winds or tornados, transportation accidents, aircraft impacts, nearby facility accidents, tornado missiles, and other external hazards was accomplished by reviewing the plant environs against regulatory requirements regarding these hazards. These hazards were screened from further analytic modeling and quantification.

2.3.2 Discussion of External Events Evaluation

<u>Seismic PRA</u>

There is no currently maintained quantitative Seismic PRA for DNPS. The following section discusses seismic insights from the DNPS IPEEE (Rev. 0).

DNPS performed a seismic margins assessment (SMA) as part of the IPEEE (Rev. 0) (Reference 10), following the guidance of EPRI NP-6041, "A Method for Assessment of Nuclear Power Plant Seismic Margin." The SMA is a deterministic evaluation process that does not calculate risk on a probabilistic basis. No core damage frequency sequences were quantified as part of the seismic risk evaluation.

The conclusions of the DNPS seismic risk analysis (Reference 10) are as follows:

> *"…it is concluded that the Dresden plant possesses reasonable margin with respect to its design basis earthquake and safe shutdown capacity will not be lost."*

Fire PRA

The DNPS internal fire assessment is based on the efforts of the Updated DNPS Fire IPEEE (Reference 11). In Supplement 4 to Generic Letter (GL) 88-20, the NRC requested that each nuclear utility perform an IPEEE. Included was a request that the risk of internal fires to safe shutdown be evaluated. An approach was selected which used both a quantitative and qualitative evaluation of each postulated fire. First, the qualitative evaluation was performed to determine whether a postulated fire could impact safe shutdown equipment. For those fire zones which did not screen out in this step, a quantitative evaluation was performed using the existing probabilistic risk assessment (PRA) model.

The EPRI FIVE Methodology (Reference 14) and Fire PRA Implementation Guide (FPRAIG) (Reference 15) screening approaches, EPRI Fire Events Database [16] and plant specific data were used to develop the DNPS Fire IPEEE model. The original DNPS Fire IPEEE (Reference 10) risk profile was influenced by conservative assumptions. The Fire CDF based on the original IPEEE for Unit 2 and Unit 3 was 2.5E-4/yr and 2.8E-4/yr, respectively. Based on the Updated DNPS Fire IPEEE (Reference 11), the Fire CDF for Unit 2 and Unit 3 decreased to 1.7E-5/yr and 3.0E-5/yr, respectively. A review of the upgraded analysis results provides risk insights that are considered to be a much more accurate characterization of the DNPS station.

The Updated DNPS Fire IPEEE is based on the 1999 DNPS Full Power Internal Events PRA model. Although a quantifiable Fire PRA model exists for DNPS, this model has not been maintained current to the as-built, as-operated plant. As such, there are no comprehensive Fire CDF values available from the IPEEE to support the STI risk assessment.

It is noted that an update to the DNPS Fire PRA model is currently in progress and is scheduled to be completed in early 2010. The DNPS Fire model will be based on the 2009A Full Power Internal Events PRA model update and will also be based on the NUREG/CR-6850 methodologies at that time (Reference 17).

Other External Hazards

The DNPS IPEEE (Reference 10) concluded the following:

> "There were no other external events identified that have any significant impact on the core damage frequency at DNPS. Guidance from NUREG-1407 and Generic Letter 88-20, Supplement 4 as well as the NRC SEP evaluations were used in screening initiators."

Based on the above conclusions, other external events are judged to be non-significant contributors to core damage at DNPS and do not warrant additional quantification using PRA methods beyond that done for SEP or reported in the UFSAR.

2.3.3 Summary of External Events Status

As stated earlier, the NEI 04-10 methodology allows for STI change evaluations to be performed in the absence of quantifiable PRA models for all external hazards.

Therefore, in performing the assessments for the other hazard groups, the qualitative or bounding approach will be utilized in most cases. The fire PRA model may 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 (i.e., Figure 2 of NEI 04-10).

2.4 Summary

The DNPS PRA technical capability evaluations and maintenance and update processes described above provide a robust basis for concluding that the full power internal events PRA is suitable for use in risk-informed processes such as that proposed for the implementation of a Surveillance Frequency Control Program. In performing the assessments for the other hazard groups, the qualitative or bounding approach will be used in most cases. Also, 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.

2.5 References

1. "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies, Industry Guidance Document," NEI 04-10, Revision 1, April 2007.
2. Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk Informed Activities," Revision 1, January 2007.
3. "Boiling Water Reactors Owners' Group, BWROG PSA Peer Review Certification Implementation Guidelines," Revision 3, January 1997.
4. American Society of Mechanical Engineers, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," (ASME RA-S-2002), Addenda RA-Sa-2003, December 2003.
5. Dresden MSPI Basis Document, DR-MSPI-001, Revision 5, September 2009.
6. American Society of Mechanical Engineers, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," (ASME RA-S-2002), Addenda RA-Sb-2005, December 2005.
7. ASME Committee on Nuclear Risk Management in collaboration with ANS Risk Informed Standards Committee, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," ASME/ANS RA-Sa-2009, March 2009.
8. "Treatment of Parameter and Model Uncertainty for Probabilistic Risk Assessments," EPRI, Palo Alto, CA: August 2008 (Draft). TR-1016737.
9. U.S. Nuclear Regulatory Commission Generic Letter 88-20, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities - 10 CFR 50.54(f)," Supplement 4, June 28, 1991.
10. Commonwealth Edison Company, Dresden Generating Station Units 2 and 3, Individual Plant Examination for External Events, Rev. 0, December 1997.
11. Commonwealth Edison Company, Dresden Generating station Units 2 and 3, Individual Plant Examination for External Events, Rev. 1, March 2000.
12. NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," June 1991.
13. NTS Engineering, et. al., "A Method for Assessment of Nuclear Power Plant Seismic Margin," EPRI NP-6041, Electric Power Research Institute, October 1988.
14. Professional Loss Control, Inc., "Fire-Induced Vulnerability Evaluation (FIVE) Methodology Plant Screening Guide," EPRI TR-100370, Electric Power Research Institute, April 1992.
15. W.J. Parkinson, et. al., "Fire PRA Implementation Guide," EPRI TR-105928, Electric Power Research Institute, December 1995.
16. NSAC/179L, "Electric Power Research Institute, Fire Events Database for U.S. Nuclear Power Plants," Rev. 1, January, 1993.
17. EPRI/NRC-RES, "Fire PRA Methodology for Nuclear Power Facilities," EPRI 1011989, NUREG/CR-6850, Final Report, September 2005.

ATTACHMENT 3
Markup of Proposed Technical Specifications Pages

Dresden Nuclear Power Station, Units 2 and 3

Renewed Facility Operating License Nos. DPR-19 and DPR-25

REVISED TECHNICAL SPECIFICATIONS PAGES

1.1-5	3.3.5.2-2	3.5.3-2	3.7.5-2	3.9.3-1
3.1.3-4	3.3.6.1-4	3.6.1.1-2	3.7.6-2	3.9.5-1
3.1.4-2	3.3.6.2-3	3.6.1.2-4	3.7.7-1	3.9.6-1
3.1.5-3	3.3.6.3-2	3.6.1.3-6	3.7.7-2	3.9.7-1
3.1.6-2	3.3.7.1-2	3.6.1.3-7	3.7.8-1	3.9.8-3
3.1.7-2	3.3.7.2-3	3.6.1.3-8	3.8.1-6	3.9.9-3
3.1.7-3	3.3.8.1-2	3.6.1.4-1	3.8.1-7	3.10.1-2
3.1.8-2	3.3.8.2-2	3.6.1.5-1	3.8.1-8	3.10.2-3
3.2.1-1	3.4.1-2	3.6.1.6-2	3.8.1-9	3.10.3-3
3.2.2-1	3.4.2-1	3.6.1.7-3	3.8.1-10	3.10.3-4
3.2.3-1	3.4.3-2	3.6.1.8-2	3.8.1-11	3.10.4-2
3.3.1.1-4	3.4.4-2	3.6.2.1-3	3.8.1-12	3.10.4-3
3.3.1.1-5	3.4.5-2	3.6.2.2-1	3.8.1-13	3.10.5-2
3.3.1.1-6	3.4.6-2	3.6.2.3-2	3.8.1-14	3.10.7-3
3.3.1.1-7	3.4.7-3	3.6.2.4-2	3.8.1-15	3.10.7-4
3.3.1.2-3	3.4.8-2	3.6.2.5-2	3.8.3-2	5.5-14
3.3.1.2-4	3.4.9-3	3.6.3.1-1	3.8.4-5	
3.3.1.2-5	3.4.9-4	3.6.4.1-2	3.8.4-6	
3.3.1.3-3	3.4.9-5	3.6.4.2-4	3.8.6-3	
3.3.2.1-4	3.4.10-1	3.6.4.3-3	3.8.6-4	
3.3.2.1-5	3.5.1-4	3.7.1-2	3.8.7-3	
3.3.2.2-3	3.5.1-5	3.7.2-1	3.8.8-2	
3.3.3.1-3	3.5.1-6	3.7.2-2	3.9.1-2	
3.3.4.1-3	3.5.2-3	3.7.3-1	3.9.2-1	
3.3.5.1-8	3.5.2-4	3.7.4-3	3.9.2-2	

1.1 Definitions (continued)

RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2957 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from the opening of the sensor contact until the opening of the trip actuator. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical assuming that: a. The reactor is xenon free; b. The moderator temperature is 68°F; and c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.
~~STAGGERED TEST BASIS~~	~~A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.~~
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	~~24 hours~~ In accordance with the Surveillance Frequency Control Program
SR 3.1.3.2	DELETED	
SR 3.1.3.3	-------------------NOTE------------------- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. -- Insert each withdrawn control rod at least one notch.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.1.3.4	Verify each control rod scram time from fully withdrawn to 90% insertion is ≤ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	~~120 days cumulative operation in MODE 1~~ In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell <u>AND</u> Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more control rod scram accumulators inoperable with reactor steam dome pressure < 900 psig.	C.1 Verify all control rods associated with inoperable accumulators are fully inserted.	Immediately upon discovery of charging water header pressure < 940 psig
	AND	
	C.2 Declare the associated control rod inoperable.	1 hour
D. Required Action B.1 or C.1 and associated Completion Time not met.	D.1 --------NOTE--------- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. --------------------- Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	~~24 hours~~
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 is ≥ 83°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~~ AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.6	Verify each SLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	~~31 days~~
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 40 gpm at a discharge pressure ≥ 1275 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	~~24 months on a STAGGERED TEST BASIS~~
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	~~24 months~~ AND Once within 24 hours after piping temperature is restored within the limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 45.0 atom percent B-10.	Prior to addition to SLC tank

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-------------------NOTE------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. -- Verify each SDV vent and drain valve is open.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 30 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

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

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.1.1 Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND ~~24 hours thereafter~~ In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

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

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any MCPR not within limits.	A.1 Restore MCPR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.2.1 Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP <u>AND</u> ~~24 hours thereafter~~ In accordance with the Surveillance Frequency Control Program

(continued)

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)

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

APPLICABILITY: THERMAL POWER ≥ 25% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any LHGR not within limits.	A.1 Restore LHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.3.1 Verify all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 25% RTP AND ~~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 is ≤ 2% RTP.	~~7 days~~
SR 3.3.1.1.3	Adjust the channel to conform to a calibrated flow signal.	~~7 days~~

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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~~
SR 3.3.1.1.5	Perform a functional test of each RPS automatic scram contactor.	~~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	Perform CHANNEL FUNCTIONAL TEST.	~~31 days~~
SR 3.3.1.1.9	Calibrate the local power range monitors.	~~2000 effective full power hours~~
SR 3.3.1.1.10	Deleted.	

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.11	Perform CHANNEL FUNCTIONAL TEST.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	Calibrate the trip units.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.13	Perform CHANNEL CALIBRATION.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.14	Verify Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure—Low Functions are not bypassed when THERMAL POWER is ≥ 38.5% RTP.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.15	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2. 3. For Function 2.b, not required for the flow portion of the channels. --- Perform CHANNEL CALIBRATION.	~~184 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.16	Perform CHANNEL FUNCTIONAL TEST.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. For Function 1.a, not required to be performed when entering MODE 2 from MODE 1 until 24 hours after entering MODE 2. --- Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.1.1.18	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~
SR 3.3.1.1.19	------------------NOTES------------------ ~~1.~~ Neutron detectors are excluded. ~~2. For Function 5 "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency.~~ --- 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	------------------NOTES----------------- 1. Only required to be met during CORE ALTERATIONS. 2. One SRM may be used to satisfy more than one of the following. -- Verify an OPERABLE SRM detector is located in: a. The fueled region; b. The core quadrant where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region; and c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRM is included in the fueled region.	~~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
SR 3.3.1.2.4	-------------------NOTE------------------- Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. -- Verify count rate is: a. ≥ 3.0 cps; or b. ≥ 0.7 cps with a signal to noise ratio ≥ 20:1.	12 hours during CORE ALTERATIONS <u>AND</u> ~~24 hours~~
SR 3.3.1.2.5	-------------------NOTE------------------- The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. -- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	~~7 days~~
SR 3.3.1.2.6	-------------------NOTE------------------- Not required to be performed until 12 hours after IRMs on Range 2 or below. -- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	~~31 days~~

(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.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.3.1	Perform CHANNEL FUNCTIONAL TEST.	~~184 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3.2	Calibrate the local power range monitors.	~~2000 effective full power hours~~ In accordance with the Surveillance Frequency Control Program
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~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3.5	Verify OPRM is not bypassed when THERMAL POWER is ≥ 25% RTP and recirculation drive flow is < 60% of rated recirculation drive flow.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
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

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~~
SR 3.3.2.1.2	-----------------NOTE------------------ Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	~~92 days~~
SR 3.3.2.1.3	-----------------NOTE------------------ Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	~~92 days~~
SR 3.3.2.1.4	-----------------NOTE------------------ Neutron detectors are excluded. --------------------------------------- Perform CHANNEL CALIBRATION.	~~92 days~~

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.5	-----------------NOTE------------------ Neutron detectors are excluded. --------------------------------------- Verify the RBM is not bypassed when THERMAL POWER is ≥ 30% RTP and when a peripheral control rod is not selected.	~~92 days~~
SR 3.3.2.1.6	Verify the RWM is not bypassed when THERMAL POWER is ≤ 10% RTP.	~~24 months~~
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.	~~24 months~~
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with analyzed rod position sequence.	Prior to declaring RWM OPERABLE following loading of sequence into RWM
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.	Prior to and during the movement of control rods bypassed in RWM

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 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~~
SR 3.3.2.2.3	Calibrate the trip units.	~~92 days~~
SR 3.3.2.2.4	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 53.25 inches.	~~24 months~~
SR 3.3.2.2.5	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, except where identified in the SR.

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	Perform CHANNEL CALIBRATION for Function 4.b.	~~92 days~~
SR 3.3.3.1.3	-------------------NOTE------------------ For Function 2, not required for the transmitters of the channels. --------------------------------------- Perform CHANNEL CALIBRATION for Functions 1 and 2.	~~184 days~~
SR 3.3.3.1.4	Perform CHANNEL CALIBRATION for Functions 3 and 9.	~~12 months~~
SR 3.3.3.1.5	Perform CHANNEL CALIBRATION for Functions 2, 4.a, 5, and 6.	~~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 ATWS-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.4.1.2	Calibrate the trip units.	~~92 days~~
SR 3.3.4.1.3	Perform CHANNEL FUNCTIONAL TEST.	~~92 days~~
SR 3.3.4.1.4	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level—Low Low: ≥ -54.15 inches with time delay set to ≥ 8.3 seconds and ≤ 9.7 seconds; and b. Reactor Vessel Steam Dome Pressure-High: ≤ 1241 psig.	~~24 months~~
SR 3.3.4.1.5	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.f, and 3.g; and (b) for up to 6 hours for Functions other than 3.c, 3.f, and 3.g provided the associated Function or the redundant Function maintains ECCS initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days~~
SR 3.3.5.1.3	Calibrate the trip unit.	~~92 days~~
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	~~92 days~~
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~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 Reactor Vessel Pressure—High Function maintains IC initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL FUNCTIONAL TEST.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2	----------------NOTE---------------- Not required for the time delay portion of the channel. ------------------------------------- Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1068 psig.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION for the time delay portion of the channel. The Allowable Value shall be ≤ 15 seconds.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

1. Refer to Table 3.3.6.1-1 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	Calibrate the trip unit.	~~92 days~~
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	~~92 days~~
SR 3.3.6.1.5	Perform CHANNEL FUNCTIONAL TEST.	~~24 months~~
SR 3.3.6.1.6	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.6.1.7	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

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	Calibrate the trip unit.	~~92 days~~
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	~~92 days~~
SR 3.3.6.2.5	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.6.2.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTE-----------------------------------
Refer to Table 3.3.6.3-1 to determine which SRs apply for each Function.

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CALIBRATION.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.2	Perform CHANNEL CALIBRATION.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.3	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1	Place the CREV System in the isolation/ pressurization mode of operation.	1 hour
	<u>OR</u>		
	B.2	Declare CREV System 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 CREV System Instrumentation alarm capability is maintained.

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 ≤ 14.9 mR/hr.	~~92 days~~

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 mechanical vacuum pump trip capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.7.2.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.7.2.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days~~
SR 3.3.7.2.3	------------------NOTE------------------ Radiation detectors are excluded. -- Perform CHANNEL CALIBRATION.	~~92 days~~
SR 3.3.7.2.4	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 5900 mR/hr.	~~24 months~~
SR 3.3.7.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST including mechanical vacuum pump breaker actuation.	~~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

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-------------------NOTE------------------- Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 for ≥ 24 hours. -- Perform CHANNEL FUNCTIONAL TEST.	~~184 days~~
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 128.6 V, with time delay set to ≤ 3.9 seconds. b. Undervoltage ≥ 106.3 V, with time delay set to ≤ 3.9 seconds. c. Underfrequency ≥ 55.7 Hz, with time delay set to ≤ 3.9 seconds.	~~24 months~~
SR 3.3.8.2.3	Perform a system functional test.	~~24 months~~

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Recirculation loop flow mismatch not within limits.	B.1 Declare the recirculation loop with lower flow to be "not in operation."	2 hours
C. Requirements of the LCO not met for reasons other than Condition A or B.	C.1 Satisfy the requirements of the LCO.	24 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	--------------------NOTE------------------- Not required to be performed until 24 hours after both recirculation loops are in operation. --- Verify jet pump loop flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.	~~24 hours~~ In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Jet Pumps

LCO 3.4.2 All jet pumps shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more jet pumps inoperable.	A.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	-------------------NOTES------------------- 1. Not required to be performed until 4 hours after associated recirculation loop is in operation. 2. Not required to be performed until 24 hours after > 25% RTP. --- Verify at least one of the following criteria (a or b) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 10% from established patterns. b. Each jet pump flow differs by ≤ 10% from established patterns.	~~24 hours~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift setpoints of the safety valves are as follows: Number of Safety Valves / Setpoint (psig) 1 / 1135 ± 34.1 2 / 1240 ± 37.2 2 / 1250 ± 37.5 4 / 1260 ± 37.8 Following testing, lift settings shall be within ± 1%.	In accordance with the Inservice Testing Program
SR 3.4.3.2	Verify each relief valve actuator strokes when manually actuated.	~~24 months~~
SR 3.4.3.3	-------------------NOTE-------------------- Valve actuation may be excluded. -- Verify each relief valve actuates on an actual or simulated automatic initiation signal.	~~24 months~~

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Verify source of unidentified LEAKAGE increase is not 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 3.4.4.1 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

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform primary containment atmospheric particulate sampling.	~~12 hours~~
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of drywell floor drain sump monitoring system[a] instrumentation.	~~31 days~~
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of drywell floor drain sump monitoring system[a] instrumentation.	~~12 months~~

(a) For Unit 3 only, the drywell equipment drain sump monitoring system may be used to satisfy requirements applicable to the drywell floor drain sump monitoring system until the system is repaired during a Unit 3 outage of sufficient duration, but no later than startup from D3R20.

In accordance with the Surveillance Frequency Control Program

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	-------------------NOTE------------------- Not required to be met until 2 hours after reactor vessel coolant temperature is less than the SDC cut-in permissive temperature. -- Verify one SDC subsystem or recirculation pump is operating.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 Verify one SDC subsystem or recirculation pump is operating.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	--------------------NOTE-------------------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. --- Verify: a. RCS pressure and RCS temperature are within the applicable limits specified in Figures 3.4.9-1, 3.4.9-2, and 3.4.9-3; b. RCS heatup and cooldown rates are ≤ 100°F in any 1 hour period; and c. RCS temperature change during inservice leak and hydrostatic testing is ≤ 20°F in any 1 hour period when the RCS temperature and pressure are being maintained within the limits of Figure 3.4.9-1.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	Verify RCS pressure and RCS temperature are within the applicable criticality limits specified in Figure 3.4.9-3.	Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.3	-------------------NOTE------------------ Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. -- Verify the difference between the bottom head coolant temperature and the reactor pressure vessel (RPV) coolant temperature is ≤ 145°F.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.9.4	-------------------NOTE------------------ Only required to be met in MODES 1, 2, 3, and 4 during recirculation pump startup. -- Verify the difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is ≤ 50°F.	Once within 15 minutes prior to each startup of a recirculation pump
SR 3.4.9.5	-------------------NOTE------------------ Only required to be performed when tensioning the reactor vessel head bolting studs. -- Verify reactor vessel flange and head flange temperatures are ≥ 83°F.	In accordance with the Surveillance Frequency Control Program ~~30 minutes~~

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.6	------------------NOTE------------------ Not required to be performed until 30 minutes after RCS temperature ≤ 93°F in MODE 4. -- Verify reactor vessel flange and head flange temperatures are ≥ 83°F.	~~30 minutes~~ In accordance with the Surveillance Frequency Control Program
SR 3.4.9.7	------------------NOTE------------------ Not required to be performed until 12 hours after RCS temperature ≤ 113°F in MODE 4. -- Verify reactor vessel flange and head flange temperatures are ≥ 83°F.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Reactor Steam Dome Pressure

LCO 3.4.10 The reactor steam dome pressure shall be ≤ 1005 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 3.4.10.1 Verify reactor steam dome pressure is ≤ 1005 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~~ In accordance with the Surveillance Frequency Control Program
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~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify correct breaker alignment to the LPCI swing bus.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	In accordance with the Inservice Testing Program
SR 3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF Core Spray / ≥ 4500 gpm / 1 / ≥ 90 psig LPCI / ≥ 9000 gpm / 2 / ≥ 20 psig	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.6	-------------------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 ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.	In accordance with the Inservice Testing Program
SR 3.5.1.7	-------------------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 ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.	~~24 months~~
SR 3.5.1.8	-------------------NOTE------------------- Vessel injection/spray may be excluded. -- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	~~24 months~~

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	-------------------NOTE-------------------- Valve actuation may be excluded. -- Verify the ADS actuates on an actual or simulated automatic initiation signal.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.1.10	Verify each ADS valve actuator strokes when manually actuated.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.1.11	Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.1.12	Verify ADS pneumatic supply header pressure is $\geq$ 80 psig.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required ECCS injection/spray subsystem, the: a. Suppression pool water level is ≥ 10 ft 4 inches; or b. ------------------NOTE------------------ Only one required ECCS injection/spray subsystem may take credit for this option during OPDRVs. -- Contaminated condensate storage tanks water volume is ≥ 140,000 available gallons.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	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~~ In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	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~~ In accordance with the Surveillance Frequency Control Program

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a test line pressure corresponding to the specified reactor pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF CS / ≥ 4500 gpm / 1 / ≥ 90 psig LPCI / ≥ 4500 gpm / 1 / ≥ 20 psig	In accordance with the Inservice Testing Program
SR 3.5.2.5	-------------------NOTE------------------- Vessel injection/spray may be excluded. -- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the IC System: a. Shellside water level ≥ 6 feet; and b. Shellside water temperature ≤ 210°F.	~~24 hours~~
SR 3.5.3.2	Verify each IC 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	Verify the IC System actuates on an actual or simulated automatic initiation signal.	~~24 months~~
SR 3.5.3.4	-------------------NOTE-------------------- Not required to be performed until 12 hours after adequate reactor power is achieved to perform the test. -- Verify IC System heat removal capability to remove design heat load.	~~60 months~~

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.1	Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.1.2	Verify drywell-to-suppression chamber bypass leakage is ≤ 2% of the acceptable $A/\sqrt{k}$ design value of 0.18 ft^2 at an initial differential pressure of ≥ 1.0 psid.	~~24 months~~ In accordance with the Surveillance Frequency Control Program AND ------NOTE----- Only required after two consecutive tests fail and continues until two consecutive tests pass --------------- 12 months

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.2.1	------------------NOTES------------------ 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against 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~~ In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	F.1	Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	<u>OR</u>		
	F.2	Initiate action to restore valve(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	-------------------NOTE------------------- Not required to be met when the 18 inch primary containment vent and purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open, provided the drywell vent and purge valves and their associated suppression chamber vent and purge valves are not open simultaneously. -- Verify each 18 inch primary containment vent and purge valve, except the torus purge valve, is closed.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.3	------------------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 manual isolation valve and blind flange that is located inside primary containment and not locked sealed, or otherwise secured and is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	~~31 days~~
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 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 a representative sample of reactor instrumentation line EFCVs actuate 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~~

(continued)

In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be ≤ 1.5 psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.1.5 Drywell Air Temperature

LCO 3.6.1.5 Drywell average air temperature shall be ≤ 150°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. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	Verify each low set relief valve actuator strokes when manually actuated.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.6.1.6.2	------------------NOTE------------------ Valve actuation may be excluded. -- Verify each low set relief valve actuates on an actual or simulated automatic initiation signal.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	-------------------NOTES------------------ 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. Not required to be met for vacuum breakers open when performing their intended function. -- Verify each vacuum breaker is closed.	~~14 days~~
SR 3.6.1.7.2	Perform a functional test of each vacuum breaker.	~~92 days~~
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	~~24 months~~

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	------------------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~~ In accordance with the Surveillance Frequency Control Program
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	~~31 days~~ In accordance with the Surveillance Frequency Control Program AND Within 12 hours after any discharge of steam to the suppression chamber from the relief valves
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

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

LCO 3.6.2.2 Suppression pool water level shall be ≥ 14 ft 6.5 inches and ≤ 14 ft 10.5 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. <u>AND</u> B.2 Be in MODE 4.	12 hours 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 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 LPCI pump develops a flow rate $\geq$ 5000 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 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~~
SR 3.6.2.4.2	Verify each suppression pool spray nozzle is unobstructed.	~~10 years~~

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.5.1	Verify drywell-to-suppression chamber differential pressure is within limit.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.3.1 Primary Containment Oxygen Concentration

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

APPLICABILITY: MODE 1 during the time period:

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.1.1 Verify primary containment oxygen concentration is within limits.	~~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 maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4000 cfm.	~~24 months on a STAGGERED TEST BASIS for each SGT subsystem~~
SR 3.6.4.1.4	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	-------------------NOTES------------------ 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means. 2. Not required to be met for SCIVs that are open under administrative controls. -- Verify each secondary containment isolation manual valve and blind flange that is not locked, sealed or otherwise secured and is required to be closed during accident conditions is closed.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each CCSW 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

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. Two DGCW subsystems; and

b. The opposite unit DGCW subsystem capable of supporting its associated diesel generator (DG).

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 associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.2.1 Verify each DGCW subsystem manual valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	Verify each DGCW pump starts automatically on an actual or simulated initiation signal.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.3 Ultimate Heat Sink (UHS)

LCO 3.7.3 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.3.1 Verify the water level in the CCSW and DGCW pump suction bays is ≥ 501.5 ft mean sea level.	~~24 hours~~
SR 3.7.3.2 Verify the average water temperature of UHS is ≤ 95°F.	~~24 hours~~

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate the CREV System for ≥ 10 continuous hours with the heaters operating.	~~31 days~~
SR 3.7.4.2	Perform required CREV filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify the CREV System actuates on a manual initiation signal.	~~24 months~~
SR 3.7.4.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify the Control Room Emergency Ventilation AC System has the capability to remove the assumed heat load.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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 ≤ 252,700 μCi/second after decay of 30 minutes.	In accordance with the Surveillance Frequency Control Program ~~31 days~~ AND Once within 4 hours after a ≥ 50% increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level

3.7 PLANT SYSTEMS

3.7.7 The 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 ≥ 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.	~~92 days~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.2	Perform a system functional test.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
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

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be ≥ 19 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the spent fuel storage pool,
During movement of new fuel assemblies in the spent fuel storage pool with irradiated fuel assemblies seated in the spent fuel storage pool.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1 Verify the spent fuel storage pool water level is ≥ 19 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	~~7 days~~ 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 opposite unit's AC electrical power sources.

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	~~7 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	-------------------NOTES------------------ 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 3.8.1.8 must be met. 3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. -- Verify each DG starts from standby conditions and achieves steady state voltage ≥ 3952 V and ≤ 4368 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	-------------------NOTES------------------ 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 3.8.1.8. 5. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. --- Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2340 kW and ≤ 2600 kW.	~~31 days~~
SR 3.8.1.4	Verify each day tank contains ≥ 205 gal of fuel oil and each bulk fuel storage tank contains ≥ 10,000 gal of fuel oil.	~~31 days~~
SR 3.8.1.5	Remove accumulated water from each day tank.	~~31 days~~
SR 3.8.1.6	Verify each fuel oil transfer pump operates to automatically transfer fuel oil from the storage tank to the day tank.	~~31 days~~

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	Check for and remove accumulated water from each bulk storage tank.	~~92 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	-------------------NOTES------------------- 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. -- Verify each DG starts from standby condition and achieves: a. In ≤ 13 seconds, voltage ≥ 3952 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 3952 V and ≤ 4368 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	~~184 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.9	Verify manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	-------------------NOTE------------------- A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. -- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 66.73 Hz; b. Within 3 seconds following load rejection, the voltage is ≥ 3952 V and ≤ 4368 V; and c. Within 4 seconds following load rejection, the frequency is ≥ 58.8 Hz and ≤ 61.2 Hz.	~~24 months~~
SR 3.8.1.11	------------------NOTES------------------- 1. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. 2. Momentary transients outside the voltage limit do not invalidate this test. -- Verify each DG does not trip and voltage is maintained ≤ 5000 V during and following a load rejection of ≥ 2340 kW and ≤ 2600 kW.	~~24 months~~

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 13 seconds, 2. maintains steady state voltage ≥ 3952 V and ≤ 4368 V, 3. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 4. supplies permanently connected loads for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 13 seconds after auto-start, achieves voltage ≥ 3952 V and frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 3952 V and ≤ 4368 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.14	Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except: a. Engine overspeed; and b. Generator differential current.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	-------------------NOTES------------------- 1. Momentary transients outside the load range and power factor limit do not invalidate this test. 2. 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. 3. A single test of the common DG at the specified Frequency will satisfy the Surveillance for both units. --- Verify each DG operating within the power factor limit operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 2730 kW and ≤ 2860 kW; and b. For the remaining hours of the test loaded ≥ 2340 kW and ≤ 2600 kW.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	-------------------NOTES------------------ 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2340 kW. Momentary transients below the load limit do not invalidate this test. 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. -- Verify each DG starts and achieves: a. In ≤ 13 seconds, voltage ≥ 3952 and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 3952 V and ≤ 4368 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.17	Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.18	Verify interval between each sequenced load block is ≥ 90% of the design interval for each load sequence time delay relay.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.19	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 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 ≥ 3952 V and ≤ 4368 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.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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 DG achieves, in ≤ 13 seconds, voltage ≥ 3952 V and frequency ≥ 58.8 Hz.	~~10 years~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.21	-------------------NOTE------------------- When the opposite unit is in MODE 4 or 5, or moving recently irradiated fuel assemblies in secondary containment, the following opposite unit SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10 through SR 3.8.1.12, and SR 3.8.1.14 through SR 3.8.1.17. -- For required opposite unit AC electrical power sources, the SRs of the opposite unit's Specification 3.8.1, except SR 3.8.1.9, SR 3.8.1.13, SR 3.8.1.18, SR 3.8.1.19, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR One or more DGs with stored diesel fuel oil or starting air subsystem not within limits for reasons other than Condition A, B, or C.	D.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.2	Verify each required DG air start receiver pressure is ≥ 220 psig.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage: a. for each 250 VDC subsystem; b. for each 125 VDC subsystem; and c. ------------------NOTE------------------ Only required to be met when the Unit 2 alternate battery is required to be OPERABLE. --------------------------------------- for Unit 2 alternate battery.	~~7 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify each required 250 VDC battery charger supplies ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the 250 VDC subsystems. <u>OR</u> Verify each 250 VDC battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	~~18 months~~ In accordance with the Surveillance Frequency Control Program

~~(~~continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.3	Verify each required 125 VDC battery charger supplies ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the 125 VDC subsystems. <u>OR</u> Verify each 125 VDC battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.	~~24 months~~
SR 3.8.4.4	-------------------NOTE------------------- The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.4 provided the modified performance discharge test completely envelopes the service test. -- 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.	~~24 months~~

In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. One or more batteries in redundant divisions with battery parameters not within limits.	F.1	Restore battery parameters for batteries in one division to within limits.	2 hours
G. Required Action and associated Completion Time of Condition A, B, D, E, or F not met.	G.1	Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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 each battery float current is ≤ 2 amps.	~~7 days~~
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ 2.07 V.	~~31 days~~
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	~~31 days~~

(continued)

In accordance with the Surveillance Frequency Control Program

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	~~31 days~~
SR 3.8.6.5	Verify each battery connected cell voltage is ≥ 2.07 V.	~~92 days~~
SR 3.8.6.6	Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	~~60 months~~ <u>AND</u> 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

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~~ In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of recently irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	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
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple fully retracted position, e. Refuel platform frame mounted hoist, fuel loaded, f. Refuel platform monorail mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.2.1 Verify reactor mode switch locked in Refuel position.	~~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.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY—Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	-------------------NOTE-------------------- Not required to be performed until 7 days after the control rod is withdrawn. --- Insert each withdrawn control rod at least one notch.	~~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

LCO 3.9.6 RPV water level shall be ≥ 23 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 ≥ 23 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

LCO 3.9.7 RPV water level shall be ≥ 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 ≥ 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 SDC subsystem is operating.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.9.1	Verify one SDC 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~~ In accordance with the Surveillance Frequency Control Program
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	-------------------NOTE-------------------- Not required to be met if SR 3.10.2.1 is satisfied for LCO 3.10.2.d.1 requirements. --- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	~~24 hours~~ In accordance with the Surveillance Frequency Control Program
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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.1	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~~ In accordance with the Surveillance Frequency Control Program

(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~~ In accordance with the Surveillance Frequency Control Program
SR 3.10.3.4	-------------------NOTE------------------- Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.b.1 requirements. -- Verify a control rod withdrawal block is inserted.	~~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. OR A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.4.1 Verify all control 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.3.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies. OR A.3.2 Initiate action to satisfy the requirements of this LCO.	Immediately 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	-------------------NOTE------------------- Only required to be met during fuel loading. -- Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.	 ~~24 hours~~

In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.7.2	-------------------NOTE-------------------- Not required to be met if SR 3.10.7.3 satisfied. --- Perform the MODE 2 applicable SRs for LCO 3.3.2.1, Function 2 of Table 3.3.2.1-1.	According to the applicable SRs
SR 3.10.7.3	-------------------NOTE-------------------- Not required to be met if SR 3.10.7.2 satisfied. --- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.7.4	Verify no other CORE ALTERATIONS are in progress.	~~12 hours~~ In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

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

5.5 Programs and Manuals

5.5.14 Control Room Envelope Habitability Program (continued)

inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.15 Surveillance Frequency Control Program

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

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of 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

Dresden Nuclear Power Station, Units 2 and 3

Renewed Facility Operating License Nos. DPR-19 and DPR-25

<u>REVISED TECHNICAL SPECIFICATIONS BASES PAGES</u>
(Note: TS Bases pages are provided for information only.)

B 3.1.3-7	B 3.3.2.1-9	B 3.3.8.2-6	B 3.6.1.3-11	B 3.7.7-3	B 3.9.7-3
B 3.1.3-8	B 3.3.2.1-10	B 3.3.8.2-7	B 3.6.1.3-12	B 3.7.7-4	B 3.9.8-4
B 3.1.4-5	B 3.3.2.1-11	B 3.4.1-6	B 3.6.1.3-13	B 3.7.8-2	B 3.9.9-4
B 3.1.5-5	B 3.3.2.1-12	B 3.4.2-4	B 3.6.1.3-14	B 3.8.1-18	B 3.10.1-5
B 3.1.6-5	B 3.3.2.1-14	B 3.4.3-7	B 3.6.1.3-15	B 3.8.1-19	B 3.10.2-4
B 3.1.7-4	B 3.3.2.2-6	B 3.4.3-8	B 3.6.1.4-2	B 3.8.1-20	B 3.10.2-5
B 3.1.7-5	B 3.3.2.2-7	B 3.4.4-5	B 3.6.1.5-3	B 3.8.1-21	B 3.10.3-5
B 3.1.7-6	B 3.3.2.2-8	B 3.4.5-4	B 3.6.1.6-3	B 3.8.1-22	B 3.10.4-5
B 3.1.7-7	B 3.3.3.1-11	B 3.4.5-5	B 3.6.1.6-4	B 3.8.1-23	B 3.10.5-3
B 3.1.8-4	B 3.3.3.1-12	B 3.4.5-6	B 3.6.1.7-5	B 3.8.1-24	B 3.10.7-5
B 3.1.8-5	B 3.3.4.1-8	B 3.4.6-4	B 3.6.1.7-6	B 3.8.1-25	B 3.10.7-6
B 3.2.1-3	B 3.3.4.1-9	B 3.4.7-5	B 3.6.1.8-5	B 3.8.1-26	
B 3.2.2-4	B 3.3.4.1-10	B 3.4.8-5	B 3.6.1.8-6	B 3.8.1-27	
B 3.2.3-3	B 3.3.5.1-40	B 3.4.9-7	B 3.6.2.1-5	B 3.8.1-28	
B 3.3.1.1-27	B 3.3.5.1-41	B 3.4.9-8	B 3.6.2.2-3	B 3.8.1-29	
B 3.3.1.1-28	B 3.3.5.1-42	B 3.4.9-9	B 3.6.2.3-3	B 3.8.1-30	
B 3.3.1.1-29	B 3.3.5.2-5	B 3.4.10-3	B 3.6.2.3-4	B 3.8.1-31	
B 3.3.1.1-30	B 3.3.5.2-6	B 3.5.1-10	B 3.6.2.4-4	B 3.8.1-32	
B 3.3.1.1-31	B 3.3.6.1-25	B 3.5.1-11	B 3.6.2.5-3	B 3.8.3-5	
B 3.3.1.1-32	B 3.3.6.1-26	B 3.5.1-13	B 3.6.3.1-3	B 3.8.4-17	
B 3.3.1.1-33	B 3.3.6.1-27	B 3.5.1-14	B 3.6.4.1-4	B 3.8.4-18	
B 3.3.1.1-34	B 3.3.6.2-10	B 3.5.1-15	B 3.6.4.1-5	B 3.8.6-6	
B 3.3.1.1-35	B 3.3.6.2-11	B 3.5.1-16	B 3.6.4.1-6	B 3.8.6-7	
B 3.3.1.2-6	B 3.3.6.2-12	B 3.5.1-17	B 3.6.4.2-6	B 3.8.6-8	
B 3.3.1.2-7	B 3.3.6.3-5	B 3.5.2-5	B 3.6.4.2-7	B 3.8.6-9	
B 3.3.1.2-8	B 3.3.6.3-6	B 3.5.3-4	B 3.6.4.3-6	B 3.8.7-11	
B 3.3.1.2-9	B 3.3.7.1-6	B 3.5.3-5	B 3.7.1-5	B 3.8.8-5	
B 3.3.1.2-10	B 3.3.7.1-7	B 3.5.3-6	B 3.7.2-3	B 3.9.1-5	
B 3.3.1.3-7	B 3.3.7.2-5	B 3.6.1.1-4	B 3.7.3-2	B 3.9.2-3	
B 3.3.1.3-8	B 3.3.7.2-6	B 3.6.1.1-5	B 3.7.3-3	B 3.9.2-4	
B 3.3.1.3-9	B 3.3.7.2-7	B 3.6.1.2-7	B 3.7.4-7	B 3.9.3-3	
B 3.3.2.1-4	B 3.3.8.1-7	B 3.6.1.2-8	B 3.7.5-4	B 3.9.5-3	
B 3.3.2.1-5	B 3.3.8.1-8	B 3.6.1.3-10	B 3.7.6-3	B 3.9.6-3	

BASES

ACTIONS

D.1 and D.2 (continued)

followed under these conditions, as described in the Bases for LCO 3.1.6. The allowed Completion Time of 4 hours is acceptable, considering the low probability of a CRDA occurring.

E.1

If any Required Action and associated Completion Time of Condition A, C, or D are not met, or there are nine or more inoperable control rods, 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 (e.g., 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 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 to a position with an OPERABLE indicator (full-in, full-out, or numeric indicators), by verifying the indicators one notch "out" and one notch "in" are OPERABLE, 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.~~

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 3.1.3.2

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 Surveillance 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.

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 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.

SR 3.1.3.4

Verifying that the scram time for each control rod to 90% insertion is ≤ 7 seconds provides reasonable assurance that the control rod will insert when required during a DBA or transient, thereby completing its shutdown function. This SR is performed in conjunction with the control rod scram time testing of SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.4.2

Additional testing of a sample of control rods is required to verify the continued performance of the scram function during the cycle. A representative sample contains at least 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." With more than 20% of the sample 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 may have been 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 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. 8) and are established based on a high probability of meeting the acceptance criteria at reactor pressures ≥ 800 psig. Limits for ≥ 800 psig are found in Table 3.1.4-1. If testing demonstrates the affected control rod does not meet these limits, but is within the 7-second limit of Table 3.1.4-1, Note 2, the control rod can be declared OPERABLE and "slow."

(continued)

BASES

ACTIONS

D.1 (continued)

that all insertable control rods are inserted and that the reactor is in a condition that does not require the active function (i.e., scram) of the control rods. This Required Action is modified by a Note stating that the action is not applicable if all control rods associated with the inoperable scram accumulators are fully inserted, since the function of the control rods has been performed.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

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.

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 1100 psig (Ref. 2). 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.~~

REFERENCES

1. UFSAR, Section 4.6.3.4.2.1.

2. Letter, from E.Y. Gibo (GE) to P. Chennel (ComEd), "Generic Basis for HCU Scram Accumulator Minimum Setpoint Pressure," April 10, 1998.

BASES

ACTIONS

B.1 and B.2 (continued)

Reactor Operator) or by a task qualified member of the technical staff (e.g., a shift technical advisor or reactor engineer).

When nine or more OPERABLE control rods are not in compliance with the analyzed rod position sequence, the reactor mode switch must be placed in the shutdown position within 1 hour. With the mode switch in shutdown, the reactor is shut down, and as such, does not meet the applicability requirements of this LCO. The allowed Completion Time of 1 hour is reasonable to allow insertion of control rods to restore compliance, and is appropriate relative to the low probability of a CRDA occurring with the control rods out of sequence.

SURVEILLANCE REQUIREMENTS

SR 3.1.6.1

periodically

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

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 RWM

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 Reactors-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.

(continued)

BASES

ACTIONS (continued)

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 and MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions 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

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

SR 3.1.7.4 and SR 3.1.7.6

SR 3.1.7.4 verifies the continuity of the explosive charges in the injection valves to ensure that proper operation will occur if required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. ~~The 31 day Frequency is based on operating experience and has demonstrated the reliability of the explosive charge continuity.~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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

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 3.1.7.5

This Surveillance requires an examination of the sodium pentaborate solution by using chemical analysis to ensure that 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 determine that the sodium pentaborate solution concentration is within the specified limits. SR 3.1.7.5 must also be performed anytime the temperature is restored to within the limits of Figure 3.1.7-2, to ensure that no significant boron precipitation occurred. ~~The 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 that each SLC System pump develops a flow rate ≥ 40 gpm at a discharge pressure ≥ 1275 psig ensures that

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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 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 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.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

acceptable method for verifying that the suction piping is unblocked is to pump from the storage tank to the storage tank.

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

SR 3.1.7.10

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Action to verify the actual B-10 enrichment must be performed prior to addition to the SLC tank in order to ensure that the proper B-10 atom percentage is being used. The proper enrichment (i.e., B-10 atom percentage) of the sodium pentaborate is verified, prior to the addition to the SLC tank, by use of a certificate of conformance provided by the supplier for each batch of enriched sodium pentaborate. The certificate of conformance will include certification that the enrichment of the sodium pentaborate satisfies the acceptance criterion.

REFERENCES

1. 10 CFR 50.62.

2. UFSAR, Section 9.3.5.3.

3. NUREG-1465, Accident Source Terms for Light-Water Nuclear Power Plants, Final Report, February 1, 1995.

4. 10 CFR 50.67.

BASES

ACTIONS

C.1 (continued)

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 functions during normal operation. This SR does not require any testing or valve manipulation; rather, it involves verification that the valves are in the correct position.

~~The 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 receipt of a scram signal is based on the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

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.

bounding leakage case evaluated in the accident analysis (Ref. 3). Similarly, after receipt of a simulated or actual scram reset signal, the opening of the SDV vent and drain valves is verified. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3, "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 4.6.3.3.2.8.

2. 10 CFR 50.67.

3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.

BASES

ACTIONS

B.1 (continued)

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

APLHGRs are required to be initially calculated within 12 hours after THERMAL POWER is ≥ 25% RTP and ~~then every 24 hours~~ periodically thereafter. They are compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. ~~The 24 hour Frequency is based on both engineering judgment and recognition of the slowness of changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels. The 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. EMF-94-217(NP), "Boiling Water Reactor Licensing Methodology Summary," Revision 1, November 1995.

2. UFSAR, Chapter 4.

3. UFSAR, Chapter 6.

4. UFSAR, Chapter 15.

5. CENPD-300-P-A, "Reference Safety Report for Boiling Water Reactor Reload Fuel" (as specified in Technical Specification 5.6.5).

BASES (continued)

ACTIONS

A.1

If any MCPR is outside the required limits, an assumption regarding an initial condition of the design basis transient analyses may not be met. Therefore, prompt action should be taken to restore the MCPR(s) to within the required limits such that the plant remains operating within analyzed conditions. The 2 hour Completion Time is normally sufficient to restore the MCPR(s) to within its limits and is acceptable based on the low probability of a transient or DBA occurring simultaneously with the MCPR out of specification.

B.1

If the MCPR 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 3.2.2.1

The MCPR is required to be initially calculated within 12 hours after THERMAL POWER is ≥ 25% RTP and ~~then every 24 hours~~ [periodically] thereafter. It is compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. ~~The 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 ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels. [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 3.2.2.2

Because the transient analyses take credit for conservatism in the scram speed performance, it must be demonstrated that

(continued)

BASES (continued)

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 is reduced to < 25% RTP within 4 hours. The allowed Completion Time is reasonable, based on operating experience, to reduce THERMAL POWER TO < 25% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.3.1

periodically

The LHGRs are required to be initially calculated within 12 hours after THERMAL POWER is ≥ 25% RTP and ~~then every 24 hours~~ thereafter. They are compared to the LHGR limits (steady state) 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 slow changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at lower power levels.

The 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)

SURVEILLANCE REQUIREMENTS (continued)

time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the 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 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 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 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.2 (continued)

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

SR 3.3.1.1.3

The Average Power Range Monitor Flow Biased Neutron Flux-High 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 converters used to vary the setpoint is 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 converter must be ≤ 100% of the calibrated flow signal. If the flow converter signal is not within the limit, all required APRMs that receive an input from the inoperable flow converter 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.~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.4 and SR 3.3.1.1.8

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted, 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 for SR 3.3.1.1.4 provides an acceptable level of system average unavailability over the Frequency interval and is based on reliability analysis (Ref. 13). The Frequency of 31 days for SR 3.3.1.1.8 is acceptable based on engineering judgment, operating experience, and the reliability of this instrumentation.~~

SR 3.3.1.1.5

A functional test of each automatic scram contactor is performed to ensure that each automatic RPS logic channel will perform the intended function. There are four RPS channel test switches, one associated with each of the four automatic trip channels (A1, A2, B1, and B2). These test switches allow the operator to test the OPERABILITY of the individual trip logic channel automatic scram contactors as

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.5 (continued)

an alternative to using an automatic scram function trip. This is accomplished by placing the RPS channel test switch in the test position, which will input a trip signal into the associated RPS logic channel. The RPS channel test switches are not specifically credited in the accident analysis. The Manual Scram Functions are not configured the same as the generic model used in Reference 13. However, Reference 13 concluded that the Surveillance Frequency extensions for RPS Functions were not affected by the difference in configuration since each automatic RPS logic channel has a test switch which is functionally the same as the manual scram switches in the generic model. As such, a functional test of each RPS automatic scram contactor using either its associated test switch or by test of any of the associated automatic RPS Functions is required to be performed ~~once every 7 days~~. ~~The Frequency of 7 days is based on the reliability analysis of Reference 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.

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

The overlap between IRMs and APRMs is of concern when reducing power into the IRM range. On power increases, the system design will prevent further increases (by initiating a rod block) if adequate overlap is not maintained. The IRM/APRM and SRM/IRM overlaps are acceptable if a ½ decade overlap exists.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.6 and SR 3.3.1.1.7 (continued)

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

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

SR 3.3.1.1.9

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 3.3.1.1.13, SR 3.3.1.1.15, and SR 3.3.1.1.17

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.

Note 1 to SR 3.3.1.1.15 and SR 3.3.1.1.17 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. For the APRMs, changes in neutron detector sensitivity are

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.13, SR 3.3.1.1.15, and SR 3.3.1.1.17 (continued)

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 3.3.1.1.9). A second Note 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. Twenty four hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR. Note 3 to SR 3.3.1.1.15 states that for Function 2.b, this SR is not required for the flow portion of these channels. This allowance is consistent with the plant specific setpoint methodology. This portion of the Function 2.b channels must be calibrated in accordance with SR 3.3.1.1.17.

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 SR 3.3.1.1.13 is based upon the assumption of a 92 day calibration interval in determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.15 is based upon the assumption of a 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.17 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 3.3.1.1.11 and SR 3.3.1.1.16

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.11 and SR 3.3.1.1.16 (continued)

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 3.3.1.1.11 is based on the reliability analysis of Reference 13. The 24 month Frequency of SR 3.3.1.1.16 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.~~

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 3.3.1.1.12

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.1.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

~~The Frequency of 92 days is based on the reliability analysis of Reference 13.~~

SR 3.3.1.1.14

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 ≥ 45% RTP. This involves calibration of the bypass channels. Adequate margins for

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.14 (continued)

the instrument setpoint methodologies 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 an in-service calibration at THERMAL POWER ≥ 38.5% RTP, if performing the calibration using actual turbine first stage pressure, to ensure that the calibration remains valid.

If any bypass channels setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 38.5% 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 of 92 days is based on engineering judgment and reliability of the 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 3.3.1.1.18

The LOGIC SYSTEM FUNCTIONAL TEST (LSFT) demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods (LCO 3.1.3, "Control Rod Operability"), and SDV vent and drain valves (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.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.19

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. This test may be performed in one measurement or in overlapping segments, with verification that all components are tested. The RPS RESPONSE TIME acceptance criteria are included in Reference 14.

As noted ~~(Note 1)~~, neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

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. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.~~

REFERENCES

1. UFSAR, Section 7.2.

2. UFSAR, Section 5.2.2.2.3.

3. UFSAR, Section 6.2.1.3.2.

4. UFSAR, Chapter 15.

5. UFSAR, Section 15.4.1.

6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.

7. UFSAR, Section 15.4.10.

8. UFSAR, Section 15.6.5.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.1 and SR 3.3.1.2.3 (continued)

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

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 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 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 the SR is required to be met only during CORE ALTERATIONS. It is not required to be met at other times in MODE 5 since core reactivity changes are not occurring. This Surveillance consists of a review of plant logs to ensure that SRMs required to be OPERABLE for given CORE ALTERATIONS are, in fact, OPERABLE. In the event that only one SRM is required to be OPERABLE, per Table 3.3.1.2-1, footnote (b), only the a. portion of

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.2 (continued)

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 that include steps to ensure that the SRMs required by the LCO are in the proper quadrant.~~

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 3.3.1.2.4

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

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

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.2.5 and SR 3.3.1.2.6

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.

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with 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 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 an acceptable operating level. In a fully withdrawn condition, the detectors are sufficiently removed from the fueled region of the core to essentially eliminate neutrons from reaching the detector. Any count rate obtained while the detectors are fully withdrawn is assumed to be "noise" only.

With few fuel assemblies loaded, the SRMs will not have a high enough count rate to determine the signal to noise ratio. Therefore, allowances are made for loading sufficient "source" material, in the form of irradiated fuel assemblies, to establish the conditions necessary to determine the signal to noise ratio. To accomplish this, SR 3.3.1.2.5 is modified by a Note that states that the

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

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

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

SR 3.3.1.2.7

Performance of a CHANNEL CALIBRATION ~~at a Frequency of 24 months~~ 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 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 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 SR 3.3.1.2.6 allows the Surveillance to be delayed until entry into the specified condition of the

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.3.1.2.7 (continued) 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 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.
REFERENCES	None.

SURVEILLANCE REQUIREMENTS (continued)

surveillance. That analysis demonstrated that the 6 hours testing allowance does not significantly reduce the probability that the RPS will trip when necessary.

SR 3.3.1.3.1

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

~~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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.3.3 (continued)

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 3.3.1.1.9). SR 3.3.1.1.9 thus also ensures the operability of the OPRM instrumentation.

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 designated to monitor.

~~The 24 month Frequency is based on engineering judgement 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 $\geq$ 25% RTP and recirculation drive flow is < 60% of rated recirculation drive flow. This normally involves

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.3.5 (continued)

calibration of the bypass channels. The 25% RTP value is the plant specific value for the enable region, as described in Reference 9. The value has been conservatively rounded to coincide with the LCO Applicability.

These values have been conservatively selected so that specific, additional uncertainty allowances need not be applied. Specifically, for THERMAL POWER, the Average Power Range Monitor (APRM) establishes the reference signal to enable the OPRM system at 25% RTP. Thus, the nominal setpoints corresponding to the values listed above (25% 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 ≥ 25% 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 of the components.~~

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.

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 BASES. This frequency is based upon operating experience, which shows that random failures of instrumentation components causing serious time degradation, but not channel failure, are infrequent.~~

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

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Rod Block Monitor (continued)

from the safety analysis. The Allowable Values are derived from the analytic limits, corrected for calibration, process, and some of the instrument errors. The trip setpoints are then determined accounting for the remaining instrument errors (e.g., drift). The trip setpoints and allowable values derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for and appropriately applied for the instrumentation.

The RBM is assumed to mitigate the consequences of an RWE event when operating ≥ 30% RTP and a non-peripheral control rod is selected. Below this power level, or if a peripheral control rod is selected, the consequences of an RWE event will not exceed the MCPR SL and, therefore, the RBM is not required to be OPERABLE (Ref. 3).

2. Rod Worth Minimizer

The RWM enforces the analyzed rod position sequence to ensure that the initial conditions of the CRDA analysis are not violated. The analytical methods and assumptions used
14 in evaluating the CRDA are summarized in References 4, 5, 6, 7, 8, and ~~15~~. The analyzed rod position sequence requires that control rods be moved in groups, with all control rods assigned to a specific group required to be within specified banked positions. Requirements that the control rod sequence is in compliance with the analyzed rod position sequence are specified in LCO 3.1.6, "Rod Pattern Control."

When performing a shutdown of the plant, an optional control
13 rod sequence (Ref. ~~14~~) 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 ~~14~~ control rod insertion sequence for shutdown, the rod worth minimizer may be reprogrammed to enforce the requirements of the improved control rod insertion process.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2. Rod Worth Minimizer (continued)

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 available and required to be OPERABLE (Ref. 9). 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 ≤ 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. 4, 9, 10, 11, and ~~15~~ 14). 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.

3. Reactor Mode Switch—Shutdown Position

During MODES 3 and 4, and during MODE 5 when the reactor mode switch is in the shutdown position, the core is assumed to be subcritical; therefore, no positive reactivity insertion events are analyzed. The Reactor Mode Switch-Shutdown Position control rod withdrawal block ensures that the reactor remains subcritical by blocking control rod withdrawal, thereby preserving the assumptions of the safety analysis.

The Reactor Mode Switch—Shutdown Position Function satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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. 12) 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 "Relay Select Marix" 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.

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. 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.

SR 3.3.2.1.2 and SR 3.3.2.1.3

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

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SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.2 and SR 3.3.2.1.3 (continued)

withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs and by attempting to select a control rod not in compliance with the prescribed sequence and verifying a selection error occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2, and SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. The Note to SR 3.3.2.1.2 allows entry into MODE 2 on a startup and entry into MODE 2 concurrent with power reduction to ≤ 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 ≤ 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 allowance is 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 Surveillance when performed at the 92 day Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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 3.3.1.1.9.

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 a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 3.3.1.1.9. ~~The 92 day Frequency is based on the actual trip setpoint methodology utilized for these channels.~~

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 3.3.2.1.6

The RWM is automatically bypassed when power is above a specified value. The power level is determined from feedwater flow and steam flow signals. 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.~~

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

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.7 (continued)

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.

(continued)

BASES

REFERENCES (continued)

9. NRC SER, "Acceptance of Referencing of Licensing Topical Report NEDE-24011-P-A," "General Electric Standard Application for Reactor Fuel, Revision 8, Amendment 17," December 27, 1987.

10. "Modifications to the Requirements for Control Rod Drop Accident Mitigating Systems," BWR Owners' Group, July 1986.

11. EMF-2237(P), "Dresden Units 2 and 3 Reduced Low Power Set Point Analysis for Control Rod Drop Accident," July 1999.

12. GENE-770-06-1-A, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," December 1992.

~~13. NEDC-30851-P-A, Supplement 1, "Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation," October 1988.~~

13. ~~14.~~ NEDO-33091-A, Revision 2, "Improved BPWS Control Rod Insertion Process," July 2004.

14. ~~15.~~ CENPD-284-P-A, "Control Rod Drop Accident Analysis Methodology for Boiling Water Reactors: Summary and Qualification."

BASES

SURVEILLANCE REQUIREMENTS (continued)

time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the feedwater pumps 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.

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

SR 3.3.2.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2.2 (continued)

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

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in SR 3.3.2.2.4. If the trip setting is discovered to be less conservative than the setting accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

~~The Frequency of 92 days is based on engineering judgement and the reliability of these components.~~

SR 3.3.2.2.4

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.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater pump breakers and main turbine stop valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a main turbine stop valve or 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.~~

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 15.1.2.

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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.1.1

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

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, SR 3.3.3.1.3, SR 3.3.3.1.4, and SR 3.3.3.1.5

A CHANNEL CALIBRATION is performed every 92 days for Function 4.b, every 184 days for Functions 1 and 2 (recorder only), every 12 months for Functions 3 and 9, and every 24 months for Functions 2, 4.b, 5, and 6. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies the channel responds to measured parameter with the necessary range and accuracy. For Function 5, the CHANNEL CALIBRATION shall

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1.2, SR 3.3.3.1.3, SR 3.3.3.1.4, and SR 3.3.3.1.5 (continued)

consist of an electronic calibration of the channel, excluding the detector, for range decades > 10 R/hour and a one point calibration check of the detector with an installed or portable gamma source for the range decade < 10 R/hour. For Function 6, the CHANNEL CALIBRATION shall consist of verifying that the position indication conforms to actual valve position.

The Note to SR 3.3.3.1.3 states that for Function 2, this SR is not required for the transmitters of these channels. This allowance is consistent with the plant specific setpoint methodology. This portion of the Function 2 channels must be calibrated in accordance with SR 3.3.3.1.5.

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.

~~The Frequency of 92 days for Function 4.b, 184 days for Functions 1 and 2 (recorder only), and 12 months for Functions 3 and 9, for CHANNEL CALIBRATION is based on operating experience.~~

~~The 24 month Frequency for CHANNEL CALIBRATION of Functions 2, 4.a, 5, and 6 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 letter, D.R. Muller (NRC) to H.E. Bliss (Commonwealth Edison Company), "Emergency Response Capability - Conformance to Regulatory Guide 1.97 Revision 2, Dresden Unit Nos. 2 and 3," September 1, 1988.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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. 3) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

SR 3.3.4.1.1

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

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 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 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.2

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

~~The Frequency of 92 days is based on engineering judgement and the reliability of these 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 3.3.4.1.3

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 of 92 days is based on the reliability analysis of Reference 3.~~

SR 3.3.4.1.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor, including the time delay relays associated with the Reactor Vessel Water Level—Low Low Function. This test verifies the channel responds to the

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.4 (continued)

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 3.3.4.1.5

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

~~The 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 7.8.

2. UFSAR, Section 15.8

3. GENE-770-06-1-A, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," December 1992.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Conditions and Required Actions may be delayed for up to 6 hours as follows: (a) for Functions 3.c, 3.f, and 3.g; and (b) for Functions other than 3.c, 3.f, and 3.g provided the associated Function or redundant Function maintains ECCS initiation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 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 ECCS will initiate when necessary.

SR 3.3.5.1.1

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

will detect gross channel failure

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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

~~The Frequency of 92 days is based on the reliability analyses of Reference 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 3.3.5.1.3

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

~~The Frequency of 92 days is based on the reliability analysis of Reference 5.~~

SR 3.3.5.1.4 and SR 3.3.5.1.5

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1.4 and SR 3.3.5.1.5 (continued)

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

~~The Frequency of SR 3.3.5.1.4 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 3.3.5.1.5 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

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

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.

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 5.2.

2. UFSAR, Section 6.3.

3. UFSAR, Chapter 15.

4. EMF-97-025(P), Revision 1, "LOCA Break Spectrum Analysis for Dresden Units 2 and 3," May 30, 1997.

5. NEDC-30936-P-A, "BWR Owners' Group Technical Specification Improvement Analyses for ECCS Actuation Instrumentation, Part 1 and Part 2," December 1988.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.1 (continued)

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 31 days is based on plant operating experience with regard to channel OPERABILITY and drift that demonstrates that failure of more than one channel in any 31 day interval 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 3.3.5.2.2 and SR 3.3.5.2.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. A Note to SR 3.3.5.2.2 states that this SR is not required for the time delay portion of these channels. This allowance is consistent with the plant specific setpoint methodology. This portion of the channels must be calibrated in accordance with SR 3.3.5.2.3.

~~The Frequency of SR 3.3.5.2.2 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

~~The Frequency of SR 3.3.5.2.3 is based upon 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 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 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 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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.1

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

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

SR 3.3.6.1.2 and SR 3.3.6.1.5

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 least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.2 and SR 3.3.6.1.5 (continued)

~~The 92 day Frequency of SR 3.3.6.1.2 is based on the reliability analyses described in References 8 and 9. The 24 month Frequency of SR 3.3.6.1.5 is based on engineering judgement and the reliability of the 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 3.3.6.1.3

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

~~The Frequency of 92 days is based on the reliability analyses of References 9 and 10.~~

SR 3.3.6.1.4 and SR 3.3.6.1.6

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

~~The Frequency of SR 3.3.6.1.4 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.6.1.6 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 3.3.6.1.7

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on PCIVs in LCO 3.6.1.3 overlaps this Surveillance to provide complete testing of the assumed safety function. ~~The 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.~~ 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. Technical Requirements Manual.
2. UFSAR, Section 6.2.
3. UFSAR, Chapter 15.
4. UFSAR, Section 15.6.5.
5. UFSAR, Section 15.1.3.
6. UFSAR, Section 15.6.4.
7. UFSAR, Section 9.3.5.
8. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
9. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.1

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

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

SR 3.3.6.2.2

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.2.2 (continued)

~~The Frequency of 92 days is based on the reliability analysis of References 3 and 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 3.3.6.2.3

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

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

SR 3.3.6.2.4 and SR 3.3.6.2.5

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

~~The Frequencies of SR 3.3.6.2.4 and SR 3.3.6.2.5 are based on the assumption of a 92 day and a 24 month calibration interval, respectively, in the determination of the magnitude of equipment drift in the setpoint analysis.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.6

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

The 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 Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 6.2.3.

2. UFSAR, Section 15.6.5.

3. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

4. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

BASES

ACTIONS (continued)

B.1

If the Required Action and associated Completion Time of Condition A is not met, or two or more relief valves are inoperable due to inoperable channels, the relief valves may be incapable of performing their intended relief or low set function. Therefore, 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 with 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LLS instrumentation Function are located in the SRs column of Table 3.3.6.3-1.

SR 3.3.6.3.1 and SR 3.3.6.3.2

CHANNEL CALIBRATION is a complete check of the instrument loop and 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 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 every 92 days for SR 3.3.6.3.1 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of once every 24 months for SR 3.3.6.3.2 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 3.3.6.3.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specified channel. The system functional testing performed in LCO 3.4.3, "Safety and Relief Valves" and LCO 3.6.1.6, "Low Set Relief Valves," overlaps this test 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 Frequency of once every 24 months for SR 3.3.6.3.3 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 5.2.2.

2. UFSAR, Section 6.2.1.3.4.

3. UFSAR, Chapter 15.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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. 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 CREV System Instrumentation alarm 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 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 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 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 3 and 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 3.3.7.1.3

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 upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

REFERENCES

1. UFSAR, Section 6.4.

2. UFSAR, Section 15.6.5.

3. 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.

4. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

BASES

ACTIONS (continued)

C.1, C.2, C.3, and C.4

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 3 within 12 hours (Required Action C.4). Alternately, the associated mechanical vacuum pump may be removed from service since this performs the intended function of the instrumentation (Required Actions C.1 and C.2). An additional option is provided to isolate the main steam lines (Required Action C.3), which may allow operation to continue. Isolating the main steam lines effectively provides an equivalent level of protection by precluding fission product transport to the condenser.

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

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided mechanical vacuum pump trip capability is maintained. 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. 3) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the mechanical vacuum pump will trip when necessary.

SR 3.3.7.2.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7.2.1 (continued)

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 required channels of this 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 3.3.7.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. 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 3.~~

SR 3.3.7.2.3 and SR 3.3.7.2.4

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 3.3.7.2.3 and SR 3.3.7.2.4 (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. A Note to SR 3.3.7.2.3 states that radiation detectors are excluded from CHANNEL CALIBRATION since they are calibrated in accordance with SR 3.3.7.2.4.

~~The Frequency of SR 3.3.7.2.3 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift associated with the channel, except for the radiation detectors, in the setpoint analysis. The Frequency of SR 3.3.7.2.4 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift for the radiation detector 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 3.3.7.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the mechanical vacuum pump breaker is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if the 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 these components usually pass the Surveillance when performed at the 24 month Frequency.~~

REFERENCES

1. UFSAR, Section 11.5.1.1.

2. UFSAR, Section 15.4.10.

3. NEDC-30851-P-A, "Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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

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 3.3.8.1.2 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 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 an 18 month or 24 month calibration interval, as applicable, in the determination of the magnitude of equipment drift in the setpoint analysis.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 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.~~

REFERENCES

1. UFSAR, Section 8.3.1.7.

2. UFSAR, Section 5.2.

3. UFSAR, Section 6.3.

4. UFSAR, Chapter 15.

BASES

ACTIONS (continued)

D.1

If any Required Action and associated Completion Time of Condition A or B are not met in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, the operator must immediately initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. Required Action D.1 results in the least reactive condition for the reactor core and ensures that the safety function of the RPS (e.g., scram of control rods) is not required.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance.

The ~~184 day Frequency and the~~ Note in the Surveillance ~~are~~ [is] based on guidance provided in Generic Letter 91-09 (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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 is based on 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 3.3.8.2.3

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. 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 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 7.2.3.

2. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electrical Protective Assemblies in Power Supplies for the Reactor Protection System."

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.1.1

This SR ensures the recirculation loops are within the allowable limits for mismatch. At low core flow (i.e., < 70% of rated core flow), the 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 jet pump loop 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 Surveillance Frequency for jet pump OPERABILITY verification and has been shown by operating experience to be adequate to detect off normal jet pump loop flows in a timely manner.~~

REFERENCES

1. UFSAR, Section 6.3.3.3.

2. UFSAR, Chapter 15.

3. UFSAR, Section 15.3.1.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1 (continued)

the loop average is repeatable. An appreciable change in this relationship is an indication that increased (or reduced) resistance has occurred in one of the jet pumps.

The deviations from normal are considered indicative of a potential problem in the recirculation drive flow or jet pump system (Ref. 2). Normal flow ranges and established jet pump flow patterns are established by plotting historical data as discussed in Reference 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 24 hour Frequency has been shown by operating experience to be timely for detecting jet pump degradation and is consistent with the Surveillance Frequency for recirculation loop OPERABILITY verification.~~

This SR is modified by two Notes. Note 1 allows this Surveillance not to be performed until 4 hours after the associated recirculation loop is in operation, since these checks can only be performed during jet pump operation. The 4 hours is an acceptable time to establish conditions appropriate for data collection and evaluation.

Note 2 allows this SR not to be performed until 24 hours after THERMAL POWER exceeds 25% RTP. During low flow conditions, jet pump noise approaches the threshold response of the associated flow instrumentation and precludes the collection of repeatable and meaningful data. The 24 hours is an acceptable time to establish conditions appropriate to perform this SR.

REFERENCES

1. UFSAR, Section 6.3.

2. GE Service Information Letter No. 330, including Supplement 1, "Jet Pump Beam Cracks," June 9, 1980.

3. NUREG/CR-3052, "Closeout of IE Bulletin 80-07: BWR Jet Pump Assembly Failure," November 1984.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The combination of the valve testing and the valve actuator testing provide a complete check of the capability of the valves to open and close, such that full functionality is demonstrated through overlapping tests, without cycling the valves.

~~The 24 month Frequency ensures that each solenoid for each relief valve is tested. The 24 month Frequency was developed based on the relief valve tests required by the ASME Code (Ref. 5). Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

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 3.4.3.3

The relief valves, including the S/RV, are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the relief valve operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TESTs in LCO 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," and LCO 3.3.6.3, "Relief Valve Instrumentation," overlap 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 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.~~

This SR is modified by a Note that excludes valve actuation since the valves are individually tested in accordance with SR 3.4.3.2.

(continued)

BASES (continued)

REFERENCES

1. UFSAR, Section 5.2.2.
2. UFSAR, Section 15.2.3.1.
3. UFSAR, Section 15.2.2.1.
4. UFSAR, Chapter 15.
5. ~~ASME Code for Operation and Maintenance of Nuclear Power Plants.~~

BASES

ACTIONS

C.1 and C.2 (continued)

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

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

The RCS LEAKAGE is monitored by a variety of instruments designed to provide alarms when LEAKAGE is indicated and to quantify the various types of LEAKAGE. Leakage detection instrumentation is discussed in more detail in the Bases for LCO 3.4.5, "RCS Leakage Detection Instrumentation." Sump level and flow rate are typically monitored to determine actual LEAKAGE rates; however, an alternate method which may be used to quantify LEAKAGE is calculating flow rates using sump pump run times. ~~In conjunction with alarms and other administrative controls, a 12 hour Frequency for this Surveillance is appropriate for identifying LEAKAGE and for tracking required trends (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.

REFERENCES

1. UFSAR, Section 3.1.2.4.1.

2. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.

3. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactor Plants," October 1975.

~~4. Generic Letter 88-01, Supplement 1, February 1992.~~

LCO (continued)

The primary containment atmospheric particulate sampling system is available to the operators so closer examination can be made to determine the extent of any corrective action that may be required. Only one sampling method (either the manifold rack or the continuous air monitor) is required to meet the OPERABILITY requirements. With the leakage detection systems inoperable, monitoring for LEAKAGE in the RCPB is degraded.

APPLICABILITY

In MODES 1, 2, and 3, the leakage detection systems are required to be OPERABLE to support LCO 3.4.4. This Applicability is consistent with that for LCO 3.4.4.

ACTIONS

A.1

With the drywell floor drain sump monitoring system inoperable, no other form of sampling can provide the equivalent information to quantify leakage. However, other monitoring systems are normally available that will provide indication of changes in leakage.

With the drywell floor drain sump monitoring system inoperable, but with RCS unidentified and total LEAKAGE being determined as required by ~~every 12 hours (~~SR 3.4.4.1~~)~~, operation may continue for 24 hours. The 24 hour Completion Time of Required Action A.1 is acceptable, based on operating experience, considering the alternative form of leakage detection that is normally available and the fact that the LEAKAGE is still being determined every 12 hours.

B.1

With the primary containment atmospheric particulate sampling system inoperable, operation may continue for 24 hours. The 24 hour Completion Time of Required Action B.1 is acceptable, based on operating experience, considering the alternative form of leakage detection that is normally available and the fact that the LEAKAGE is still being determined every 12 hours (SR 3.4.4.1).

(continued)

ACTIONS (continued)

C.1 and C.2

If the Required Action and associated Completion Time of Condition A or B cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to perform the actions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR requires performance of a primary containment atmospheric particulate sample ~~every 12 hours~~. This is performed by either removing and analyzing the particulate and charcoal filters from the continuous air monitor or by analyzing a grab sample.

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 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the Unit 2 drywell floor drain sump monitoring system and the Unit 3 drywell equipment drain sump monitoring system. instrumentation. The test ensures that the system can perform its function in the desired manner. The test also verifies the 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.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of the Unit 2 drywell floor drain sump monitoring system instrumentation channel (i.e., drywell floor drain sump pump discharge flow integrator), and the Unit 3 drywell equipment drain sump monitoring system instrumentation channel (i.e., drywell equipment drain sump pump discharge flow integrator). The calibration verifies the accuracy of the instrument string. ~~The Frequency of SR 3.4.5.3 is based on the assumption of a 12 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.

REFERENCES

1. UFSAR, Section 3.1.2.4.1.

2. Regulatory Guide 1.45, May 1973.

3. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.

4. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactor Plants," October 1975.

5. UFSAR, Section 5.2.5.2.

6. UFSAR, Section 5.2.5.6.4.

BASES

ACTIONS

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

challenging plant systems. Also, the allowed Completion Times for Required Actions B.2.2.1 and B.2.2.2 for placing the unit in MODES 3 and 4 are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This Surveillance is performed to ensure iodine remains within limit during normal operation. ~~The 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 50.67.
2. UFSAR, Section 15.6.4.

BASES

ACTIONS

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

During the period when the reactor coolant is being circulated by an alternate method (other than by the required SDC 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 3.4.7.1

This Surveillance verifies that one SDC 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 SDC 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 SDC 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 (continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

This Surveillance verifies that one SDC 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 SDC subsystem in the control room.~~

REFERENCES

None.

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 3.4.9.1

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 a reasonable time for assessment and correction of minor deviations.~~

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.

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 with a Note that requires this Surveillance to be performed only during system heatup and cooldown operations and inservice leak and hydrostatic testing.

SR 3.4.9.2

A separate limit is used when the reactor is approaching criticality. Consequently, the RCS pressure and temperature must be verified within the appropriate limits before withdrawing control rods that will make the reactor critical.

Performing the Surveillance within 15 minutes before control rod withdrawal for the purpose of achieving criticality provides adequate assurance that the limits will not be exceeded between the time of the Surveillance and the time of the control rod withdrawal.

SR 3.4.9.3 and SR 3.4.9.4

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 3.4.9.3 and SR 3.4.9.4 (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 3.4.9.4 is to compare the temperatures of the operating recirculation loop and the idle loop.

SR 3.4.9.3 and SR 3.4.9.4 have been modified by a Note that requires the Surveillance to be performed only in MODES 1, 2, 3, and 4. In MODE 5, the overall stress on limiting components is lower. Therefore, ΔT limits are not required. The Notes also state the SRs are only required to be met during a recirculation pump startup since this is when the stresses occur.

SR 3.4.9.5, SR 3.4.9.6, and SR 3.4.9.7

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~~ periodically 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 ≤ 93°F, 30 minute checks of the flange temperatures are required because of the reduced margin to the limits. When in MODE 4 with RCS temperature ≤ 113°F, monitoring of the flange temperature is required ~~every 12 hours~~ to ensure the temperature is within the specified limits.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.9.5, SR 3.4.9.6, and SR 3.4.9.7 (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.

~~The 30 minute Frequency reflects the urgency of maintaining the temperatures within limits, and also limits the time that the temperature limits could be exceeded. The 12 hour Frequency is reasonable based on the rate of temperature change possible at these temperatures.~~

SR 3.4.9.5 is modified by a Note that requires the Surveillance to be performed only when tensioning the reactor vessel head bolting studs. SR 3.4.9.6 is modified by a Note that requires the Surveillance to be initiated 30 minutes after RCS temperature ≤ 93°F in MODE 4. SR 3.4.9.7 is modified by a Note that requires the Surveillance to be initiated 12 hours after RCS temperature ≤ 113°F 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 185-82, July 1982.

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. Letter from M. Banerjee (NRC) C. M. Crane (Exelon Generation Company, LLC), "Dresden Nuclear Power Station, Units 2 and 3, and Quad Cities Nuclear Power Station, Units 1 and 2 - Issuance of Amendments Regarding Pressure and Temperature Limits (TAC Nos. MC5160, MC5161, MC5162 and MC5163)," dated October 17, 2005.

8. UFSAR, Section 15.4.4.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

Verification that reactor steam dome pressure is ≤ 1005 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.~~

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 5.2.2.1.

2. UFSAR, Chapter 15.

BASES

ACTIONS (continued)

I.1

When multiple ECCS subsystems are inoperable, as stated in Condition I, the plant is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCI System, CS System, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points. ~~The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.~~

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 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a 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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.2 (continued)

those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

~~The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.~~

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 3.5.1.3

Verification ~~every 31 days~~ of the correct breaker alignment to the LPCI swing bus demonstrates that the AC electrical power is available to ensure proper operation of the associated LPCI injection valves and the recirculation pump discharge valves. ~~The 31 day Frequency has been found acceptable based on engineering judgment and operating experience.~~

SR 3.5.1.4

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required.

Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps. De-energizing the valve in the closed position will also ensure the proper flow path for the LPCI subsystem. Acceptable methods of de-energizing the valve include de-energizing breaker control power, racking out the breaker or removing the breaker.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.5, SR 3.5.1.6, and SR 3.5.1.7 (continued)

valves open, or total steam flow ≥ 10^6 lb/hr. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.6 and SR 3.5.1.7 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for performing the flow test after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SRs.

The Frequency for SR 3.5.1.7 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 for SR 3.5.1.5 and SR 3.5.1.6 is in accordance with the Inservice Testing Program requirements. ~~The 24 month Frequency for SR 3.5.1.7 is based on the need to perform the Surveillance under the conditions that apply during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

SR 3.5.1.8

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. This SR also ensures that the HPCI System will automatically restart on an RPV low—low water level signal

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.8 (continued)

received subsequent to an RPV high water level trip and that the HPCI suction is automatically transferred from the CCST to the suppression pool on high suppression pool water level or low CCST water level. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

~~The 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.~~

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

This SR is modified by a Note that excludes 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 3.5.1.9

The ADS designated valves 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 actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.10 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 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 the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.9 (continued)

~~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 3.5.1.10.

SR 3.5.1.10

The actuator of each of the ADS Electromatic valves (ERVs) and the dual function safety/relief valves (S/RVs) is stroked to verify that the pilot valve strokes when manually actuated. For the S/RVs, the actuator test is performed by energizing a solenoid that pneumatically actuates a plunger located within the main valve body. The plunger is connected to the second stage disc. When steam pressure actuates the plunger during plant operation, this allows pressure to be vented from the top of the main valve piston, allowing reactor pressure to lift the main valve piston, which opens the main valve disc. The test will verify movement of the plunger in accordance with vendor recommendations. However, since this test is performed prior to establishing the reactor pressure needed to overcome main valve closure forces, the main valve disc will not stroke during the test.

For the ERVs, the actuator test is performed with the pilot valve actuator mounted in its normal position. This will allow testing of the manual actuation electrical circuitry, solenoid actuator, pilot operating lever, and pilot plunger. This test will verify pilot valve movement. However, since this test is performed prior to establishing the reactor pressure needed to overcome main valve closure spring force, the main valve will not stroke during the test.

This SR, together with the valve testing performed as required by the ASME Code for pressure relieving devices

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.10 (continued)

(ASME OM Code - 1998 through 2000 Addenda), verify the capability of each relief valve to perform its function.

Valve testing will be performed at a steam test facility, where the valve (i.e., main valve and pilot valve) and an actuator representative of the actuator used at the plant will be installed on a steam header in the same orientation as the plant installation. The test conditions in the test facility will be similar to those in the plant installation, including ambient temperature, valve insulation, and steam conditions. The valve will then be leak tested, functionally tested to ensure the valve is capable of opening and closing (including stroke time), and leak tested a final time. Valve seat tightness will be verified by a cold bar test, and if not free of fog, leakage will be measured and verified to be below design limits. In addition, for the safety mode of S/RVs, an as-found setpoint verification and as-found leak check are performed, followed by verification of set pressure, and delay. The valve will then be shipped to the plant without any disassembly or alteration of the main valve or pilot valve components.

The combination of the valve testing and the valve actuator testing provide a complete check of the capability of the valves to open and close, such that full functionality is demonstrated through overlapping tests, without cycling the 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.

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

SR 3.5.1.11

The LPCI System injection valves and recirculation pump discharge valves are powered from the LPCI swing bus, which must be energized after a single failure, including loss of power from the normal source to the swing bus. Therefore, the automatic transfer capability from the normal power

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.11 (continued)

source to the backup power source must be verified to ensure the automatic capability to detect loss of normal power and initiate an automatic transfer to the swing bus backup power source. Verification of this capability ~~every 24 months~~ ensures that AC electrical power is available for proper operation of the associated LPCI injection valves and recirculation pump valves. The swing bus automatic transfer scheme must be OPERABLE for both LPCI subsystems to be OPERABLE. ~~The Frequency of 24 months is based on the need to perform the Surveillance under the conditions that apply during a startup from a plant outage. Operating experience has shown that the 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.

SR 3.5.1.12

Verification ~~every 31 days~~ that ADS pneumatic supply header pressure is ≥ 80 psig ensures adequate nitrogen pressure for reliable Target Rock ADS valve operation. The accumulator on the Target Rock ADS valve provides pneumatic pressure for valve actuation. The design pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least five valve actuations can occur with the drywell at atmospheric pressure. Five actuations with the drywell at atmospheric pressure is approximately equivalent to two actuations with the drywell at 70% of its design pressure. The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. This minimum required pressure of ≥ 80 psig is provided by the ADS pneumatic supply header. ~~The 31 day Frequency takes into consideration administrative controls over operation of the nitrogen system and alarm for low nitrogen 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.

REFERENCES

1. UFSAR, Section 6.3.2.1.
2. UFSAR, Section 6.3.2.2.
3. UFSAR, Section 6.3.2.3.
4. UFSAR, Section 6.3.2.4.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 (continued)

completely drained. Therefore, only one low pressure ECCS injection/spray subsystem is allowed to use the CCSTs. This ensures the other required ECCS subsystem has adequate makeup volume.

~~The 12 hour Frequency of these SRs was developed considering operating experience related to suppression pool water level and CCST water level variations and instrument drift 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 suppression pool or CCST water level condition.~~

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 3.5.2.2, SR 3.5.2.4, and SR 3.5.2.5

The Bases provided for SR 3.5.1.1, SR 3.5.1.5, and SR 3.5.1.8 are applicable to SR 3.5.2.2, SR 3.5.2.4, and SR 3.5.2.5, respectively.

SR 3.5.2.3

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 6.3.3.4.1.

BASES

ACTIONS

B.1 and B.2 (continued)

≤ 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

This SR verifies the water volume and temperature in the shell side of the IC to be sufficient for proper operation. Based on a scram from 3016 MWt (102% RTP), a minimum water level of 6 feet at a temperature of ≤ 210°F in the condenser provides sufficient decay heat removal capability for 20 minutes of operation without makeup water. The volume and temperature allow sufficient time for the operator to provide makeup to the condenser.

~~The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during normal operation.~~

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in the IC flow path provides assurance that the proper flow path will exist for IC 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 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 of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

~~31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the IC System. This Frequency has been shown to be acceptable through operating experience.~~

SR 3.5.3.3

The IC System is required to actuate automatically in order to verify its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the IC System will cause the system to operate as designed; that is, actuation of all automatic valves to their required positions. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed design function.

The 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 the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

SR 3.5.3.4

Verifying the proper flow path and heat exchange capacity for IC System operation ensures the capability of the IC System to remove the design heat load. This SR verifies the IC System capability to remove heat consistent with the design requirements of 252.5 x 10^6 Btu/hr. The IC System capacity is equivalent to the decay heat rate about 530 seconds (8.8 minutes) after a reactor scram.

The required heat load to perform this surveillance should come from the RPV. Adequate reactor steam pressure and flow

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.4 (continued)

must be available to perform this test. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform the test. Adequate steam pressure and flow is represented by reactor power greater than 60%. Reactor startup is allowed prior to performing the heat removal capability test, provided an engineering evaluation has been performed which demonstrates reasonable assurance of the IC System's design heat removal capability. Therefore, SR 3.5.3.4 is modified by a Note that states the Surveillance is not required to be performed until 12 hours after reactor power is adequate to perform the test. The 12 hours allowed for performing the heat removal capability test, after the required power level is reached, is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SR.

As described in Reference 4, if one or more of the IC System condenser tubes are plugged during maintenance and testing, an engineering evaluation shall be performed to assure that the required IC System decay heat removal capability is available with margin and the heat removal capability of the IC System shall be confirmed during power operation by performing SR 3.5.3.4 once the necessary reactor operating conditions are reached. The reactor will not be operated in Mode 1 without some assurance that the necessary IC System safety function can be met with the plugged tube(s).

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 60 month Frequency is based on engineering judgement, and has been shown to be acceptable through operating experience.~~

REFERENCES

1. UFSAR, Section 5.4.6.

2. Memorandum from R. L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.

3. Safety Evaluation transmitted by letter from L. W. Rossbach (NRC) to O. D. Kingsley (Exelon), "Dresden Nuclear Power Station, Units 2 and 3 - Issuance of Amendments for Extended Power Uprate," dated December 21, 2001.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1.1

Maintaining the primary containment OPERABLE requires compliance with the visual examinations and leakage rate test requirements of the Primary Containment Leakage Rate Testing Program. Failure to meet air lock leakage limit (SR 3.6.1.2.1) or main steam isolation valve leakage limit (SR 3.6.1.3.10) does not necessarily result in a failure of this SR. The impact of the failure to meet these SRs must be evaluated against the Type A, B, and C acceptance criteria of the Primary Containment Leakage Rate Testing Program.

As left leakage prior to the first startup after performing a required Primary Containment Leakage Rate Testing Program leakage test is required to be < 0.6 L_a for combined Type B and C leakage, and ≤ 0.75 L_a for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.1.2

Maintaining the pressure suppression function of 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 7.5 minute period 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 establishing a known differential pressure (≥ 1.0 psid) between the drywell and the suppression chamber and verifying that the measured bypass leakage is ≤ 2% of the acceptable $A/\sqrt{k}$ design value of 0.18 ft^2 (Ref. 4). ~~The leakage test is performed every 24 months. The 24 month Frequency was developed considering it is prudent that this Surveillance be performed during a unit outage and also in~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1.2 (continued)

~~view of the fact that component failures that might have affected this test are identified by other primary containment SRs.~~ Two consecutive test failures, however, would indicate unexpected primary containment degradation, in this event, the Note indicates, increasing the Frequency to once every 12 months is required until the situation is remedied as evidenced by passing two consecutive tests.

REFERENCES

1. UFSAR, Section 6.2.1.

2. UFSAR, Section 15.6.5.

3. 10 CFR 50, Appendix J, Option B.

4. Dresden Station Special Report No. 23, "Information Concerning Dresden Units 2 and 3 Drywell to Torus Vacuum Breakers," April 1973.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.2.1

Maintaining the primary containment air lock OPERABLE requires compliance with the leakage rate test requirements of the Primary Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with respect to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and primary containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall primary containment leakage rate. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR, requiring the results to be evaluated against the acceptance criteria which are applicable to SR 3.6.1.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Types B and C primary containment leakage rate.

SR 3.6.1.2.2

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 air lock interlock mechanism is designed to prevent simultaneous opening of both doors in the air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident primary containment pressure, 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~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.2.2 (continued)

~~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 the use of the air lock.~~

REFERENCES

1. UFSAR, Section 6.2.1.3.

2. UFSAR, Section 15.6.5.

ACTIONS

F.1 and F.2 (continued)

valve(s) to OPERABLE status. This allows shutdown cooling to remain in service while actions are being taken to restore the valve.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

This SR ensures that the 18 inch primary containment vent and purge valves are closed as required or, if open, opened for an allowable reason. If a vent or purge valve is opened in violation of this SR, the valve is considered inoperable. The torus purge valve, 1601-56, is normally open for pressure control, therefore this valve is excluded from this SR. However, this is acceptable since this valve is designed to automatically close on LOCA conditions. The SR is modified by a Note stating that the SR is not required to be met when the vent or purge valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open, provided the drywell vent and purge valves and their associated suppression chamber vent and purge valves are not open simultaneously. The 18 inch vent and 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 PCIV 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 accident leakage of radioactive fluids or gases outside 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~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.2 (continued)

~~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.

Two Notes have been added to this SR. The first Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since access to these areas is typically restricted 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 has been included to clarify that PCIVs open under administrative controls are not required to meet the SR during the time that the PCIVs are open. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way the penetration can be rapidly isolated when a need for primary containment isolation is indicated.

SR 3.6.1.3.3

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 is required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the primary containment boundary is within design limits. For PCIVs inside primary containment, the Frequency "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.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.3 (continued)

Two Notes have been added to this SR. The first Note allows valves and blind flanges located in high radiation areas to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable since the primary containment is inerted and access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these PCIVs, once they have been verified to be in their proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way the penetration can be rapidly isolated when a need for primary containment isolation is indicated.

SR 3.6.1.3.4

The 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 traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. ~~The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.~~

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that each valve will isolate in a time period less than or equal to that assumed in the safety analyses. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA and transient analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.1, "Primary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. ~~The 24 month Frequency was developed considering it is prudent that this Surveillance be performed only during a unit outage since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components. Operating experience has shown that these components usually pass this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

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 3.6.1.3.8

This SR requires a demonstration that a representative sample of reactor instrumentation line excess flow check valves (EFCVs) are OPERABLE by verifying that the valves actuate to the isolation position on an actual or simulated instrument line break condition. This test is performed by blowing down the instrument line during an inservice leak or hydrostatic test and verifying a distinctive "click" when the poppet valve seats or a quick reduction in flow. ~~The representative sample consists of an approximately equal~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.8 (continued)

~~number of EFCVs, such that each EFCV is tested at least once every 10 years (nominal). In addition, the EFCVs in the samples are representative of the various plant configurations, models, sizes, and operating environments. This ensures that any potentially common problem with a specific type or application of EFCV is detected at the earliest possible time.~~ This SR provides assurance that the 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. The nominal 10-year interval is based on performance testing as discussed in NEDO-32977-A (Ref. 6). Furthermore, any EFCV failures will be evaluated to determine if additional testing in that test interval is warranted to ensure overall reliability is maintained. Operating experience has demonstrated that these components are highly reliable and that failures to isolate are very infrequent. Therefore, testing of a representative sample was concluded to be acceptable from a reliability standpoint.~~

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. ~~The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).~~ 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 may be based on factors such as operating experience, equipment reliability, or plant risk, and is controlled under the Surveillance Frequency Control Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.10

The analyses in References 2 and 3 are based on leakage that is less than the specified leakage rate. The combined leakage rate limit for all MSIV leakage paths is ≤ 144 scfh when tested at ≥ 25 psig. Additionally, the leakage rate limit through each MSIV leakage path is ≤ 57 scfh when tested at ≥ 25 psig. These values correspond to a combined leakage rate of 250 scfh and an individual MSIV leakage rate of 100 scfh, when tested at 48 psig. In accordance with the Primary Containment Leakage Rate Testing Program, the as-left leakage rate of each main steam isolation valve path is assumed to be the maximum pathway leakage (larger leakage of two valves in series), and the as-found leakage rate of each main steam isolation valve path is assumed to be the minimum pathway leakage (smaller of either the inboard or outboard isolation valve's individual leakage rates). This ensures that MSIV leakage is properly accounted for in determining the overall impacts of primary containment leakage. The Frequency is required by the Primary Containment Leakage Rate Testing Program.

MSIV leakage is considered part of L_a.

REFERENCES

1. Technical Requirements Manual.

2. UFSAR, Section 15.6.5.

3. UFSAR, Section 15.6.4.

4. UFSAR, Section 15.2.4.

5. UFSAR, Section 6.2.4.1.

6. ~~NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation," June 2000.~~

BASES (continued)

ACTIONS

A.1

With drywell pressure not within the limit of the LCO, drywell pressure must be restored within 1 hour. The Required Action is necessary to return operation to within the bounds of the primary containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, "Primary Containment," which requires that primary containment be restored to OPERABLE status within 1 hour.

B.1 and B.2

If drywell pressure cannot be restored to within the limit within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.4.1

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

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 6.2.1.3.

BASES

SURVEILLANCE REQUIREMENT

SR 3.6.1.5.1 (continued)

~~The 24 hour Frequency of the SR was developed based on operating experience related to drywell average air temperature variations and temperature instrument drift during the applicable MODES and the low probability of a DBA occurring between surveillances. Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal drywell air temperature condition.~~

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 6.2.1.3.
2. UFSAR, Section 6.2.1.1.

ACTIONS

B.1 and B.2 (continued)

plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

The actuator of each of the Electromatic low set relief valves (ERVs) is stroked to verify that the pilot valve strokes when manually actuated. For the ERVs, the actuator test is performed with the pilot valve actuator mounted in its normal position. This will allow testing of the manual actuation electrical circuitry, solenoid actuator, pilot operating lever, and pilot plunger. This test will verify pilot valve movement. However, since this test is performed prior to establishing the reactor pressure needed to overcome main valve closure spring force, the main valve will not stroke during the test.

This SR, together with the valve testing performed as required by the ASME Code for pressure relieving devices (ASME OM Code - 1998 through 2000 Addenda), verify the capability of each relief valve to perform its function.

(Ref. 2)

Valve testing will be performed at a steam test facility, where the valve (i.e., main valve and pilot valve) and an actuator representative of the actuator used at the plant will be installed on a steam header in the same orientation as the plant installation. The test conditions in the test facility will be similar to those in the plant installation, including ambient temperature, valve insulation, and steam conditions. The valve will then be leak tested, functionally tested to ensure the valve is capable of opening and closing (including stroke time), and leak tested a final time. Valve seat tightness will be verified by a cold bar test, and if not free of fog, leakage will be measured and verified to be below design limits. In addition, for the safety mode of S/RVs, an as-found setpoint verification and as-found leak check are performed, followed

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

by verification of set pressure, and delay. The valve will then be shipped to the plant without any disassembly or alteration of the main valve or pilot valve components.

The combination of the valve testing and the valve actuator testing provide a complete check of the capability of the valves to open and close, such that full functionality is demonstrated through overlapping tests, without cycling the valves.

~~The 24 month Frequency was based on the relief valve tests required by the ASME Code (Ref. 2). The Frequency of 24 months ensures that each solenoid for each low set relief valve is tested. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

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

The low set relief designated relief valves are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify that the mechanical portions (i.e., solenoids) of the low set relief function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.3, "Low Set Relief Valve 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 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.~~

This SR is modified by a Note that excludes valve actuation. This prevents a reactor pressure vessel pressure blowdown.

(continued)

ACTIONS (continued)

D.1

With two lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the function of the vacuum breakers is lost. Therefore, all vacuum breakers in one line must be restored to OPERABLE status within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 1 hour.

E.1 and E.2

If any Required Action and associated Completion time can not be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position. ~~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.~~

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 allows reactor-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers. The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.7.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. ~~The 92 day Frequency of this SR was developed based upon Inservice Testing Program requirements to perform valve testing at least once every 92 days.~~

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 3.6.1.7.3

Demonstration of vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of ≤ 0.5 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. For this plant, 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.~~

REFERENCES

1. UFSAR, Section 6.2.1.2.4.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication. ~~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 3.6.1.8.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. ~~The 31 day Frequency of this SR was developed, based on Inservice Testing Program requirements to perform valve testing at least once every 92 days. A 31 day Frequency was chosen to provide additional assurance that the vacuum breakers are OPERABLE.~~ In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the relief valves.

SR 3.6.1.8.3

Verification of the vacuum breaker opening setpoint from the closed position is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of 0.5 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~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.3 (continued)

~~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.~~

REFERENCES

1. UFSAR, Section 6.2.1.2.4.2.

2. UFSAR, Table 6.2-1.

BASES

ACTIONS

E.1 and E.2 (continued)

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

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1.1

The suppression pool average temperature is regularly monitored to ensure that the required limits are satisfied. The average temperature is determined by taking an arithmetic average of OPERABLE suppression pool water temperature channels. ~~The 24 hour Frequency has been shown, based on operating experience, to be acceptable. When heat is being added to the suppression pool by testing, however, it is necessary to monitor suppression pool temperature more frequently.~~ The 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 5 minute Frequency during testing is justified by the rates at which tests will heat up the suppression pool, has been shown to be acceptable based on operating experience, and provides assurance that allowable pool temperatures are not exceeded. The ~~Frequencies are~~ Frequency is further justified in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool average temperature condition.

REFERENCES

1. UFSAR, Section 6.2.1.3.
2. Dresden and Quad Cities Extended Power Uprate Task T0400 Containment System Response, GE-NE-A22-00103-08-01, Rev. 1, December 2000.

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

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.~~

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 6.2.

ACTIONS (continued)

B.1

With two suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and the potential avoidance of a plant shutdown transient that could result in the need for the suppression pool cooling subsystems to operate.

C.1 and C.2

If any Required Action and associated Completion Time cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.3.1

Verifying the correct alignment for manual and power operated valves in the suppression pool cooling mode flow path provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the 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~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.3.1 (continued)

~~event requiring initiation of the system is low, and the system is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~

SR 3.6.2.3.2

Verifying that each required LPCI pump develops a flow rate ≥ 5000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that the primary containment peak pressure and temperature can be maintained below the design limits during a DBA (Ref. 1). The flow is a normal test of centrifugal pump performance required by ASME 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.

REFERENCES

1. UFSAR, Section 6.2.
2. ASME Code for Operation and Maintenance of Nuclear Power Plants.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.4.1 (continued)

accident analysis. This is acceptable since the suppression pool spray 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 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.~~

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

This Surveillance is performed ~~every 10 years~~ to verify that the spray nozzles are not obstructed and that spray flow will be provided when required. ~~The 10 year Frequency is adequate to detect degradation in performance due to the passive nozzle design and has been shown to be acceptable through operating experience.~~

REFERENCES

1. UFSAR, Section 6.2.

ACTIONS

A.1 (continued)

differential pressure to within limit and takes into account the low probability of an event that would create excessive suppression chamber loads occurring during this time period.

B.1

If the differential pressure cannot be restored to within limits within the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. This is done by reducing power to ≤ 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 3.6.2.5.1

The drywell-to-suppression chamber differential pressure is regularly monitored to ensure that the required limits are satisfied. ~~The 12 hour Frequency of this SR was developed based on operating experience relative to differential pressure variations and pressure instrument drift during applicable MODES and by assessing the proximity to the specified LCO differential pressure limit. 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 pressure condition.~~

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

None.

BASES

ACTIONS

A.1 (continued)

must be restored to < 4.0 v/o within 24 hours. The 24 hour Completion Time is allowed when oxygen concentration is ≥ 4.0 v/o because of the availability of other hydrogen and oxygen mitigating systems (e.g., post-accident nitrogen purge) and the low probability and long duration of an event that would generate significant amounts of hydrogen and oxygen occurring during this period.

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 ≤ 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 3.6.3.1.1

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.~~

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. Generic Letter 84-09, May 1984.

2. UFSAR, Section 6.2.5.

BASES

ACTIONS

C.1 and C.2 (continued)

specify any action. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of recently irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1

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

~~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.~~

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 3.6.4.1.2 and SR 3.6.4.1.4

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 a common inner door or outer door. The intent is to not breach the secondary containment at any

(continued)

SURVEILLANCE REQUIREMENTS

<u>SR 3.6.4.1.2 and SR 3.6.4.1.4</u> (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.

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, all secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening. ~~The 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 other indications of door status that are available to the operator. The 24 month Frequency for SR 3.6.4.1.4 is considered adequate in view of the existing administrative controls on equipment hatches.~~

<u>SR 3.6.4.1.3</u>

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. Each SGT subsystem is designed to maintain the secondary containment at ≥ 0.25 inches of vacuum water gauge for 1 hour at a flow rate of ≤ 4000 cfm. To ensure that all fission products released to the secondary containment are treated, SR 3.6.4.1.3 verifies that a pressure in the secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary can be maintained. When the SGT System is operating as designed, the maintenance of secondary containment pressure cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.3 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 ≤ 4000 cfm. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state conditions. The primary purpose of the SR is to ensure secondary containment boundary integrity. The secondary purpose of the SR 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. This SR need not be performed with each SGT subsystem. The SGT subsystem used for this Surveillance is staggered to ensure that in

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.3 (continued)

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 this Surveillance relative to secondary containment OPERABILITY. ~~Operating experience has shown the secondary containment boundary usually passes the Surveillance 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.

REFERENCES

1. UFSAR, Section 15.6.5.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment manual isolation 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.

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.

~~Since these SCIVs are readily accessible to personnel during normal operation and verification of their position is relatively easy, the 31 day Frequency was chosen to provide added assurance that the SCIVs are in the correct positions.~~ This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these SCIVs, once they have been verified to be in the proper position, is low.

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.2.2

Verifying that the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. ~~The Frequency of this SR is 92 days.~~

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 3.6.4.2.3

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.~~

REFERENCES

1. UFSAR, Section 15.6.5.

2. Technical Requirements Manual.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Operating (from the control room using the manual initiation switch) 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 (automatic heater cycling to maintain temperature) 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.~~

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 3.6.4.3.2

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 Regulatory Guide 1.52 (Ref. 4). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.6.4.3.3

This SR verifies that each SGT subsystem starts on receipt of an actual or simulated initiation signal. ~~While this Surveillance can be performed with the reactor at power, operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency.~~ The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation," overlaps this SR to provide complete testing of the safety function. ~~Therefore, the Frequency was found to be acceptable from a reliability standpoint.~~

(continued)

ACTIONS

D.1 (continued)

flow path), the CCSW System is not capable of performing its intended function. At least one subsystem must be restored to OPERABLE status within 8 hours. The 8 hour Completion Time for restoring one CCSW subsystem to OPERABLE status, is based on the Completion Times provided for the suppression pool cooling and spray functions.

E.1 and E.2

If any Required Action and associated Completion Time of Conditions A, B, C, or D are not met, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

Verifying the correct alignment for each manual and power operated valve in each CCSW subsystem flow path provides assurance that the proper flow paths will exist for CCSW 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 CCSW System is a manually initiated system.

This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 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

ACTIONS (continued)

A.1

If one or more DGCW subsystems are inoperable, the associated DG(s) 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 3.8.1, "AC Sources—Operating."

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

Verifying the correct alignment for manual valves in the DGCW subsystem flow paths 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. 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.~~

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 3.7.2.2

This SR ensures that each DGCW subsystem pump will automatically start to provide required cooling to the associated DG heat exchangers when the DG starts. 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 on the refueling cycle. Therefore, this Frequency is 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.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)	ability of the UHS to cool the DGs. The long term cooling capability of the CCSW pumps and DGCW pumps is also dependent on the cooling provided by the UHS System. The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	The OPERABILITY of the UHS is based on having a minimum water level in the CCSW and DGCW pump suction bays of 501.5 ft mean sea level and a maximum water temperature of 95°F.
APPLICABILITY	In MODES 1, 2, and 3, the UHS is required to be OPERABLE to support OPERABILITY of the equipment serviced by the CCSW and DGCW Systems. Therefore, the UHS is required to be OPERABLE in these MODES. In MODES 4 and 5, the OPERABILITY requirements of the UHS is determined by the systems it supports.
ACTIONS	A.1 and A.2 If the UHS is determined inoperable the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.
SURVEILLANCE REQUIREMENTS	SR 3.7.3.1 This SR verifies the water level in the CCSW and DGCW pump suction bays to be sufficient for the proper operation of the CCSW and DGCW pumps (net positive suction head and pump vortexing are considered in determining this limit). ~~The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.~~ The 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 3.7.3.2

Verification of the UHS temperature ensures that the heat removal capabilities of the CCSW and DGCW Systems are within the assumptions of the DBA analysis. ~~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.

REFERENCES

1. UFSAR, Section 9.2.1.
2. UFSAR, Section 9.5.5.
3. UFSAR, Section 9.2.5.
4. UFSAR, Section 6.2.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that the CREV System in a standby mode starts from the control room and continues to operate. This SR includes initiating flow through the HEPA filters and charcoal adsorbers. 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 the system once every month provides an adequate check on this system.~~ ~~Monthly heater~~ [Heater] operation for ≥ 10 continuous hours, during system operation dries out any moisture that has accumulated in the charcoal as a result of humidity in the ambient air. ~~Furthermore, the 31 day Frequency is based on the known reliability of the equipment.~~ [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 the required CREV testing is performed in accordance with Specification 5.5.7, "Ventilation Filter Testing Program (VFTP)." The CREV filter tests are in accordance with Regulatory Guide 1.52 (Ref. 4). 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 3.7.4.3

This SR verifies that on a manual initiation from the control room, the CREV System filter train starts and the isolation dampers close. ~~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 3.7.4.4

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

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since recently irradiated fuel movement can occur in MODE 1, 2, or 3, the Required Actions of Condition C are modified by a Note indicating that LCO 3.0.3 does not apply. If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODE 1, 2, or 3 would require the unit to be shutdown, but would not require immediate suspension of movement of recently irradiated fuel assemblies. The Note to the ACTIONS, "LCO 3.0.3 is not applicable," ensures that the actions for immediate suspension of recently irradiated fuel assembly movement are not postponed due to entry into LCO 3.0.3.

With the Control Room Emergency Ventilation AC System inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, movement of recently irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of this activity shall not preclude completion of movement of a component to a safe position. 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 verifies that the heat removal capability of the system is sufficient to remove the control room emergency zone heat load assumed in the safety analyses. The SR consists of a combination of testing and calculation. ~~The 24 month Frequency is appropriate since significant degradation of the Control Room Emergency Ventilation AC System is not expected over this time period.~~

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 (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR~~, on a 31 day Frequency,~~ requires an isotopic analysis of a representative offgas sample (taken at the recombiner outlet or the SJAE outlet if the recombiner is bypassed) to ensure that the required limits are satisfied. The noble gases to be sampled are Xe-133, Xe-135, Xe-138, Kr-85M, Kr-87, and Kr-88. If the measured rate of radioactivity increases significantly as indicated by the main condenser air ejector noble gas activity monitor (by ≥ 50% after correcting for expected increases due to changes in THERMAL POWER), an isotopic analysis is also performed within 4 hours after the increase is noted, to ensure that the increase is not indicative of a sustained increase in the radioactivity rate. ~~The 31 day Frequency is adequate in view of other instrumentation that continuously monitor the offgas, and is 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.

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. Letter E-DAS-015-00 from D.A. Studley (Scientech-NUS) to T. Leffler (ComEd), dated January 24, 2000.

2. 10 CFR 50.67.

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 generator load rejection, turbine trip, and feedwater controller failure 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 92 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 92 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 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 the 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

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 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. 5). ~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and because 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.~~

REFERENCES

1. UFSAR, Section 7.7.4.
2. UFSAR, Section 15.2.3.2.
3. UFSAR, Section 15.2.2.2.
4. UFSAR, Section 15.1.2.
5. Technical Requirements Manual.

BASES (continued)

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies 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, action must be taken to preclude the accident from occurring. If the spent fuel storage pool level is 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 all water level changes are controlled by unit procedures.~~

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.

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SURVEILLANCE REQUIREMENTS (continued)

specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to ± 2% of the 60 Hz nominal frequency and are derived from the recommendations found in Regulatory Guide 1.9 (Ref. 8).

SR 3.8.1.1

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.

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 to their preferred 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 3.8.1.8

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 a Note (Note 1 for SR 3.8.1.2 and Note 1 for SR 3.8.1.8) to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup prior to loading.

For the purposes of this testing, the DGs are started from standby conditions. Standby conditions for a DG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 and SR 3.8.1.8 (continued)

SR 3.8.1.8 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 of UFSAR, Section 6.3 (Ref. 12). The 13 second start requirement is not 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 3.8.1.8 applies.

Since SR 3.8.1.8 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 3.8.1.8 allow 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 tests 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.

~~The 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.9 (Ref. 8). The 184 day Frequency for SR 3.8.1.8 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 5). These Frequencies provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.3

This Surveillance verifies that the DGs are capable of synchronizing and accepting a load approximately equivalent to that corresponding to the continuous 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.

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 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 ESS 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 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 for this Surveillance is consistent with Regulatory Guide 1.9 (Ref. 8).~~

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. Similarly, momentary power factor transients above the limit do not invalidate the test.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

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.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank is at or above the level at which fuel oil is automatically added. The level is expressed as an equivalent volume in gallons, and is selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%.

This SR also provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for approximately 2 days at full load. The approximate 2 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 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.~~

SR 3.8.1.5 and SR 3.8.1.7

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 and SR 3.8.1.7 (continued)

environment in order to survive. Removal of water from the fuel oil day tank ~~once every 31 days~~ eliminates the necessary environment for bacterial survival. This is accomplished by draining a portion of the contents from the bottom of the day tank. Checking for and removal of any accumulated water from the bulk storage tank ~~once every 92 days~~ also 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. 10).~~ This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

SR 3.8.1.6

This Surveillance demonstrates that each 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 continuous operation of standby power sources. This Surveillance provides assurance that each 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 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 for this SR is consistent with the Frequency for testing the DGs in SR 3.8.1.3.~~ DG operation for SR 3.8.1.3 is normally long enough that fuel oil level in the day tank will be reduced to the point where the fuel oil transfer pump automatically starts to restore fuel oil level by transferring oil from the storage tank.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.9

Transfer of each 4160 V ESS bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the 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.

SR 3.8.1.10

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 response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. The largest single load for each DG is a service water pump (686 kW). The specified load value conservatively bounds the expected kW rating of the single largest loads under accident conditions. 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. 8), the load rejection test is acceptable if the diesel speed does not

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

exceed the nominal (synchronous) speed plus 75% of the difference between nominal speed and the overspeed trip setpoint, or 115% of nominal speed, whichever is lower. This corresponds to 66.73 Hz, which is the nominal speed plus 75% of the difference between nominal speed and the overspeed trip setpoint.

The time, voltage and frequency tolerances specified in this SR are derived from Regulatory Guide 1.9 (Ref. 8) recommendations for response during load sequence intervals. The 3 seconds specified in SR 3.8.1.10.b is equal to 60% of the 5 second load sequence interval associated with sequencing the ECCS low pressure pumps during an undervoltage on the bus concurrent with a LOCA. The 4 seconds specified in SR 3.8.1.10.c is equal to 80% of the 5 second load sequence interval associated with sequencing the ECCS low pressure pumps during an undervoltage on the bus concurrent with a LOCA. The voltage and frequency specified are consistent with the design range of the equipment powered by the DG. SR 3.8.1.10.a corresponds to the maximum frequency excursion, while SR 3.8.1.10.b and SR 3.8.1.10.c are steady state voltage and frequency values specified to which the system must recover following load rejection. ~~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 is modified by a Note. The reason for the Note is to minimize testing of the common DG and allow 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.11

Consistent with Regulatory Guide 1.9 (Ref. 8), 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.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, a load band (90% to 100%) has been specified based on Regulatory Guide 1.9 (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.

~~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.~~

This SR is modified by two Notes. To minimize testing of the common DG, Note 1 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. Note 2 modifies this Surveillance by stating that momentary transients outside the voltage limit do not invalidate this test.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.12

Consistent with Regulatory Guide 1.9 (Ref. 8), paragraph C.2.2.4, this Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies all actions encountered from the loss of offsite power, including shedding of the nonessential loads and 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. 12). 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 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, a component or system may be out-of-service and closure of its associated breaker during this test may damage the component or system. 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 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 takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.13

Consistent with Regulatory Guide 1.9 (Ref. 9), paragraph C.2.2.5, this Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (13 seconds) from the design basis actuation signal (LOCA signal). In addition, the DG is required to maintain proper voltage and frequency limits after steady state is achieved. 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 DG is required to operate for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability.

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

This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.14

Consistent with Regulatory Guide 1.9 (Ref. 8) paragraph C.2.2.12, this Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

~~The 24 month Frequency is based on engineering judgment, 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.

SR 3.8.1.15

Regulatory Guide 1.9 (Ref. 8), paragraph C.2.2.9, requires demonstration that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours, 22 hours of which is at a load equivalent to 90% to 100% of the continuous rating of the DG and 2 hours of which is at a load equivalent to 105% to 110% of the continuous rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed at a power factor as close to the accident load power factor as practicable. When synchronized with offsite power, the power factor limit is ≤ 0.87. This power factor is chosen to bound the actual worst case inductive loading that the DG could experience under design basis accident conditions.

The power factor used for conducting the 24-hour endurance run must consider the effects of bus voltage on connected equipment. Therefore, "practicable" includes a criterion of minimizing potential high bus voltage on the 4 kV buses. High bus voltage may result in exceeding the manufacturer's tolerances for safety related 4 kV motors and for devices downstream of the 4 kV system (e.g., 480 V devices). Operating an electric motor above design rating can overexcite the motor, overheat the rotor and reduce its qualified life.

High voltage on the medium voltage buses could result in exceeding the nominal ±10% voltage tolerance at the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.15 (continued)

terminals of low voltage motors due to the boost in the unit substation transformers combined with the likelihood of low transformer loading at the time of the test. During the test, many accident loads would not be running, leading to a minimal voltage drop through the transformer. The transformer tap is selected based on accident loading. The high terminal voltage could result in overexcitation of the motor. Overexcitation increases the heat rise in the winding, which decreases the qualified life of the motor. VAR demand is not constant on any power system. The station operators do not have instrumentation directly indicating power factor. Control room metering indicates reactive power (kVAR).

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 plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~

This Surveillance is modified by three Notes. Note 1 states that momentary transients 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. Note 2 is provided in recognition that under certain conditions, it is necessary to allow the surveillance to be conducted at a power factor other than the specified limit. During the Surveillance, the DG is normally operated paralleled to the grid, which is not the configuration when the DG is performing its safety function following a loss of offsite power (with or without a LOCA).

Therefore, the power factor shall be maintained as close as practicable to the specified limit while still ensuring that if the DG output breaker were to trip during the Surveillance that the maximum DG winding voltage would not be exceeded. (Ref. 14).

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.15 (continued)

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

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 13 seconds. The 13 second time is derived from the requirements of the accident analysis for responding to a design basis large break LOCA (Ref. 12). In addition, the DG is required to maintain proper voltage and frequency limits after steady state is achieved. 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 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 the expected fuel cycle lengths.~~

This SR is 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 approximately full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. 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. 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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.17

Consistent with Regulatory Guide 1.9 (Ref. 8), paragraph C.2.2.11, this Surveillance ensures that the manual synchronization and load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. 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 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 timers are reset.

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

SR 3.8.1.18

Under accident conditions with loss of offsite power loads are sequentially connected to the bus by the automatic load sequence 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 ≥ 90% of the design interval). Reference 13 provides a summary of the automatic loading of ESS buses.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.18 (continued)

~~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.

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 DG operation, as discussed in the Bases for SR 3.8.1.12, 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 expected fuel cycle lengths.~~

This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.20

This Surveillance demonstrates that the 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 DGs are started simultaneously.

~~The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 8).~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1 (continued)

with ASTM D975-98b (Ref. 5), except that the analysis for sulfur may be performed in accordance with ASTM D1552-95 (Ref. 5), ASTM D2622-98 (Ref. 5), or ASTM D4294-98 (Ref. 5). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs.

Fuel oil degradation during long term storage shows up as an increase in particulate, mostly due to oxidation. The presence of particulate does not mean that the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D5452-98 (Ref. 5). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing.

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.2

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 Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of three engine starts without recharging. The pressure specified in this SR is intended to support the lowest value at which the three starts can be accomplished.

~~The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1 (continued)

(2.17 Vpc or 260.4 V at the 250 VDC battery terminals and 125.9 V at the 125 VDC battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). ~~The 7 day Frequency is conservative when compared with manufacturers recommendations and IEEE-450 (Ref. 8).~~ SR 3.8.4.1.c is modified by a Note. The Note requires the Unit 2 alternate battery to meet the specified voltage limit only when it is required to be OPERABLE. This battery is required to be OPERABLE when it is being used to meet Required Actions F.1, G.1, or H.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 3.8.4.2 and SR 3.8.4.3

These SRs verify 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 ensures that these requirements can be satisfied. This SR provides two options. One option requires that each battery charger be capable of supplying 200 amps at the minimum established float voltage for 4 hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least 2 hours.

The other option requires each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not normally be available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since the battery recharge

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 and SR 3.8.4.3 (continued)

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 18 month Frequency for SR 3.8.4.2 is acceptable based on engineering judgement. Operating experience has shown that the 250 V battery chargers usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

~~The 24 Frequency for SR 3.8.4.3 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 3.8.4.4

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 test can be performed using simulated or actual loads. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

~~The 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 a Note. The Note allows the performance of a modified performance discharge test in lieu of a service test provided the modified performance discharge test completely envelopes the service test. This substitution is acceptable because a modified performance discharge test represents a more severe test of battery capacity than SR 3.8.4.4.

(continued)

BASES

ACTIONS (continued)

F.1

With one or more batteries in redundant divisions with battery parameters not within limits, there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. With redundant batteries involved, this potential could result in a total loss of function on multiple systems that rely upon the batteries. The longer completion times 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 division within 2 hours.

G.1

When any battery parameter is outside the allowances of the Required Actions for Condition A, B, D, E, or F, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding battery must be declared inoperable. The battery must therefore be declared inoperable immediately.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

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.

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 charged state. The float current requirements are based on the float current indicative of a charged battery. Use of float current to determine the state of charge of the battery is consistent with IEEE-450 (Ref. 1). ~~The 7-day Frequency is consistent with IEEE-450.~~

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, Action A, are being

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1 (continued)

taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of 2 amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained.

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 battery manufacturer, which corresponds to 260.4 V at the 250 VDC battery terminal and 125.9 V at the 125 VDC battery terminals, or 2.17 Vpc. 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 > 2.07 Vpc, are addressed in Specification 5.5.13. Failure of SR 3.8.6.2 does not constitute inoperability. 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. ~~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. 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.

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. 1).~~

SR 3.8.6.4

This SR verifies that the pilot cell temperature is greater than or equal to the minimum established design limit (i.e., 65°F). 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 battery

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.4 (continued)

sizing calculations act to inhibit or reduce battery capacity. ~~The Frequency is consistent with IEEE-450 (Ref. 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.

SR 3.8.6.6

A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.6.6; however, only the modified performance discharge test may be used to satisfy the battery service test requirements of SR 3.8.4.4.

A battery modified performance discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test when the modified performance discharge test is performed in lieu of a service test.

The modified performance discharge test normally consists of just two rates; for instance, the one minute rate for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance discharge test, both of which envelope the duty cycle of the service test. (The test can consist of a single rate if the test rate employed for the performance discharge test exceeds the 1 minute rate and continues to envelope the duty cycle of the service test.) Since the ampere-hours removed by a one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.6 (continued)

the performance discharge test. The battery terminal voltage for the modified performance discharge test must remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 1) 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 size 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.

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 for this test is normally 60 months.~~ If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, consistent with IEEE-450 (Ref. 1), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is ≥ 10% below the manufacturer's rating. The 12 month ~~and 60 month Frequencies are~~ Frequency is consistent with the recommendations in IEEE-450 (Ref. 1). The 24 month Frequency is derived from the recommendations of IEEE-450 (Ref. 1).

REFERENCES

1. IEEE Standard 450, 1995.

2. UFSAR, Chapter 8.

3. UFSAR, Chapter 6.

4. UFSAR, Chapter 15.

5. IEEE Standard 485, 1983.

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.

This Surveillance verifies that the AC and DC electrical power distribution subsystems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions are maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. ~~The 7 day Frequency takes into account the redundant capability of the AC and DC electrical power distribution subsystems, redundant power supplies available to the essential service and instrument 120 VAC buses, and other indications available in the control room that alert the operator to bus and subsystem malfunctions.~~

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 15.
3. Regulatory Guide 1.93, December 1974.

BASES (continued)

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 required AC and DC electrical power distribution subsystems are functioning properly, with the buses energized. The verification of proper voltage availability on the buses ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. ~~The 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

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1 (continued)

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. UFSAR, Section 3.1.2.3.7.

2. UFSAR, Section 7.7.1.2.2.

3. UFSAR, Section 15.4.1.

BASES

ACTIONS

A.1 and A.2 (continued)

control rods are fully inserted. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and, therefore, do not have to be inserted.

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~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.2.2 (continued)

~~controls on control rod withdrawals, and visual indications available in the control room to alert the operator to control rods not fully inserted.~~ To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Therefore, SR 3.9.2.2 has been modified by a Note that states the CHANNEL FUNCTIONAL TEST is not required to be performed until 1 hour after any control rod is withdrawn.

REFERENCES

1. UFSAR, Section 3.1.2.3.7.

2. UFSAR, Section 7.7.1.2.2.

3. UFSAR, Section 15.4.1.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1 (continued)

~~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.~~

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 3.1.2.3.7.
2. UFSAR, Section 15.4.1.

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. UFSAR, Section 3.1.2.3.7.

2. UFSAR, Section 15.4.1.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

Verification of a minimum water level of 23 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 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 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 1.183, July 2000.

2. UFSAR, Section 15.7.3.

3. 10 CFR 50.67.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.7.1 (continued)

~~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.~~

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. Regulatory Guide 1.183, July 2000.
2. UFSAR, Section 15.7.3.
3. 10 CFR 50.67.

BASES

ACTIONS

B.1, B.2, B.3, and B.4 (continued)

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 SDC 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 SDC 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

This Surveillance demonstrates that the required SDC subsystem 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 SDC 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.

REFERENCES

1. UFSAR, Section 5.4.7.

BASES

ACTIONS

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

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, the 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 SDC 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 SDC 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 3.9.9.1

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 SDC subsystem 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 SDC subsystems in the control room~~

REFERENCES

1. UFSAR, Section 5.4.7.

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 verifies compliance with these Special Operations LCO requirements.~~

REFERENCES

1. UFSAR, Chapter 7.2.2.
2. UFSAR, Section 15.4.1.

BASES

ACTIONS

A.1 (continued)

been added, which clarifies that this Required Action is only applicable if the requirements not met are for an affected LCO.

A.2.1 and A.2.2

Required Actions A.2.1 and A.2.2 are alternate Required Actions that can be taken instead of Required Action A.1 to restore compliance with the normal MODE 3 requirements, thereby exiting this Special Operations LCO's Applicability. Actions must be initiated immediately to insert all insertable control rods. Actions must continue until all such control rods are fully inserted. Placing the reactor mode switch in the shutdown position will ensure all inserted rods remain inserted and restore operation in accordance with Table 1.1-1. The allowed Completion Time of 1 hour to place the reactor mode switch in the shutdown position provides sufficient time to normally insert the control rods.

SURVEILLANCE REQUIREMENTS

SR 3.10.2.1, SR 3.10.2.2, and SR 3.10.2.3

The other LCOs made applicable in this Special Operations LCO are required to have their Surveillances met to establish that this Special Operations LCO is being met. If the local array of control rods is inserted and disarmed while the scram function for the withdrawn rod is not available, periodic verification in accordance with SR 3.10.2.2 is required to preclude the possibility of criticality. The control rods can be hydraulically disarmed by closing the drive water and exhaust water isolation valves. Electrically, the control rods can be disarmed by disconnecting power from all four directional control valve solenoids. SR 3.10.2.2 has been modified by a Note, which clarifies that this SR is not required to be met if SR 3.10.2.1 is satisfied for LCO 3.10.2.d.1 requirements, since SR 3.10.2.2 demonstrates that the alternative LCO 3.10.2.d.2 requirements are satisfied. Also, SR 3.10.2.3 verifies that all control rods other than the control rod being withdrawn are fully inserted. ~~The 24 hour Frequency is acceptable because of the administrative~~

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 3.10.2.1, SR 3.10.2.2, and SR 3.10.2.3 (continued) ~~controls on control rod withdrawal, the protection afforded by the LCOs involved, and hardwire interlocks that preclude additional control rod withdrawals.~~
REFERENCES	1. UFSAR, Section 15.4.1.

BASES (continued)

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. 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 hardwire interlocks to preclude an additional control rod withdrawal.~~

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 3.10.3.2 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.

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 hardwire interlock to block an additional control rod withdrawal.~~

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 15.4.1.

BASES (continued)

APPLICABILITY	Operation in MODE 5 is controlled by existing LCOs. The exceptions from other LCO requirements (e.g., the ACTIONS of LCO 3.9.3, LCO 3.9.4, or LCO 3.9.5) allowed by this Special Operations LCO are appropriately controlled by requiring all fuel to be removed from cells whose "full-in" indicators are allowed to be bypassed.
ACTIONS	A.1, A.2, A.3.1, and A.3.2 If one or more of the requirements of this Special Operations LCO are not met, the immediate implementation of these Required Actions restores operation consistent with the normal requirements for refueling (i.e., all control rods inserted in core cells containing one or more fuel assemblies) or with the exceptions granted by this Special Operations LCO. The Completion Times for Required Action A.1, Required Action A.2, Required Action A.3.1, and Required Action A.3.2 are intended to require that these Required Actions be implemented in a very short time and carried through in an expeditious manner to either initiate action to restore the affected CRDs and insert their control rods, or initiate action to restore compliance with this Special Operations LCO.
SURVEILLANCE REQUIREMENTS	SR 3.10.5.1, 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.

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 3.10.7.1, 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., a shift 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.

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.~~

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 3.10.7.5

Coupling verification is performed to ensure the control rod is connected to the control rod drive mechanism and will perform its intended function when necessary. The verification is required to be performed any time a control rod is withdrawn to the "full-out" notch position, or prior to declaring the control rod OPERABLE after work on the control rod or CRD System that could affect coupling. This Frequency is acceptable, considering the low probability that a control rod will become uncoupled when it is not being moved as well as operating experience related to uncoupling events.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.10.7.6

CRD charging water header pressure verification is performed to ensure the motive force is available to scram the control rods in the event of a scram signal. Since the reactor is depressurized in MODE 5, there is insufficient reactor pressure to scram the control rods. Verification of charging water header pressure ensures that if a scram were required, capability for rapid control rod insertion would exist. The minimum pressure of 940 psig is well below the expected pressure of approximately 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.~~

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 15.4.10.

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 from T. 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, Commomwealth Edison Topical Report, (as specified in Technical Specification 5.6.5).

ATTACHMENT 5
TSTF-425 (NUREG-1433) vs. Dresden Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
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	3.3.1.1.3	3.3.1.1.3
Channel Functional Test (after entering Mode 2)	3.3.1.1.4	3.3.1.1.4
Channel Functional Test (weekly) [Dresden – monthly]	3.3.1.1.5	3.3.1.1.8
Channel Functional Test (weekly) each RPS automatic scram contactor	---------	3.3.1.1.5
IRM/APRM channel overlap	---------	3.3.1.1.6
Calibrate local power range monitors	3.3.1.1.6	3.3.1.1.9
Channel Functional Test (quarterly)	3.3.1.1.7	3.3.1.1.11
Calibrate trip units (quarterly)	3.3.1.1.8	3.3.1.1.12

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
Channel Calibration (Turbine Condenser Vacuum – Low - quarterly)	--------	3.3.1.1.13
Channel Calibration	3.3.1.1.9	3.3.1.1.15
Channel Functional Test	3.3.1.1.10	3.3.1.1.16
Channel Calibration	3.3.1.1.11	3.3.1.1.17
Verify APRM Flow Biased STP – High time constant	3.3.1.1.12	---------
Logic System Functional Test	3.3.1.1.13	3.3.1.1.18
Verify TSV/TCV closure/Trip Oil Press-Low Not Bypassed	3.3.1.1.14	3.3.1.1.14
Verify RPS Response Time	3.3.1.1.15	3.3.1.1.19
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 ≤ 10% RTP)	3.3.2.1.2	3.3.2.1.2
Channel Functional Test (thermal power ≤ 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 ≤ 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
Calibrate trip units	---------	3.3.2.2.3
Channel Calibration	3.3.2.2.3	3.3.2.2.4
Logic System Functional Test	3.3.2.2.4	3.3.2.2.5
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	3.3.3.1.2 3.3.3.1.3 3.3.3.1.4 3.3.3.1.5

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
Remote Shutdown System	**3.3.3.2**	**------**
Channel Check	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	---------
End-of-Cycle-Recirculation Pump Trip (RPT) Instrumentation	**3.3.4.1**	**------**
Channel Functional Test	3.3.4.1.1	---------
Calibrate trip units	3.3.4.1.2	---------
Channel Calibration	3.3.4.1.3	---------
Logic System Functional Test	3.3.4.1.4	---------
Verify TSV/TCV Closure/Trip Oil Press-Low Not Bypassed	3.3.4.1.5	---------
Verify EOC-RPT System Response Time	3.3.4.1.6	---------
Determine RPT breaker interruption time	3.3.4.1.7	---------
Anticipated Trip Without Scram-RPT Instrumentation	**3.3.4.2**	**3.3.4.1**
Channel Check	3.3.4.2.1	3.3.4.1.1
Channel Functional Test	3.3.4.2.2	3.3.4.1.3
Calibrate trip units	3.3.4.2.3	3.3.4.1.2
Channel Calibration	3.3.4.2.4	3.3.4.1.4
Logic System Functional Test	3.3.4.2.5	3.3.4.1.5
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	3.3.5.1.3
Channel Calibration	3.3.5.1.4	3.3.5.1.4
Channel Calibration	3.3.5.1.5	3.3.5.1.5
Logic System Functional Test	3.3.5.1.6	3.3.5.1.6
Verify ECCS Response Time	3.3.5.1.7	---------
Reactor Core Isolation Cooling (RCIC) System Instrumentation [Dresden – Isolation Condenser (IC) System Instrumentation	**3.3.5.2**	**3.3.5.2**
Channel Check	3.3.5.2.1	---------
Channel Functional Test	3.3.5.2.2	3.3.5.2.1
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	3.3.5.2.2
Channel Calibration – time delay portion	---------	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	3.3.6.1.3
Channel Calibration	3.3.6.1.4	3.3.6.1.4
Channel Functional Test (HPCI/RCIC Suppr. Pool Area Temp.) - 185 days	3.3.6.1.5	---------
Channel Functional Test (Main Steam Line Tunnel Temperature – High, HPCI Turbine Area Temperature – High) - 24 months	---------	3.3.6.1.5
Channel Calibration	3.3.6.1.6	3.3.6.1.6

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Logic System Functional Test	3.3.6.1.7	3.3.6.1.7
Verify Isolation Response Time	3.3.6.1.8	---------
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	3.3.6.2.3
Channel Calibration – Quarterly	3.3.6.2.4	3.3.6.2.4
Channel Calibration – 18 months [Dresden – 24 months]	3.3.6.2.5	3.3.6.2.5
Logic System Functional Test	3.3.6.2.6	3.3.6.2.6
Verify Isolation Response Time	3.3.6.2.7	-----------
Low-Low-Set (LLS) [Dresden – Relief Valve] Instrumentation	**3.3.6.3**	**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 - Quarterly	---------	3.3.6.3.1
Channel Calibration	3.3.6.3.6	3.3.6.3.2
Logic System Functional Test	3.3.6.3.7	3.3.6.3.3
Main Control Room Environmental Control (MCREC) [Dresden - Control Room Emergency Ventilation (CREV)] 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	---------
Mechanical Vacuum Pump Trip Instrumentation	**------**	**3.3.7.2**
Channel Check	---------	3.3.7.2.1
Channel Functional Test	---------	3.3.7.2.2
Channel Calibration - Quarterly	---------	3.3.7.2.3
Channel Calibration	---------	3.3.7.2.4
Logic System Functional Test	---------	3.3.7.2.5
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 3.3.1.8.4
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

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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
Jet Pumps	**3.4.2**	**3.4.2**
Criteria satisfied for each operating recirc loop	3.4.2.1	3.4.2.1
Safety/Relief Valves (SRVs)	**3.4.3**	**3.4.3**
Safety function lift setpoints	3.4.3.1	3.4.3.1**
SRV [Dresden – Relief valve actuator] opens when manually actuated	3.4.3.2	3.4.3.2
Relief valve opens automatically	---------	3.4.3.3
Reactor Coolant System (RCS) Operational Leakage	**3.4.4**	**3.4.4**
RCS unidentified and total leakage increase within limits	3.4.4.1	3.4.4.1
RCS Pressure Isolation Valve (PIV) Leakage	**3.4.5**	**------**
Equivalent leakage of each PIV	3.4.5.1	-----------
RCS Leakage Detection Instrumentation	**3.4.6**	**3.4.5**
Channel Check	3.4.6.1	---------
Primary containment atmospheric particulate sample	---------	3.4.5.1
Channel Functional Test	3.4.6.2	3.4.5.2
Channel Calibration	3.4.6.3	3.4.5.3
RCS Specific Activity	**3.4.7**	**3.4.6**
Dose Equivalent I-131 specific activity	3.4.7.1	3.4.6.1
Residual Heat Removal (RHR) Shutdown Cooling[Dresden – Shutdown Cooling (SDC) System] - Hot Shutdown	**3.4.8**	**3.4.7**
One subsystem operating	3.4.8.1	3.4.7.1
RHR Shutdown Cooling [Dresden – Shutdown Cooling (SDC) System]- Cold Shutdown	**3.4.9**	**3.4.8**
One subsystem operating	3.4.9.1	3.4.8.1
RCS Pressure/Temperature Limit	**3.4.10**	**3.4.9**
RCS pressure, temperature, heatup and cooldown rates	3.4.10.1	3.4.9.1
RPV flange/head flange temperatures (tensioning head bolt stud)	3.4.10.7	3.4.9.5
RPV flange/head flange temperatures (after RCS temp $\leq$ 80°F [Dresden - ≤93°F])	3.4.10.8	3.4.9.6
RPV flange/head flange temperatures (after RCS temp $\leq$ 100°F [Dresden - ≤113°F])	3.4.10.9	3.4.9.7
Reactor Steam Dome Pressure	**3.4.11**	**3.4.10**
Verify reactor steam dome pressure	3.4.11.1	3.4.10.1
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 header pressure	3.5.1.3	3.5.1.12
Verify RHR (LPCI) cross tie valve is closed and power removed	3.5.1.4	---------
Verify LPCI inverter output voltage	3.5.1.5	---------
Verify correct breaker alignment	---------	3.5.1.3
Verify ECCS pumps develop specified flow	3.5.1.7	3.5.1.5**
Verify HPCI flow rate (Rx press < 1020 [Dresden - 1005], > 920)	3.5.1.8	3.5.1.6**
Verify HPCI flow rate (Rx press < 165 [Dresden - 180])	3.5.1.9	3.5.1.7

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
Verify ECCS actuates on initiation signal	3.5.1.10	3.5.1.8
Verify ADS actuates on initiation signal	3.5.1.11	3.5.1.9
Verify each ADS valve opens [actuator strokes] when manually actuated	3.5.1.12	3.5.1.10
Verify swing bus automatic transfer capability	---------	3.5.1.11
ECCS - Shutdown	**3.5.2**	**3.5.2**
Verify, for LPCI [ECCS injection], suppression pool water level	3.5.2.1	3.5.2.1
Verify, for CS [spray], suppression pool water level and CST water level	3.5.2.2	3.5.2.1
Verify ECCS piping filled with water	3.5.2.3	3.5.2.2
Verify each valve in flow path is in correct position	3.5.2.4	3.5.2.3
Verify each ECCS pump develops flow	3.5.2.5	3.5.2.4**
Verify ECCS actuates on initiation signal	3.5.2.6	3.5.2.5
RCIC [Dresden – IC] System	**3.5.3**	**3.5.3**
Verify RCIC piping filled with water	3.5.3.1	---------
Verify IC system shell side level and temperature	---------	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	---------
Verify RCIC flow rate (Rx press < 165)	3.5.3.4	---------
Verify RCIC [IC System] actuates on initiation signal	3.5.3.5	3.5.3.3
Verify heat removal capability	---------	3.5.3.4
Primary Containment	**3.6.1.1**	**3.6.1.1**
Verify drywell to suppression chamber differential pressure [bypass leakage]	3.6.1.1.2	3.6.1.1.2
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 purge valve is closed [Dresden – except torus purge valve]	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 each purge valve is blocked	3.6.1.3.15	-----------
Drywell Pressure	**3.6.1.4**	**3.6.1.4**
Verify drywell 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

ATTACHMENT 5
TSTF-425 (NUREG-1433) vs. Dresden Cross-Reference

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
LLS [Dresden – Low Set Relief] Valves	**3.6.1.6**	**3.6.1.6**
Verify each LLS [low set relief] valve opens when manually actuated	3.6.1.6.1	3.6.1.6.1
Verify LLS system [low set relief valve] actuates on initiation signal	3.6.1.6.2	3.6.1.6.2
Reactor Building - Suppression Chamber Vacuum Breakers	**3.6.1.7**	**3.6.1.7**
Verify each vacuum breaker is closed	3.6.1.7.1	3.6.1.7.1
Perform functional test on each vacuum breaker	3.6.1.7.2	3.6.1.7.2
Verify opening setpoint for each vacuum breaker	3.6.1.7.3	3.6.1.7.3
Suppression Chamber - Drywell Vacuum Breakers	**3.6.1.8**	**3.6.1.8**
Verify each vacuum breaker is closed	3.6.1.8.1	3.6.1.8.1
Perform functional test on each vacuum breaker	3.6.1.8.2	3.6.1.8.2
Verify opening setpoint for each vacuum breaker	3.6.1.8.3	3.6.1.8.3
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**
Verify suppression pool water level within limits	3.6.2.2.1	3.6.2.2.1
RHR Suppression Pool Cooling [Dresden – 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 [Dresden – LPCI] pump develops flow rate	3.6.2.3.2	3.6.2.3.2**
RHR Suppression Pool Spray [Dresden – 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	---------
Verify spray nozzles unobstructed	---------	3.6.2.4.2
Drywell - Suppression Chamber Differential Pressure	**3.6.2.5**	**3.6.2.5**
Verify differential pressure is within limit	3.6.2.5.1	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	3.6.4.1.4
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	---------
Verify SC can be maintained using one SGTS	3.6.4.1.5	3.6.4.1.3

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
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) [Dresden – Containment Cooling Service Water (CCSW) System]	**3.7.1**	**3.7.1**
Verify each RHRSW [CCSW] 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) [Dresden - 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 [Dresden – pump suction bays]	3.7.2.2	3.7.3.1
Verify average water temperature of heat sink	3.7.2.3	3.7.3.2
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	---------
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 [DEGCW] pump starts automatically	3.7.3.2	3.7.2.2
MCREC [Dresden - CREV] System	**3.7.4**	**3.7.4**
Operate each MCREC subsystem [Dresden – Operate CREV System	3.7.4.1	3.7.4.1
Verify each subsystem actuates on initiation signal [Dresden – Verify CREV System actuates]	3.7.4.3	3.7.4.3
Verify each subsystem can maintain positive pressure	3.7.4.4	---------
Control Room Air Conditioning System [Dresden – Control Room Emergency Ventilation (AC) System]	**3.7.5**	**3.7.5**
Verify each subsystem has capability to remove heat load [Dresden – Verify Control Room Emergency Ventilation AC System has capability to remove heat load]	3.7.5.1	3.7.5.1
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

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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	3.8.1.8
Verify transfer of power from offsite circuit to alternate circuit	3.8.1.8	3.8.1.9
Verify DG rejects load greater than single largest load	3.8.1.9	3.8.1.10
Verify DG maintains load following load reject	3.8.1.10	3.8.1.11
Verify on loss of offsite power signal	3.8.1.11	3.8.1.12
Verify DG starts on ECCS initiation signal	3.8.1.12	3.8.1.13
Verify DG automatic trips bypassed on ECCS initiation signal	3.8.1.13	3.8.1.14
Verify each DG operates for > 24 hours	3.8.1.14	3.8.1.15
Verify each DG starts from standby conditions/quick restart	3.8.1.15	3.8.1.16
Verify each DG synchronizes with offsite power	3.8.1.16	3.8.1.17
Verify ECCS initiation signal overrides test mode	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 [Dresden – Diesel Fuel Oil and Starting Air]	**3.8.3**	**3.8.3**
Verify fuel oil storage tank volume	3.8.3.1	--------
Verify lube oil inventory	3.8.3.2	---------
Verify each DG air start receiver pressure	3.8.3.4	3.8.3.2
Check/remove accumulated water from fuel oil storage tank	3.8.3.5	3.8.1.7
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 3.8.4.3
Verify battery capacity is adequate to maintain emergency loads	3.8.4.3	3.8.4.4
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

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
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 [SDC} 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 [SDC] 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
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	----------

Technical Specification Section Title/Surveillance Description*	TSTF-425	Dresden
Verify average reactor coolant temperature < 200 F	3.10.10.2	----------
Programs (Surveillance Frequency Control Program)	**5.5.15**	**5.5.15**

* The Technical Specification (TS) Section Title/Surveillance Description portion of this attachment is a summary description of the referenced TSTF-425 (NUREG-1433)/DNPS TS SRs which is provided for information purposes only and is not intended to be a verbatim description of the TS SRs.

** This DNPS Surveillance Frequency is provided in the DNPS Inservice Testing (IST) Program. This DNPS Surveillance Frequency is not proposed for inclusion in the Surveillance Frequency Control Program.

ATTACHMENT 6
Proposed No Significant Hazards Consideration

Description of Amendment Request: The proposed amendment would modify the Dresden Nuclear Power Station (DNPS), Units 2 and 3, Technical Specifications (TS) by relocating specific surveillance frequencies to a licensee-controlled program with the adoption of Technical Specification Task Force (TSTF)-425, "Relocate Surveillance Frequencies to Licensee Control - Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b," Revision 3 (TSTF-425). Additionally, the change would add a new program, the "Surveillance Frequency Control Program" (SFCP), to TS Section 5, "Administrative Controls."

The proposed changes are consistent with NRC-approved TSTF Standard Technical Specifications (STS) change TSTF-425 (ADAMS Accession No. ML090850642). The Federal Register notice published on July 6, 2009 (74 FR 31996) announced the availability of this TS improvement as part of the Consolidated Line Item Improvement Process (CLIIP). The changes are applicable to licensees using probabilistic risk guidelines contained in NRC-approved Nuclear Energy Institute (NEI) 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies," Revision 1, (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 (SRs) to licensee control under a new SFCP. 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 TS for which the surveillance frequencies are relocated are still required to be operable, meet the acceptance criteria for the SRs, 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.

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 final safety analysis report and bases to the TS), 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 utilize the guidance contained in NRC-approved NEI 04-10, in accordance with the TS SFCP. NEI 04-10, Revision 1 methodology provides reasonable acceptance guidelines and methods for evaluating the risk increase of proposed changes to surveillance frequencies consistent with Regulatory Guide 1.177.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the reasoning presented above, 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).