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SOUTHERN COMPANY

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

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3,
Risk-Informed Justification for the Relocation of Specific Surveillance Frequency
Requirements to a Licensee Controlled Program
Using the Consolidated Line Item Improvement Process

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Southern Nuclear Operating Company (SNC) is submitting a request for an amendment to the Technical Specifications (TS) for the Edwin I. Hatch Nuclear Plant (HNP).

In accordance with Technical Specification Task Force (TSTF) 425-A, Revision 3, the proposed amendment would modify the HNP TS by relocating specific surveillance frequencies to a licensee-controlled program with the implementation of Nuclear Energy Institute (NEI) 04–10, Rev.1 "Risk-Informed Technical Specification Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies." The availability of this TS improvement was announced in the Federal Register on July 6, 2009 (74 FR 31996) as part of the consolidated line item improvement process (CLIIP).

The following Enclosures are attached to this amendment request:

- Enclosure 1 provides the basis for the proposed change to the HNP TS, the requested confirmation of applicability and plant specific verifications.
- Enclosure 2 provides documentation of PRA technical adequacy.
- Enclosures 3 and 4 provide the existing HNP TS pages marked up to show the proposed changes for HNP Unit 1 and Unit 2, respectively.
- Enclosures 5 and 6 provide the clean typed HNP Unit 1 and Unit 2 TS pages.
- Enclosures 7 and 8 provide the proposed TS Bases changes for HNP Unit 1 and Unit 2.
- Enclosure 9 provides a cross-reference between the TSTF 425-A marked up TS pages and the HNP Unit 1 and Unit 2 TS pages.

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SNC requests approval of the proposed license amendment by April 29, 2011 with the amendment being implemented within 120 days of receipt of the amendment.

In accordance with 10 CFR 50.91, "Notice for Public Comment; State Consultation," a copy of this application, with enclosures, is being provided to the appropriate designated Georgia Officials.

This letter contains no NRC commitments. If you have any questions, please contact N. J. Stringfellow at (205) 992-7037.

Mr. M. J. Ajluni states he is Nuclear Licensing Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

Mark J Ajluni

M. J. Ajluni
Nuclear Licensing Director

Sworn to and subscribed before me this 29 *day of* October*, 2010.*

Charlotte A. Graham
Notary Public

My commission expires: 6/9/12

MJA/SYA/

Enclosures:
1. Basis of Proposed Change
2. Documentation of PRA Technical Accuracy
3. Markup for HNP Unit 1 Proposed TS Changes
4. Markup for HNP Unit 2 Proposed TS Changes
5. Clean Typed Pages for HNP Unit 1 Proposed TS Changes
6. Clean Typed Pages for HNP Unit 2 Proposed TS Changes
7. TS Bases changes for HNP Unit 1
8. TS Bases changes for HNP Unit 2
9. Technical Specification Cross Reference for HNP Unit 1 and Unit 2 TSTF 425 Mark ups

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President (W/O Enclosure)
Mr. D. R. Madison, Vice President – Hatch (W/O Enclosure)
Ms. P. M. Marino, Vice President – Engineering (W/O Enclosure)
RType: CHA02.004

U. S. Nuclear Regulatory Commission
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Mr. R. E. Martin, NRR Project Manager – Hatch
Mr. E. D. Morris, Senior Resident Inspector – Hatch
Mr. P.G. Boyle, NRR Project Manager

State of Georgia
Mr. C. Clark, Commissioner – Department of Natural Resources

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 1

Basis for Proposed Change

Enclosure 1

Basis for Proposed Change

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Enclosure 1

Basis for Proposed Change

1.0 Description

The proposed change would modify the Edwin I. Hatch Nuclear Plant (HNP) Technical Specifications (TS) by relocating specific surveillance frequencies to a licensee-controlled program with the adoption of Technical Specification Task Force (TSTF)-425, Revision 3, "Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (Risk Informed Technical Specification Task Force (RITSTF) Initiative 5)." Additionally, the change would add a new program, the Surveillance Frequency Control Program, to the HNP TS Section 5, Administrative Controls. The changes are consistent with NRC approved Industry/TSTF STS change TSTF-425, Revision 3, (ADAMS Accession No. ML080280275). The Federal Register notice published on July 6, 2009 announced the availability of this TS improvement.

2.0 Assessment

2.1 Applicability of Published Safety Evaluation

Southern Nuclear Operating Company (SNC) has reviewed the safety evaluation dated July 6, 2009 as part of the consolidated line item improvement process (CLIIP). This review included a review of the NRC staff's evaluation, TSTF-425, Revision 3, and the requirements specified in Nuclear Energy Institute (NEI) 04-10, Rev. 1, (ADAMS Accession No. ML071360456). SNC has concluded that the justifications presented in the TSTF and the Safety Evaluation prepared by the NRC staff are applicable to Units 1 and 2 of HNP and justify this amendment for the incorporation of changes to the TS for Units 1 and 2 of HNP.

Enclosure 2 includes SNC documentation with regard to PRA technical adequacy consistent with the requirements of Regulatory Guide 1.200 Revision 1 (ADAMS Accession No. ML070240001), Section 4.2, and describes any PRA models without NRC-endorsed standards, including documentation of the quality characteristics of those models in accordance with Regulatory Guide 1.200.

NRC Amendments 234 and 176 for HNP Unit 1 and Unit 2, respectively, revised the HNP TS to support extension of certain Surveillance Requirements from "92 days" to "92 days on an alternate test basis." An alternate test basis consists of the testing of 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 two consecutive Surveillance Frequency intervals according to the partial testing formula that follows, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function. If the total number of systems, subsystems, channels, or other designated components is even, then *n*/2 are tested during each interval specified by the Surveillance Frequency. If the total number of systems, subsystems, channels, or other designated components is odd, then either $(n+1)/2$ or $(n-1)/2$ are tested during the first test interval at the specified Surveillance Frequency. The systems, subsystems, channels, or other designated components not tested during the first interval are tested during the next interval.

The exclusion criteria listed in TSTF-425 do not apply to the Surveillance Requirements that are on an alternate test basis; therefore, these surveillance frequencies and the definition of alternate test basis will be relocated from the HNP TS to a licensee controlled document. NEI 04-10 Guidance will be applied if HNP desires to remove, modify or add an alternate test basis requirement.

2.2 Optional Changes and Variations

The proposed amendment is consistent with the Standard TS changes described in TSTF-425, Revision 3; however, SNC proposes the following variations or deviations from TSTF-425:

- NRC letter dated April 14, 2010 provides a change to an optional insert (INSERT #2) to the existing TS Bases to facilitate adoption of the Traveler while retaining the existing NUREG TS surveillance frequency (SF) Bases considerations for licensees not choosing to adopt TSTF-425. The TSTF-425 TS Bases insert states as follows:

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

  Recently several licensees submitting license amendment requests (LARs) for adoption of TSTF-425 have identified a need to deviate from this statement because it only applies to frequencies that have been changed in accordance with the Surveillance Frequency Control Program (SFCP) and does not apply to frequencies that are relocated but not changed.

  The NRC staff agreed that the TSTF-425 TS Bases insert applies to SFs that are relocated and subsequently evaluated and changed, in accordance with the SFCP in NRC letter dated April 14, 2010. The TSTF-425 TS Bases does not apply to SFs relocated to the SFCP but not changed. Therefore, for SFs relocated to the SFCP but not changed, the existing TS Bases description remains a valid description of the TS SF Bases for the unchanged SF.

To resolve this issue with existing LARs and to avoid future problems, the NRC staff supported the following recommended changes to clarify the applicability of the TS SF Bases, maintain consistency with TSTF-425 TS SFCP requirements, and allow retention of existing TS SF Bases for licensees who choose not to adopt TSTF-425 (April 28, 2010 discussion between the TSTF and the NRC):

1. The existing Bases information describing the basis for the Surveillance Frequency will be relocated to the licensee-controlled Surveillance Frequency Control Program.

2. The TSTF-425 TS Bases, INSERT #2, should be added to the end of the existing TS Bases and changed to read as follows:

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

SNC has incorporated these recommended changes into this License Amendment Request.

- Enclosure 9 provides a cross-reference between the NUREG-1433 Surveillance Requirements (SRs) included in TSTF-425 versus the HNP Unit 1 and Unit 2 TS. This Enclosure includes a summary description of the referenced TSTF-425/HNP TS SRs which is being provided for information purposes only and is not intended to be a verbatim description of the TS SRs. This cross-reference highlights the following:

  1. SRs included in TSTF-425 and corresponding HNP SRs with identical SR numbers;
  2. SRs included in TSTF-425 and corresponding HNP SRs with differing SR numbers;
  3. SRs included in TSTF-425 that are not contained in the HNP TS; and
  4. HNP plant-specific SRs that are not contained in the TSTF-425 mark-ups.

  Concerning the above, HNP SRs that have SR numbers identical to the corresponding TSTF-425 SRs are not deviations from TSTF-425. HNP SRs with SR numbers that differ from the corresponding TSTF-425 SRs are administrative deviations from TSTF-425 with no impact on the NRC's model safety evaluation dated July 6, 2009 (74 FR 31996).

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

For HNP plant-specific SRs that are not contained in the mark-ups provided in TSTF-425, SNC has determined that the relocation of the frequencies for these HNP plant-specific SRs is consistent with the intent of TSTF-425, Revision 3, and with the NRC's model safety evaluation dated July 6, 2009 (74 FR 31996), including the scope exclusions identified in Section 1.0, "Introduction," of the model safety evaluation, because the subject plant-specific SRs involve fixed periodic frequencies. In accordance with TSTF-425, changes to the frequencies for these SRs would be controlled under the Surveillance Frequency Control Program. The Surveillance Frequency Control Program provides the necessary administrative controls to require that SRs related to testing, calibration and inspection are conducted at a frequency to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. Changes to frequencies in the Surveillance Frequency Control Program would be evaluated using the NRC approved methodology and probabilistic risk guidelines contained in NEI 04-10, Revision 1.

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration

SNC has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register dated July 6, 2009 (74 FR 31996) as part of the CLIIP. SNC has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to Units 1 and 2 of HNP and the evaluation is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a) for this application.

4.0 Environmental Evaluation

SNC has reviewed the environmental evaluation included in the model safety evaluation dated July 6, 2009 as part of the CLIIP. SNC has concluded that the staff's findings presented in the published evaluation are applicable to Units 1 and 2 of HNP and the evaluation is hereby incorporated by reference for this application.

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement

Enclosure 2

Documentation of PRA Technical Adequacy

Enclosure 2

Documentation of PRA Technical Adequacy

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Enclosure 2

Documentation of PRA Technical Adequacy

1.0 Introduction

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

2.0 Technical Adequacy of Hatch PRA Model

2.1 PRA Model for As-Built As-Operated Hatch Nuclear Plant

2.1.1 PRA Maintenance and Update

The SNC risk management process ensures that the applicable PRA model remains an accurate reflection of the as-built and as-operated units. The SNC risk management process also delineates the responsibilities and guidelines for updating the full power internal events PRA models at all operating SNC nuclear generation sites. The overall SNC risk management program defines the process for implementing regularly scheduled and interim PRA model updates, for tracking issues identified as potentially affecting the PRA models (e.g., due to changes in the plant, errors or limitations identified in the model, industry operational experience), and for controlling the model and associated computer files. To ensure that the current PRA model remains an accurate reflection of the as-built, as-operated plant, the HNP PRA model has been updated according to the requirements defined in the SNC risk management process:

- Pertinent modifications to the physical plant (i.e. those potentially affecting the Base Line PRA (BL-PRA) models, calculated core damage frequencies (CDFs), or large early release frequencies (LERFs) to a significant degree) shall be reviewed to determine the scope and necessity of a revision to the baseline model within six months following the Unit 2 refueling outage or a specific major plant modification occurring outside a refueling outage. The BL-PRAs should be updated as necessary in accordance with a schedule approved by the PRA Manager following the scoping review. Upon completion of the lead Unit's BL-PRA, the other Unit's BL-PRA will be regenerated by modification of the updated BL-PRAs to account for Unit differences which significantly impact the results.

- Pertinent modifications to plant procedures and Technical Specifications shall be reviewed annually for changes which are of statistical significance to the results of the BL-PRA and those changes documented. Reliability data, failure data, initiating events frequency data, human reliability data, and other such PRA inputs shall be reviewed approximately every three years for statistical significance to the results of the BL-PRAs. Following the tri-annual review, the BL-PRAs shall be updated to account for the statistically significant changes to these two categories of PRA inputs in accordance with an approved schedule.

- BL-PRAs shall be updated to reflect germane changes in methodology, phenomenology, and regulation as judged to be prudent by the PRA custodian or as required by regulation.

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

- Documentation of the PRA model, PRA products, and bases documents.
- The approach for controlling electronic storage of Risk Management (RM) products including PRA update information, PRA models, and PRA applications.
- Guidelines for updating the full power, internal events PRA models for SNC nuclear generation sites.
- Guidance for use of quantitative and qualitative risk models in support of the On-Line Work Control Process Program for risk evaluations for maintenance tasks (corrective maintenance, preventive maintenance, minor maintenance, surveillance tests and modifications) on systems, structures, and components (SSCs) within the scope of the Maintenance Rule (10 CFR 50.65 (a)(4)).

In accordance with this guidance, regularly scheduled PRA model updates nominally occur on an approximate three year cycle; however, longer intervals may be justified if it can be shown that the PRA continues to adequately represent the as-built, as-operated plant. Table 1 shows the brief history of the major HNP PRA model updates.

2.1.2 Plant Changes Not Yet Incorporated into the PRA Model

As part of the PRA evaluation for each Surveillance Test Interval (STI), based on a Surveillance Frequency change request, an evaluation will be performed by the PRA Department, to assess the impact, if any, of any plant's changes which are not incorporated into the HNP PRA model which is used for providing risk information/insights prior to presenting the results of the risk analysis to the Independent Decision-making Panel (IDP). If non-trivial impact is expected, then this may include the performance of additional sensitivity studies or PRA model changes to confirm the impact on the risk analysis.

Enclosure 2

Documentation of PRA Technical Adequacy

Table 1: History of the Major Hatch PRA Model Updates				
Model	**Document No.**	**Scope**	**Updated Items**	**CDF and LERF (/yr)**
IPE	Generic Letter 88-20 Response, Individual Plant Examination Submittal Plant HNP Units 1 and 2 December 11, 1992	At-power, internal and external, CDF and Level 2 PRA	The original	CDF: 2.1E-5 LERF: 4.7E-06
Rev. 0	SNC-H1-98-002-005 Notebooks prepared by PLG	At-power, internal, CDF and LERF	Conversion from RISKMAN Event Tree model to a CAFTA Fault Tree model.	CDF: 1.22E-5 LERF: 2.2E-6 The CDF reduction was due to updating initiating event frequencies, splitting Loss of Feedwater into two events (one based on loss of condensate system—one not). The LERF reduction was due to the use of a more simplified LERF model.
Rev. 1	PSA-H-00-024 Rev. 1a May 2001	At-power, internal, CDF and LERF	Cafta model changes from Rev 0	CDF: 1.24E-5 LERF: 2.20E-6 The change in CDF was due to a correction in the Mutually Exclusive file that had incorrectly removed a valid cutset

Enclosure 2

Documentation of PRA Technical Adequacy

Table 1: History of the Major Hatch PRA Model Updates

Model	Document No.	Scope	Updated Items	CDF and LERF (/yr)
Rev. 2	PRA-BC-H-05-003 Jan. 2006 CDF only PRA-BC-H-06-002 April 2006 LERF/LEVELII only	At-power, internal, CDF and LERF	The first HNP PRA Peer Review was performed on Revision 1 of the HNP model in April 2001. The Revision 2 model has the findings from that Peer Review incorporated in it. This model had a complete updated HRA, Data, and Common Cause input. In addition, the LERF model was completely redone to address all of the Peer Review findings regarding it.	CDF: 8.3E-6 LERF:6.08E-7 The most significant change that reduced CDF and contributed to LERF reduction was the inclusion of five hours of battery power for RCIC operation during a station blackout. In addition, the data update provided more industry correct power recovery factors. LERF was affected primarily by using declaration times to general emergency comparison to emergency planning evacuation data for the plant surrounding area.
Rev. 3	PRA-BC-H-08-002 Jan. 2009 CDF only	At-power, internal, CDF and LERF	Selected depressurization events were recalculated to a lower probability of failure. Loss of station service battery A no longer caused a turbine trip. These items were modified in the model and provided the bulk of the change in CDF. These changes caused a slight decrease in LERF frequency.	CDF = 6.76E-6 LERF = 5.8E-7 The modification to the model with regards to the Loss of A station service battery in conjunction with lower depress probabilities provided the lower overall values.

Enclosure 2

Documentation of PRA Technical Adequacy

Table 1: History of the Major Hatch PRA Model Updates

Model	Document No.	Scope	Updated Items	CDF and LERF (/yr)
Rev. 4	PRA-BC-H-10-008 June 2010	At-power, internal, CDF and LERF	This model has been peer reviewed to R.G. 1.200 Revision 2 clarifications, the ASME/ANS PRA Standard and NEI 05-04. Peer review comments have been incorporated and the model meets Cat II of the ASME standard.	CDF = 7.78E-6 LERF = 1.16E-6 The CDF model addressed many comments from the peer review. There were several new special initiating event trees added for electrical systems. The data and HRA was completely redone. The upgrade of the line break outside containment event values provided most of the change in core damage frequency between Revision 3 and Revision 4. The remainder of the change was distributed among the extra initiators being considered. LERF was affected most by the new values for the breaks outside containment. These were initially estimated, however, for Revision 4, line lengths were calculated and a more rigorous methodology was used.

2.2 Consistency with Applicable ASME PRA Standard Requirements

2.2.1 Previous Peer Review and Self Assessment for Hatch PRA Model

In addition to independent internal review during each HNP PRA model development and update, the HNP PRA model has been peer reviewed twice.

- The first peer review was conducted by the BWR Owners Group in April 2001. The review team used Revision A-3 NEI draft "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance dated June 2, 2000 as the basis for review. This review was observed by a team from the NRC.
- In 2006, a gap analysis was performed against the available versions of the ASME PRA Standard (Reference 1) and Regulatory Guide 1.200, Revision 0 (2003 trial version).

2.2.2. RG 1.200 PRA Peer Review for Hatch PRA Model against ASME PRA Standard Requirements

The decision was made to perform a complete peer review for all elements of the internal events model including Internal Flooding against R.G. 1.200 Revision 2 clarifications (Reference 2), the ASME/ANS PRA Standard, and NEI 05-04. This was completed in November 2009.

A summary of the review is described in the following information.

1. The ASME/ANS PRA Standard (Reference 3) contains a total of 326 numbered supporting requirements (SRs) in nine technical elements and one configuration control element. There were five not applicable requirements for the HNP review: AS-B4, IFEV-A8, LE-D5, LE-D6, and MU-D1.
2. Among 321 applicable SRs, 95% of SRs met Capability Category II or higher as follows:

Capability Category Met	No. of SRs	% of total applicable SRs
CC-I/II/III (or SR Met)	225	70%
CC I	5	1%
CC II	27	8%
CC III	18	6%
CC I/II	10	3%
CC II/III	26	8%
SR Not Met	10	3%
SR Not Applicable	5	1%
Total	326	100%

3. 10 SRs were judged to be not met. IE-A6 was not met because the additional initiating events identified from the FME analysis were not included in the model under review. IE-B2 was not met because the IE

notebook did not discuss the system for grouping initiating events. IE-B3 was not met because IE-B2 was not met. AS-B3 was not met because the Accident Sequence notebook did not provide a discussion of the phenomenological conditions for each accident sequence. SC-B5 was not met because a comparison of the thermal hydraulic calculations with those of other plants was not performed. SC-C1 was not met because, although the success criteria were very detailed, it was difficult to compare criteria to a specific initiating event. IFSN-A10 was not met because credit was not given to operator isolation of a certain flood scenario. This could cause a potential for flooding in other areas. IFQU-A5 is not met because IFSN-A10 is not met. IFQU-A6 cites an over conservatism by failing operator actions outside the main control room in flooding areas. MU-A1 is not met because the SNC process used does not provide a more organized method of documentation.

In addition to the not met SRs, there were five SRs that were met as Cat 1. IE-A9 was met as Cat 1 because plant specific experience for initiating event precursors was not provided. LE-C3 was met as Cat 1 only because there was no address as to the possibility of equipment repair. HNP did not credit repair during LERF conditions. LE-C10 was met as Cat 1 because there was no documentation regarding continued equipment operations or personnel actions in a LERF environment. HNP did not credit such actions. LE-C12 was met as Cat 1 because there is no documentation showing that the PRA can credit post containment failure operation of equipment or personnel actions. HNP does not credit such items. LE-C13 was met as Cat 1 because there was not an engineering basis for the decontamination factor used for scrubbing.

2.2.3 Resolution of Findings from RG 1.200 PRA Peer Review

Table 2 shows details of the 10 "SR Not Met" findings and resolutions after the peer review. In addition, the five Cat 1 SRs are also addressed.

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated 10 "SR not Met" SRs				
F&O #	**Review Element**	**Level[1]**	**Resolution**	**The Status of Resolution by the SNC**
IE-A6-1-2	IE-A6 (SR not met CC-II)	Finding	Include the additional IEs in the analysis. It would appear panel failures would be very unlikely except for specific types of events, especially spatially related events.	The IEs identified in the notebook have been added to the model as well as the common cause failure considerations. Two of the buses were not modeled as IEs because they serve only to feed two that were added as IEs. The two buses not modeled as IEs are modeled as support for systems; one of the supported systems is in itself modeled as a special initiator. The special initiator modeling for the HNP PRA not only considers what causes a transient/scram but also what would require a shutdown per Technical Specifications.
IE-B2-1-7	IE-B2 (SR CC-I/II/III Not met)	Finding	Describe the process for systematically grouping the IEs to ensure: (a) Events can be considered similar in terms of plant response, success criteria, timing, and the effect on the operability and performance of operators and relevant mitigating systems: or (b) events can be subsumed into a group and bounded by the worst case impacts within the new group.	The IE notebook has been revised to include a full discussion of IE grouping. This comment has been addressed.

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated 10 "SR not Met" SRs				
F&O #	**Review Element**	**Level[1]**	**Resolution**	**The Status of Resolution by the SNC**
IE-B3-1-7	IE-B3 (SR Not met CC II)	Finding	Describe the process for systematically grouping IEs to ensure: (a) Events can be considered similar in terms of plant response, success criteria, timing, and the effect on the operability and performance of operators and relevant mitigating systems; or (b) Events can be subsumed into a group and bounded by the worst case impacts within the new group.	This comment has been added to the IE notebook. There are no subsumed events in the HNP PRA model.
AS-B3-1-9	AS-B3 (SR Not met CCI/II/III)	Finding	Include additional detail for each accident sequence. Particularly, there was no mention of the generation of harsh environments affecting temperature, pressure, debris, water levels or humidity that could impact the success of the system	The detail required by this finding has been added to the accident sequence notebook. The sequence descriptions have a discussion of Environmental Conditions. The HNP PRA does not typically rely on equipment or operator actions in an area where a severe environment is encountered.
SC-B5-3-1	SC-B5 (SR Not met CCI/II/III)	Finding	Check the reasonableness and acceptability of the results of the thermal/hydraulic and any other analysis used to support the success criteria. Document in the SC Notebook how this reasonableness was performed.	A comparison table for the HNP PRA was developed for Success Criteria based on input from other BWR facilities (i.e. Pilgrim, Cooper, LaSalle, and Nine Mile Point).

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated 10 "SR not Met" SRs				
F&O #	**Review Element**	**Level[1]**	**Resolution**	**The Status of Resolution by the SNC**
SC-C1-5-4	SC-C3 (SR Not met CCI/II/III)	Finding	The success criteria should be captured in tabular from in the SC document. Having this information in one place will alleviate confusion when performing PRA applications and upgrades. Additionally, it will facilitate peer reviews. Provide a summary of success criteria for available mitigating systems and human actions for each initiating group.	A success criteria summary table has been added to the SC notebook. This table in addition to the extreme detail already provided makes the Success Criteria notebook extremely informative.
IFSN-A10-4-5	IFSN-A10 (SR Not met CCI/II/II)	Finding	Operator actions should be developed and added to the scenario development and the PRA model to reflect how the plant would be operated in the event of this scenario. It may be beneficial to consider use of mitigation event trees to assure that all mitigation issues are considered.	The PRA model used in the peer review contained over 100 flood initiators. No screening was done based on operator action input. This finding was addressed by screening the initiators to 24 and applying HRA for these scenarios to mitigate the results.
IFQU-A5-4-5	IFQU-A5 (SR Not met CCI/II/III)	Finding	Operator actions should be developed and added to the scenario development and the PRA model to reflect how the plant would be operated in the event of this scenario. It may be beneficial to consider use of mitigation event trees to assure that all mitigation issues are considered.	The PRA model used in the peer review contained over 100 flood initiators. No screening was done based on operator action input. This finding was addressed by screening the initiators to 24 and applying HRA for these scenarios to mitigate the results.
IFQU-A6-2-7	IFQU-A6 (SR Not met CCI/II/II)	Finding	Consider more realistic operator actions for floods when action has to be taken outside the main control room.	This item has been addressed for IFQU-A5-4-5.

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated 10 "SR not Met" SRs				
F&O #	**Review Element**	**Level[1]**	**Resolution**	**The Status of Resolution by the SNC**
MU-C1-5-8	MU-C1 (SR Not met Cat I/II/III)	Finding	Recommend developing a database for use by PRA. Such a database should have prioritization clearly delineated. This would allow a dynamic assessment of the cumulative impact of pending changes. Additionally, this will allow the more significant changes to be incorporated before less significant ones	This comment refers to the model update process. These procedures are under revision. Presently, model change requirements tend to be governed by the use of the corrective action program.

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated with the 5 Cat I met only SRs				
F&O #	**Review Element**	**Level**	**Resolution**	**The Status of the Resolution by SNC**
LE-C3-7-2	LE-C3 (SR Cat I met)	Finding	Review significant progression sequences to support evaluations required in applicable SR Capability Category.	Statements have been added to L2 NB Section 7 of notebooks, as well as Appendix K to note that significant accident sequences resulting in LERF were reviewed and credit for continued operation or repair (beyond LOOP recovery) was not judged to be credible. Cat I/II/III is considered met for this SR.

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated with the 5 Cat I met only SRs				
F&O #	**Review Element**	**Level**	**Resolution**	**The Status of the Resolution by SNC**
LE-C10-7-2	LE-C10 (SR Cat I met)	Finding	Review significant progression sequences to support evaluations required in applicable SR Capability Category	Statements have been added to L2 NB Section 7 of notebooks as well as Appendix K to note that significant accident sequences resulting in LERF were reviewed and credit for continued operation or repair (beyond LOOP recovery) was not judged to be credible. Cat II is considered met for this SR.
LE-C12-7-2	LE-C12 (SR Cat I met)	Finding	Review significant progression sequences to support evaluations required in applicable SR Capability Category	Statements have been added to L2 NB Section 7 of notebooks as well as Appendix K to note that significant accident sequences resulting in LERF were reviewed and credit for continued operation or repair (beyond LOOP recovery) was not judged to be credible. Cat II is considered met for this SR.
LE-C13-7-4	LE-C13 (SR Cat I met)	Finding	Perform a containment bypass analysis as described in SR LE-C13	Text enhanced in Appendix D of notebooks (Footnote 6 added to Table HA5) and similarly in Section 7.7. The analysis regarding scrubbing is approached with engineering judgment. Only scrubbing for low pressure sequences is considered and then the value is low. This basis is acceptable and the use of scrubbing is considered in the uncertainty analysis. Cat II/III is considered met for this SR.

Table 2 Resolution of the Hatch PRA Peer Review F&Os Associated with the 5 Cat I met only SRs				
F&O #	**Review Element**	**Level**	**Resolution**	**The Status of the Resolution by SNC**
IE-A9-1-4	IE-A9 (SR Cat I met)	Finding	Include other sources of OE in the search for IE precursors.	Several sources are available to determine plant specific initiating events. When preparing the IE notebook, SNC reviewed the following sources. For each source, appropriate section has also been identified. 1. Plant Specific Events: [Table 3-4; Appendix C (LERs)] 2. Plant Systems: [Appendix B - FMEA] 3. LOCA inside Containment [3.2.3] 4. LOCA outside Containment [3.2.3] 5. Multiple Failures [3.1.6] 6. Interview [3.1.9; Appendix E] As a result of these reviews, additional special initiating events were identified and have been modeled.

2.3 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 a Surveillance Test Interval (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.

The HNP PRA model does not use the standby failure rate approach, but the demand failure approach. In the demand failure approach, demand failure probabilities were evaluated by Bayesian update using plant specific failure data (total number of demands and total number of failures) and generic data. Therefore, there is no specific assumption utilized in the HNP PRA model for standby failure rate.

For evaluating the impact of a STI change for 5B application, the following assumption will be used:

$Qd = \frac{1}{2} \lambda T$

Where Qd: Demand failure probability,
λ: Standby failure rate, and
T: a STI

Therefore, if a STI increased from T0 to T1 by a surveillance frequency change, the demand failure probability will be assumed to increase from Qd to Qd*(T1/T0).

It is also noted that key assumptions may differ based on the system being considered for a STI change. Therefore, for each application of the PRA model, assumptions will be reviewed, key assumptions for a particular application will be identified, and impact of these key assumptions on the risk insights will be assessed.

3.0 External Event Considerations

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

External hazards were evaluated in the HNP Individual Plant Examination of External Events (IPEEE) submitted in response to the NRC IPEEE program (Generic Letter 88-20, Supplement 4) (Reference 4). 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 HNP IPEEE study are documented in the HNP IPEEE main report. The primary areas of external event evaluation at HNP were internal fire and seismic.

The internal fire events were addressed by a scenario-based PRA approach that meets the requirements of NUREG-1407 (Reference 5) to systematically and successively evaluate fire and smoke hazards and their associated risk impact to HNP. The IPEEE Fire PRA study provided estimates of CDF and LERF. However, the original IPEEE Fire PRA has not been updated. Currently, a state-of-the-art HNP Fire PRA model, which will meet all Capability Category II (CC-II) requirements in the ASME PRA standard, is being developed. When, and if, the IPEEE Fire PRA model is used, consistent with NEI-04-10, the fire risk insights will be complemented by conservative qualitative potential impact of the fire hazard.

In the HNP IPEEE, the seismic risk evaluation was performed in accordance with EPRI Seismic Margins Analysis (SMA) methodology. Since the SMA approach was used, there are no comprehensive CDF and LERF values available from the seismic analysis in the HNP IPEEE to support the STI risk evaluations. A conclusion from the SMA was that HNP has a high-confidence-low-probability-of-failure (HCLPF) capacity of at least 0.3 pga.

In addition to internal fires and seismic events, the HNP IPEEE analysis of high winds, floods, and other external hazards was accomplished by using a progressive screening approach described in NUREG-1407. The HNP IPEEE concluded that in all reviewed areas no potential vulnerabilities were identified.

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, for fire risk assessment, until a new HNP fire PRA model which meets all CC-II requirements in the ASME PRA standard is built, the impacts on fire risk of an STI change will be assessed using a qualitative or a bounding approach supplemented with insights from IPEEE fire PRA and from the HNP internal events PRA model. In performing the assessment for the other external events, a qualitative or a bounding approach will also be utilized in most cases.

4.0 General Conclusion Regarding PRA Capability

The HNP PRA maintenance and update processes and technical capability evaluations described above provide a robust basis for concluding that the PRA is suitable for use in risk-informed licensing actions. As specific risk-informed PRA applications are performed, remaining gaps to specific requirements in the PRA standard will be reviewed to determine application specific additional analysis, i.e., sensitivity studies, which may be required on an as needed basis.

5.0 References

1. "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications, ASME RA-S-2002, April 2002 and Addenda to Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications,"ASME RA-Sa-2003, American Society of Mechanical Engineers 2003.
2. "An Approach for Determining Technical Adequacy of PRA Results for Risk-Informed Activities," Regulatory Guide 1.200 Revision 2, USNRC, January 2007.
3. "Addenda to ASME RA-S-2002 Standard for PRA for Nuclear power Plant Applications, "RA-SB-2005, American Society of Mechanical Engineers, New York, NY, December 2005.
4. "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities - 10 CFR 50.54(f), Supplement 4," NRC Generic Letter 88-20, June 1991
5. "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," NUREG-1407, US NRC, June 1991.

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 3

Markup for HNP Unit 1 Proposed TS Changes

Insert 1

In accordance with the Surveillance Frequency Control Program

Insert 2

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program

Insert 3

5.5.13 Surveillance Frequency Control Program

This program provides controls for the 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 the NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

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

1.0 USE AND APPLICATION

1.1 Definitions

---NOTE---
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
~~ALTERNATE TEST BASIS~~	~~An ALTERNATE TEST BASIS shall consist of the testing of 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 two consecutive Surveillance Frequency intervals according to the partial testing formula that follows, where n is the total number of systems, subsystems, channels, or other designated components in the associated function. If the total number of systems, subsystems, channels, or other designated components is even, then $n/2$ are tested during each interval specified by the Surveillance Frequency. If the total number of systems, subsystems, channels, or other designated components is odd, then either $(n+1)/2$ or $(n-1)/2$ are tested during the first test interval at the specified Surveillance Frequency. The systems, subsystems, channels, or other designated components not tested during the first interval are tested during the next interval.~~
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.

(continued)

1.1 Definitions (continued)

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 consists of two components: a. The time from initial movement of the main turbine stop valve or control valve until 80% of the turbine bypass capacity is established; and b. The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve. 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.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, C, or D not met. OR Nine or more control rods inoperable.	E.1 Be in MODE 3. Insert 1	12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	~~24 hours~~
SR 3.1.3.2	------------------------------NOTE------------------------------ Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. -- Insert each fully withdrawn control rod at least one notch.	~~7 days~~
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 partially withdrawn control rod at least one notch.	~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTE-----------------------------------
During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE		FREQUENCY
SR 3.1.4.1 Insert 1	Verify each 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 reactor pressure vessel AND Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	~~200 days cumulative operation in MODE 1~~
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 work on control rod or CRD System that could affect scram time

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is ≥ 940 psig.	~~7 days~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify all OPERABLE control rods comply with BPWS.	~~24 hours~~

Insert 1

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the Region A limits of Figure 3.1.7-1.	~~24 hours~~
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the Region A limits of Figure 3.1.7-2.	~~24 hours~~
SR 3.1.7.3	Verify temperature of pump suction piping is within the Region A limits of Figure 3.1.7-2.	~~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 Region A limits of Figure 3.1.7-1. Insert 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 Region A limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC 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~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 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 pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 60.0 atom percent B-10.	Prior to addition to SLC tank

Insert 1

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~~
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	~~92 days~~
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 45 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	~~24 months~~

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

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

APPLICABILITY: THERMAL POWER ≥ 24% 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 < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1 Insert 1	Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after ≥ 24% RTP AND ~~24 hours thereafter~~

3.2 POWER DISTRIBUTION LIMITS

3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

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

APPLICABILITY: THERMAL POWER ≥ 24% 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 < 24% 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. Insert 1	Once within 12 hours after ≥ 24% RTP AND ~~24 hours thereafter~~

(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 ≥ 24% 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 < 24% 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. Insert 1	Once within 12 hours after ≥ 24% RTP AND ~~24 hours thereafter~~

---

*This Specification is effective starting from Hatch 1/Cycle 22.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1	Initiate alternate method to detect and suppress thermal-hydraulic instability oscillations.	12 hours
	AND		
	I.2	Restore required channels to OPERABLE.	120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1	Be in MODE 2.	4 hours

Insert 1

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 ≥ 24% RTP. ------------------------------------ Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP while operating at ≥ 24% RTP.	~~7 days~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.3	(Not used.)	
SR 3.3.1.1.4	-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	~~7 days~~
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	~~7 days~~
SR 3.3.1.1.6	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
SR 3.3.1.1.7	-----NOTE----- Only required to be met during entry into MODE 2 from MODE 1. ---------- Verify the IRM and APRM channels overlap.	~~7 days~~
SR 3.3.1.1.8	Calibrate the local power range monitors.	~~1000 effective full power hours~~
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.1.1.10	-----NOTE----- For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	~~184 days~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.11	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	~~24 months~~
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	~~24 months~~
SR 3.3.1.1.13	---------------------------NOTES--------------------------- 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~
SR 3.3.1.1.16	----------------------------NOTE---------------------------- Neutron detectors are excluded. --- Verify the RPS RESPONSE TIME is within limits.	~~24 months on a STAGGERED TEST BASIS~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	~~24 months~~

Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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(s) is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	~~12 hours~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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~~
SR 3.3.1.2.4	-------------------------NOTES------------------------- 1. 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. 2. Not required to be met during spiral unloading. --- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	~~12 hours during CORE ALTERATIONS~~ ~~AND~~ ~~24 hours~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.5	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~~
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.	~~24 months~~

Insert 1

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.	~~184 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 on an ALTERNATE TEST BASIS~~
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 on an ALTERNATE TEST BASIS~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.4	---NOTE--- Neutron detectors are excluded. ------ Verify the RBM: a. Low Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	~~24 months~~
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	~~24 months~~
SR 3.3.2.1.6	---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 3.3.2.1.7	---NOTE--- Neutron detectors are excluded. ------ Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 56.5 inches.	~~24 months~~
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	~~24 months~~

Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. These SRs apply to each Function in Table 3.3.3.1-1.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel(s) 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.	~~24 months~~

SURVEILLANCE REQUIREMENTS

---NOTE---

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

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

Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. AND MCPR limit for inoperable EOC-RPT not made applicable.	B.1 Restore EOC-RPT trip capability. OR B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours 2 hours
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump from service. OR C.2 Reduce THERMAL POWER to < 27.6% RTP.	4 hours 4 hours

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.4.1.2	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV - Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure - Low: ≥ 600 psig.	~~24 months~~
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	~~24 months~~
SR 3.3.4.1.5	-------------------------NOTE------------------------- Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. -- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	~~24 months on a STAGGERED TEST BASIS~~
SR 3.3.4.1.6	Determine RPT breaker interruption time.	~~60 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service.	6 hours
	OR	
	D.2 Be in MODE 2.	6 hours

Insert 1

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	~~24 months~~
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	~~24 months~~

Insert 1

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 and 3.f; and (b) for up to 6 hours for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains 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 on an ALTERNATE TEST BASIS~~
SR 3.3.5.1.3	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.5.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.5.2.3	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.5.2.4	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.5.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

Insert 1

ACTIONS (continued)

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

Insert 1

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 on an ALTERNATE TEST BASIS~~
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	~~92 days on an ALTERNATE TEST BASIS~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	~~184 days~~
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Place the associated standby gas treatment (SGT) subsystem(s) in operation.	1 hour
	<u>OR</u>	
	C.2.2 Declare associated SGT subsystem(s) inoperable.	1 hour

Insert 1

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 on an ALTERNATE TEST BASIS~~
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Two or more LLS valves with initiation capability not maintained.	D.1 Declare the associated LLS valve(s) inoperable.	Immediately

Insert 1

SURVEILLANCE REQUIREMENTS

-NOTES-

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each 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 LLS initiation capability is maintained.

	SURVEILLANCE	FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.	~~92 days on an ALTERNATE TEST BASIS~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.3	----------------------------NOTE---------------------------- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. --- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	~~24 months~~
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When a Control Room Air Inlet Radiation - High 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 channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	~~24 hours~~
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~31 days~~
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	~~92 days on an ALTERNATE TEST BASIS~~
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

---NOTES---

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

2. When a 4.16 kV Emergency Bus Undervoltage 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 initiation capability (for Functions 1 and 2) and annunciation capability (for Function 3).

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CHECK.	~~12 hours~~
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~31 days~~
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	~~18 months~~
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

---NOTE---

When an RPS electric power monitoring assembly is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the other RPS electric power monitoring assembly for the associated power supply maintains trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-------------------------------NOTE---------------------------- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. --- Perform CHANNEL FUNCTIONAL TEST.	~~184 days~~
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	~~184 days~~
SR 3.3.8.2.3	Perform a system functional test.	~~184 days~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> No recirculation loops in operation.	B.1 Be in MODE 3.	12 hours

Insert 1

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 recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.	~~24 hours~~
SR 3.4.1.2	(Not used.)	

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, b, or c) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns. c. Each jet pump flow differs by ≤ 10% from established patterns.	~~24 hours~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	~~12 hours~~

Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. All required leakage detection systems inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of required primary containment atmospheric monitoring system.	~~12 hours~~
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	~~31 days~~
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	~~24 months~~

Insert 1

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.	~~7 days~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	-----------------------------NOTE----------------------------- Not required to be met until 2 hours after reactor steam dome pressure is less than the RHR low pressure permissive pressure. --- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	~~12 hours~~

Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulation 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.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	~~12 hours~~

Insert 1

Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.9.1	Verify: a. RCS pressure and RCS temperature are within the limits specified in Figures 3.4.9-1 and 3.4.9-2 during RCS inservice leak and hydrostatic testing, and during RCS non-nuclear heatup and cooldown operations; and b. RCS heatup and cooldown rates are ≤ 100°F in any 1 hour period during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing.	~~30 minutes~~
SR 3.4.9.2	----------------------------NOTE---------------------------- Only required to be met when the reactor is critical and immediately prior to control rod withdrawal for the purpose of achieving criticality. --- Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.9-3.	Once within 15 minutes prior to initial control rod withdrawal for the purpose of achieving criticality
SR 3.4.9.3	----------------------------NOTE---------------------------- Only required to be met in MODES 1, 2, 3, and 4 during startup of a recirculation pump. --- 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 starting an idle recirculation pump

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.9.4	------------------------------NOTE------------------------------ Only required to be met in MODES 1, 2, 3, and 4 during startup of a recirculation pump. -- 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 starting an idle recirculation pump
SR 3.4.9.5	------------------------------NOTE------------------------------ Only required to be met when tensioning/ detensioning the reactor vessel head bolting studs. -- Verify reactor vessel flange and head flange temperatures are ≥ 76°F.	Once within 30 minutes prior to tensioning/ detensioning the reactor vessel head bolting studs and ~~every 30 minutes thereafter~~
SR 3.4.9.6 Insert 1	------------------------------NOTE------------------------------ Only required to be met when the reactor vessel head is tensioned. -- Verify reactor vessel flange and head flange temperatures are ≥ 76°F.	Once within 12 hours after RCS temperature is ≤ 106°F in MODE 4, and ~~12 hours thereafter~~ <u>AND</u> Once within 30 minutes after RCS temperature is ≤ 86°F in MODE 4, and ~~30 minutes thereafter~~

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Reactor Steam Dome Pressure

LCO 3.4.10 The reactor steam dome pressure shall be ≤ 1058 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 ≤ 1058 psig.	~~12 hours~~

Insert 1

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	~~31 days~~
SR 3.5.1.2	-------------------------NOTE------------------------- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) low pressure permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. --	
	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~
SR 3.5.1.3	Verify ADS air supply header pressure is ≥ 90 psig.	~~31 days~~
SR 3.5.1.4	Verify the RHR System cross tie valve is closed and power is removed from the valve operator.	~~31 days~~
SR 3.5.1.5	(Not used.)	
SR 3.5.1.6	-------------------------NOTE------------------------- Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 > 48 hours. --	
	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	~~31 days~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.1.7</td><td>Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 17,000 gpm</td><td>2</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.1.8</td><td>-----NOTE-----
Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.

Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor pressure.</td><td>~~92 days~~</td></tr>
<tr><td>SR 3.5.1.9</td><td>-----NOTE-----
Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.

Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor system pressure.</td><td>~~24 months~~</td></tr>
<tr><td>SR 3.5.1.10</td><td>-----NOTE-----
Vessel injection/spray may be excluded.

Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>~~24 months~~</td></tr>
</table>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.11	---------------------------NOTE---------------------------- Valve actuation may be excluded. -- Verify the ADS actuates on an actual or simulated automatic initiation signal.	~~24 months~~
SR 3.5.1.12	Verify each ADS valve relief mode actuator strokes when manually actuated.	~~24 months~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	D.2	Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	AND		
Insert 1	D.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 146 inches.	~~12 hours~~
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, the: a. Suppression pool water level is ≥ 146 inches; or b. ------------------------NOTE------------------------ Only one required CS subsystem may take credit for this option during OPDRVs. --- Condensate storage tank water level is ≥ 13 ft.	~~12 hours~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.2.3</td><td>Verify, for each required ECCS injection/ spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.</td><td>~~31 days~~</td></tr>
<tr><td>SR 3.5.2.4</td><td>-----------------------------NOTE-----------------------------
One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</td><td>~~31 days~~</td></tr>
<tr><td>SR 3.5.2.5</td><td>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.2.6</td><td>-----------------------------NOTE-----------------------------
Vessel injection/spray may be excluded.

Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>~~24 months~~</td></tr>
</table>

Insert 1

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	~~31 days~~
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~
SR 3.5.3.3	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	~~92 days~~
SR 3.5.3.4	------------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	~~24 months~~
SR 3.5.3.5	------------------------------NOTE------------------------------ Vessel injection may be excluded. --- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	~~24 months~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	~~24 months~~ AND ---------NOTE-------- Only required after two consecutive tests fail and continues until two consecutive tests pass -------------------------- 9 months

Insert 1

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	-----NOTE----- Only required to be performed upon entry or exit through the primary containment air lock when the primary containment is de-inerted. ---------- Verify only one door in the primary containment air lock can be opened at a time.	~~184 days~~

Insert 1

ACTIONS (continued)

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.	Immediately
	<u>OR</u>		
	F.2	------------NOTE----------- Only applicable for inoperable RHR shutdown cooling valves. ------------------------------ 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 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. -- Verify each 18 inch primary containment purge valve is closed.	~~31 days~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	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 is required to be closed during accident conditions is closed.	~~31 days~~
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 is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	~~31 days~~
SR 3.6.1.3.5	Verify the isolation time of each power operated and each automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program

Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	~~24 months~~
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV (of a representative sample) actuates to restrict flow to within limits.	~~24 months~~
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP system.	~~24 months on a STAGGERED TEST BASIS~~
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 11.5 scfh when tested at ≥ 28.0 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Deleted	
SR 3.6.1.3.12	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	~~24 months~~

Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be ≤ 1.75 psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify drywell pressure is within limit.	~~12 hours~~

Insert 1

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~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	Verify each LLS valve relief mode actuator strokes when manually actuated.	~~24 months~~
SR 3.6.1.6.2	----------NOTE---------- Valve actuation may be excluded. -------------------- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	~~24 months~~

Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	-----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.	In accordance with the Inservice Testing Program
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	------------------------------NOTE------------------------------ Not required to be met for vacuum breakers that are open during Surveillances. --- Verify each vacuum breaker is closed.	~~14 days~~
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	~~31 days~~ AND Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	~~24 months~~

Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	~~24 hours~~ <u>AND</u> 5 minutes when performing testing that adds heat to the suppression pool

Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 146 inches and ≤ 150 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. AND 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~~

Insert 1

Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	~~31 days~~

(continued)

Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray

LCO 3.6.2.4 Two RHR suppression pool spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR suppression pool spray subsystem inoperable.	A.1	Restore RHR suppression pool spray subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool spray subsystems inoperable.	B.1	Restore one RHR suppression pool spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR suppression pool spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.2	Verify each suppression pool spray nozzle is unobstructed.	~~10 years~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1.1	Verify ≥ 2000 gal of liquid nitrogen are contained in each N_2 storage tank.	~~31 days~~
SR 3.6.3.1.2	Verify each CAD subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	~~31 days~~

Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.2.1	Verify primary containment oxygen concentration is within limits.	~~7 days~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	~~31 days~~
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	-----------------------------NOTE----------------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	~~24 months on a STAGGERED TEST BASIS~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.4.1.4	---------------------------NOTE--------------------------- The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --- Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	~~24 months on a STAGGERED TEST BASIS~~

Insert 1

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 required to be closed during accident conditions is closed.	~~31 days~~
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	~~92 days~~
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	~~24 months~~

Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 15 continuous minutes.	~~31 days~~
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each required SGT subsystem actuates on an actual or simulated initiation signal.	~~24 months~~

Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	~~31 days~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in each PSW pump well of the intake structure is ≥ 60.7 ft mean sea level (MSL).	~~14 days~~ AND 12 hours when water level is ≤ 61.7 ft MSL
SR 3.7.2.2	---------------------------NOTE--------------------------- Isolation of flow to individual components or systems does not render PSW System inoperable. -- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW 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 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	~~24 months~~

Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------------NOTE------------------ LCO 3.0.3 is not applicable. --	
	F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	F.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	~~31 days~~
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	~~24 months on a STAGGERED TEST BASIS~~

Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	~~24 months~~

Insert 1

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 ≤ 240 mCi/second.	~~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

Insert 1

Insert 1

3.7 PLANT SYSTEMS

3.7.7 Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

OR

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

APPLICABILITY: THERMAL POWER ≥ 24% 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 < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify one complete cycle of each main turbine bypass valve.	~~31 days~~
SR 3.7.7.2	Perform a system functional test.	~~24 months~~
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	~~24 months~~

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 ≥ 21 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.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify the spent fuel storage pool water level is ≥ 21 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	~~7 days~~

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----

SR 3.8.1.1 through SR 3.8.1.18 are applicable only to the Unit 1 AC sources. SR 3.8.1.19 is applicable only to the Unit 2 AC sources.

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	~~7 days~~
SR 3.8.1.2	-----NOTES----- 1. Performance of SR 3.8.1.5 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. 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 3.8.1.5.a must be met. 4. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F for one periodic test, and the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F during the next periodic test. 5. DG loadings may include gradual loading as recommended by the manufacturer.	

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.2 (continued)	---------------------------NOTES--------------------------- 6. Starting transients above the upper voltage limit do not invalidate this test. 7. Momentary transients outside the load range do not invalidate this test. 8. This Surveillance shall be conducted on only one DG at a time. -- Verify each DG: a. Starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 1710 kW and ≤ 2000 kW.	~~31 days~~
SR 3.8.1.3	Verify each day tank contains ≥ 500 gallons of fuel oil.	~~31 days~~
SR 3.8.1.4	Check for and remove accumulated water from each day tank.	~~184 days~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. DG loadings may include gradual loading as recommended by the manufacturer. 3. Momentary load transients outside the load range do not invalidate this test. 4. This Surveillance shall be conducted on only one DG at a time. 5. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F for one periodic test and the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F during the next periodic test. ---	
	Verify each DG: a. Starts from standby conditions and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 2250 kW and ≤ 2400 kW for DGs 1A and 1C, and ≥ 2360 kW and ≤ 2425 kW for DG 1B.	~~184 days~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.6	---NOTE--- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	~~24 months~~
SR 3.8.1.7	---NOTES--- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this 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 ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	---------------------------NOTES--------------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 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. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.9	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --	

	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 ≤ 12 seconds,
	  2. Energizes auto-connected shutdown loads through automatic load sequence timing devices,
	  3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V,
	  4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and
	  5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.
		~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.10	-----NOTES----- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.11	-------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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; b. Generator differential current; and c. Low lube oil pressure.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------------NOTES------------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. -- Verify each DG operating at a power factor ≤ 0.88 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 3000 kW; and b. For the remaining hours of the test loaded ≥ 2775 kW and ≤ 2825 kW.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.13	-----------------------------NOTES----------------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	~~24 months~~
SR 3.8.1.14	-----------------------------NOTE----------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	---------------------------NOTE--------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	~~24 months~~
SR 3.8.1.16	---------------------------NOTE--------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.17	---NOTES--- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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 ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.18	------------NOTE------------ All DG starts may be preceded by an engine prelube period. ------------------------------ Verify, when started simultaneously from standby condition, the Unit 1 DGs and the swing DG achieve, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz.	~~10 years~~
SR 3.8.1.19	For required Unit 2 AC Sources, the SRs of Unit 2 Technical Specifications are applicable, except SR 3.8.1.6, SR 3.8.1.10, SR 3.8.1.15, and SR 3.8.1.17.	In accordance with applicable SRs

Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	Verify each Unit 1 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	~~31 days~~
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	~~31 days~~
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 1 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	~~31 days~~
SR 3.8.3.5	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	~~31 days~~
SR 3.8.3.6	Check for and remove accumulated water from each Unit 1 and swing DG fuel oil storage tank.	~~184 days~~
SR 3.8.3.7	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	~~24 months~~

Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----
SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 1 DC sources. SR 3.8.4.9 is applicable only to the Unit 2 DC sources.

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	~~7 days~~
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is within limits.	~~92 days~~
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	~~24 months~~
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	~~24 months~~
SR 3.8.4.5	Verify battery connection resistance is within limits.	~~24 months~~
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.7	-----------------------------NOTES----------------------------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	~~24 months~~

(continued)

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.8	---------------------------NOTE--------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test. Insert 1	~~60 months~~ AND 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of expected life with capacity ≥ 100% of manufacturer's rating
SR 3.8.4.9	For required Unit 2 DC sources, the SRs of Unit 2 Specification 3.8.4 are applicable.	In accordance with applicable SRs

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	~~7 days~~
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	~~92 days~~ <u>AND</u> Once within 24 hours after battery overcharge > 150 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each station service battery, and ≥ 40°F for each DG battery.	~~92 days~~

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~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC and DC electrical power distribution subsystem(s) 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~~

Insert 1

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 full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	~~7 days~~

Insert 1

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	
Insert 1	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~~
SR 3.9.2.2	-----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn. ---------- Perform CHANNEL FUNCTIONAL TEST.	~~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~~

Insert 1

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~~

Insert 1

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.	~~24 hours~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	AND	
	B.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND	
	C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is operating.	~~12 hours~~

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter
	<u>AND</u>		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	~~12 hours~~

Insert 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	~~12 hours~~
SR 3.10.2.2	Verify no CORE ALTERATIONS are in progress.	~~24 hours~~

Insert 1

SURVEILLANCE REQUIREMENTS

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

Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued) Insert 1	B.2.1	Initiate action to fully insert all control rods.	Immediately
	<u>OR</u>		
	B.2.2	Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	-----NOTE----- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. ---------- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	~~24 hours~~
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	~~24 hours~~
SR 3.10.4.4	-----NOTE----- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. ---------- Verify a control rod withdrawal block is inserted.	~~24 hours~~

SURVEILLANCE REQUIREMENTS

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

Insert 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.3	---NOTE--- Not required to be met if SR 3.10.8.2 satisfied. ------ Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	~~12 hours~~
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to full-out position AND Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure ≥ 940 psig.	~~7 days~~

Insert 1

5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

Insert 3

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 4

Markup for HNP Unit 2 Proposed TS Changes

Insert 1

In accordance with the Surveillance Frequency Control Program

Insert 2

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program

Insert 3

5.5.13 Surveillance Frequency Control Program

This program provides controls for the 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 the NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

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

1.0 USE AND APPLICATION

1.1 Definitions

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

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ALTERNATE TEST BASIS	~~An ALTERNATE TEST BASIS shall consist of the testing of 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 two consecutive Surveillance Frequency intervals according to the partial testing formula that follows, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function. If the total number of systems, subsystems, channels, or other designated components is even, then *n*/2 are tested during each interval specified by the Surveillance Frequency. If the total number of systems, subsystems, channels, or other designated components is odd, then either (*n*+1)/2 or (*n*-1)/2 are tested during the first test interval at the specified Surveillance Frequency. The systems, subsystems, channels, or other designated components not tested during the first interval are tested during the next interval.~~
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.

(continued)

1.1 Definitions (continued)

PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter 14, Initial Tests and Operation, of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2804 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. 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.

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, C, or D not met. <u>OR</u> Nine or more control rods inoperable.	E.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	~~24 hours~~ ← Insert 1
SR 3.1.3.2	-------------------------NOTE------------------------- Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. --- Insert each fully withdrawn control rod at least one notch.	← Insert 1 ~~7 days~~
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 partially withdrawn control rod at least one notch.	← Insert 1 ~~31 days~~

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTE-----
During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify each 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 reactor pressure vessel <u>AND</u> Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	~~200 days cumulative operation in MODE 1~~ ← Insert 1
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 work on control rod or CRD System that could affect scram time

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is ≥ 940 psig.	~~7 days~~ ← Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify all OPERABLE control rods comply with BPWS.	~~24 hours~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the Region A limits of Figure 3.1.7-1.	~~24 hours~~ ← Insert 1
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the Region A limits of Figure 3.1.7-2.	~~24 hours~~ ← Insert 1
SR 3.1.7.3	Verify temperature of pump suction piping is within the Region A limits of Figure 3.1.7-2.	~~24 hours~~ ← Insert 1
SR 3.1.7.4	Verify continuity of explosive charge.	~~31 days~~ ← Insert 1
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the Region A limits of Figure 3.1.7-1.	~~31 days~~ <u>AND</u> Once within 24 hours after water or sodium pentaborate is added to solution <u>AND</u> Once within 24 hours after solution temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC 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~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 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~~	Insert 1
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	~~24 months~~ <u>AND</u> Once within 24 hours after pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2	Insert 1
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 60.0 atom percent B-10.	Prior to addition to SLC tank	

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~~ ← Insert 1
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	~~92 days~~ ← Insert 1
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 60 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	~~24 months~~ ← Insert 1

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 ≥ 24% 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 < 24% 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 ≥ 24% RTP AND ~~24 hours thereafter~~ Insert 1

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 ≥ 24% 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 < 24% 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 ≥ 24% RTP AND ~~24 hours thereafter~~ Insert 1

(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 ≥ 24% 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 < 24% 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 ≥ 24% RTP <u>AND</u> ~~24 hours thereafter~~ ← Insert 1

*This Specification is effective starting from Hatch 2/Cycle 19.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate alternate method to detect and suppress thermal-hydraulic instability oscillations.	12 hours
	AND	
	I.2 Restore required channels to OPERABLE.	120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1 Be in MODE 2.	4 hours

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~~ ← Insert 1
SR 3.3.1.1.2	-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER ≥ 24% RTP. ----- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP while operating at ≥ 24% RTP.	~~7 days~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.3	(Not used.)	
SR 3.3.1.1.4	---NOTE--- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	~~7 days~~ Insert 1
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	~~7 days~~ Insert 1
SR 3.3.1.1.6	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
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~~ Insert 1
SR 3.3.1.1.8	Calibrate the local power range monitors.	~~1000 effective full power hours~~ Insert 1
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ Insert 1
SR 3.3.1.1.10	---NOTE--- For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	~~184 days~~ Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.11	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	~~24 months~~ ← Insert 1
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	~~24 months~~ ← Insert 1
SR 3.3.1.1.13	--------------------------NOTES-------------------------- 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -- Perform CHANNEL CALIBRATION.	~~24 months~~ ← Insert 1
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ← Insert 1
SR 3.3.1.1.16	--------------------------NOTES-------------------------- 1. Neutron detectors are excluded. 2. (Not used.) 3. 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~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	~~24 months~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1	Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>		
	E.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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(s) is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL CHECK.	~~12 hours~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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~~ ← Insert 1
SR 3.3.1.2.3	Perform CHANNEL CHECK.	~~24 hours~~ ← Insert 1
SR 3.3.1.2.4	-----NOTES----- 1. 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. 2. Not required to be met during spiral unloading. ---------- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	~~12 hours during CORE ALTERATIONS~~ ← Insert 1 AND ~~24 hours~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	~~7 days~~ ← Insert 1
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~~ ← Insert 1
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.	~~24 months~~ ← Insert 1

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.	~~184 days~~ ← Insert 1
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 on an ALTERNATE TEST BASIS~~ ← Insert 1
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 on an ALTERNATE TEST BASIS~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.4	----------NOTE---------- Neutron detectors are excluded. ------------------------------ Verify the RBM: a. Low Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	~~24 months~~ ← Insert 1
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	~~24 months~~ ← Insert 1
SR 3.3.2.1.6	----------NOTE---------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. ------------------------------ Perform CHANNEL FUNCTIONAL TEST.	~~24 months~~ ← Insert 1
SR 3.3.2.1.7	----------NOTE---------- Neutron detectors are excluded. ------------------------------ Perform CHANNEL CALIBRATION.	~~24 months~~ ← Insert 1
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ Insert 1
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 55.5 inches.	~~24 months~~ Insert 1
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	~~24 months~~ Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. These SRs apply to each Function in Table 3.3.3.1-1.

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	~~31 days~~ ← Insert 1
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	~~31 days~~ ← Insert 1
SR 3.3.3.2.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	~~24 months~~ ← Insert 1
SR 3.3.3.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	~~24 months~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. AND MCPR limit for inoperable EOC-RPT not made applicable.	B.1 Restore EOC-RPT trip capability.	2 hours
	OR	
	B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump from service.	4 hours
	OR	
	C.2 Reduce THERMAL POWER to < 27.6% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1
SR 3.3.4.1.2	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV - Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure - Low: ≥ 600 psig.	~~24 months~~ ← Insert 1
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	~~24 months~~ ← Insert 1
SR 3.3.4.1.5	-------------------------NOTE------------------------- Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. -- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	~~24 months on a STAGGERED TEST BASIS~~ ← Insert 1
SR 3.3.4.1.6	Determine RPT breaker interruption time.	~~60 months~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service.	6 hours
	<u>OR</u>	
	D.2 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK.	~~12 hours~~ ← Insert 1
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	~~24 months~~ ← Insert 1
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	~~24 months~~ ← Insert 1

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

	SURVEILLANCE	FREQUENCY	
SR 3.3.5.1.1	Perform CHANNEL CHECK.	~~12 hours~~ ←	Insert 1
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ←	Insert 1
SR 3.3.5.1.3	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ←	Insert 1
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	~~24 months~~ ←	Insert 1
SR 3.3.5.1.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ←	Insert 1

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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

SURVEILLANCE		FREQUENCY	
SR 3.3.5.2.1	Perform CHANNEL CHECK.	~~12 hours~~	Insert 1
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~	Insert 1
SR 3.3.5.2.3	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~	Insert 1
SR 3.3.5.2.4	Perform CHANNEL CALIBRATION.	~~24 months~~	Insert 1
SR 3.3.5.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~	Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY	
SR 3.3.6.1.1	Perform CHANNEL CHECK.	~~12 hours~~ ←	Insert 1
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ←	Insert 1
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	~~92 days on an ALTERNATE TEST BASIS~~ ←	Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	~~184 days~~ ← Insert 1
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	~~24 months~~ ← Insert 1
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ← Insert 1
SR 3.3.6.1.7	--------------------------NOTE------------------------------ Channel sensors are excluded. --- Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	~~24 months on a STAGGERED TEST BASIS~~ ← Insert 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

---NOTES---

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	~~12 hours~~ ← Insert 1
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	~~24 months~~ ← Insert 1
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Two or more LLS valves with initiation capability not maintained.	D.1 Declare the associated LLS valve(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

NOTES

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each 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 LLS initiation capability is maintained.

	SURVEILLANCE	FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CHECK.	~~12 hours~~ ← Insert 1
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.3	------------------------------NOTE------------------------------ Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. --- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	~~24 months~~ ← Insert 1
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

-----NOTE-----

When a Control Room Air Inlet Radiation - High 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 channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	~~24 hours~~ ← Insert 1
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~31 days~~ ← Insert 1
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	~~92 days on an ALTERNATE TEST BASIS~~ ← Insert 1
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

NOTES

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

2. When a 4.16 kV Emergency Bus Undervoltage 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 initiation capability (for Functions 1 and 2) and annunciation capability (for Function 3).

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CHECK.	~~12 hours~~ ← Insert 1
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	~~31 days~~ ← Insert 1
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	~~18 months~~ ← Insert 1
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

--NOTE--

When an RPS electric power monitoring assembly is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the other RPS electric power monitoring assembly for the associated power supply maintains trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	----------------NOTE---------------- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ------------------------------------ Perform CHANNEL FUNCTIONAL TEST.	~~184 days~~ ← Insert 1
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	~~184 days~~ ← Insert 1
SR 3.3.8.2.3	Perform a system functional test.	~~184 days~~ ← Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> No recirculation loops in operation.	B.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 recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.	~~24 hours~~ ← Insert 1
SR 3.4.1.2	(Not used.)	

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, b, or c) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns. c. Each jet pump flow differs by ≤ 10% from established patterns.	~~24 hours~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	Verify RCS unidentified and total LEAKAGE and unidentified LEAKAGE increase are within limits.	~~12 hours~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. All required leakage detection systems inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

NOTE

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

	SURVEILLANCE	FREQUENCY
SR 3.4.5.1	Perform a CHANNEL CHECK of required primary containment atmospheric monitoring system.	~~12 hours~~ ← Insert 1
SR 3.4.5.2	Perform a CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	~~31 days~~ ← Insert 1
SR 3.4.5.3	Perform a CHANNEL CALIBRATION of required leakage detection instrumentation.	~~24 months~~ ← Insert 1

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.	~~7 days~~ ◁── Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.7.1	------------------------------NOTE------------------------------ Not required to be met until 2 hours after reactor steam dome pressure is less than the RHR low pressure permissive pressure. -- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	~~12 hours~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulation 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.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	~~12 hours~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.9.1	Verify: a. RCS pressure and RCS temperature are within the limits specified in Figures 3.4.9-1 and 3.4.9-2 during RCS inservice leak and hydrostatic testing, and during RCS non-nuclear heatup and cooldown operations; and b. RCS heatup and cooldown rates are ≤ 100°F in any 1 hour period during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing.	~~30 minutes~~ ← Insert 1
SR 3.4.9.2	---------------------------NOTE--------------------------- Only required to be met when the reactor is critical and immediately prior to control rod withdrawal for the purpose of achieving criticality. --- Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.9-3.	Once within 15 minutes prior to initial control rod withdrawal for the purpose of achieving criticality
SR 3.4.9.3	---------------------------NOTE--------------------------- Only required to be met in MODES 1, 2, 3, and 4 during startup of a recirculation pump. --- 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 starting an idle recirculation pump

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Reactor Steam Dome Pressure

LCO 3.4.10 The reactor steam dome pressure shall be ≤ 1058 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 ≤ 1058 psig.	~~12 hours~~ ← Insert 1

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~~ ← Insert 1
SR 3.5.1.2	-----NOTE----- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) low pressure permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. ---------- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ ← Insert 1
SR 3.5.1.3	Verify ADS air supply header pressure is ≥ 90 psig.	~~31 days~~ ← Insert 1
SR 3.5.1.4	Verify the RHR System cross tie valve is closed and power is removed from the valve operator.	~~31 days~~ ← Insert 1
SR 3.5.1.5	(Not used.)	
SR 3.5.1.6	-----NOTE----- Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 > 48 hours. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	~~31 days~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th><th></th></tr>
<tr><td>SR 3.5.1.7</td><td>Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 17,000 gpm</td><td>2</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td><td></td></tr>
<tr><td>SR 3.5.1.8</td><td>--------------------------NOTE--------------------------
Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.

Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor pressure.</td><td>~~92 days~~ ←</td><td>Insert 1</td></tr>
<tr><td>SR 3.5.1.9</td><td>--------------------------NOTE--------------------------
Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.

Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor system pressure.</td><td>~~24 months~~ ←</td><td>Insert 1</td></tr>
<tr><td>SR 3.5.1.10</td><td>--------------------------NOTE--------------------------
Vessel injection/spray may be excluded.

Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>~~24 months~~ ←</td><td>Insert 1</td></tr>
</table>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.11	-------------------------NOTE------------------------- Valve actuation may be excluded. --- Verify the ADS actuates on an actual or simulated automatic initiation signal.	~~24 months~~ ← Insert 1
SR 3.5.1.12	Verify each ADS valve relief mode actuator strokes when manually actuated.	~~24 months~~ ← Insert 1
SR 3.5.1.13	-------------------------NOTE------------------------- ECCS injection/spray initiation instrumentation response time may be assumed from established limits. --- Verify each ECCS injection/spray subsystem ECCS RESPONSE TIME is within limits.	~~24 months~~ ← Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.2 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	AND	
	D.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 146 inches.	~~12 hours~~ ← Insert 1
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, the: a. Suppression pool water level is ≥ 146 inches; or b. ------------------------NOTE------------------------ Only one required CS subsystem may take credit for this option during OPDRVs. --- Condensate storage tank water level is ≥ 15 ft.	~~12 hours~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th></th><th>SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.2.3</td><td>Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.</td><td>~~31 days~~ ← Insert 1</td></tr>
<tr><td>SR 3.5.2.4</td><td>-------------------------NOTE-------------------------
One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</td><td>~~31 days~~ ← Insert 1</td></tr>
<tr><td>SR 3.5.2.5</td><td>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.2.6</td><td>-------------------------NOTE-------------------------
Vessel injection/spray may be excluded.

Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>~~24 months~~ ← Insert 1</td></tr>
</table>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	~~31 days~~ ← Insert 1
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ ← Insert 1
SR 3.5.3.3	-------------------------NOTE-------------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	~~92 days~~ ← Insert 1
SR 3.5.3.4	-------------------------NOTE-------------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	~~24 months~~ ← Insert 1
SR 3.5.3.5	-------------------------NOTE-------------------------- Vessel injection may be excluded. --- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	~~24 months~~ ← Insert 1 AND -------NOTE---------- Only required after two consecutive tests fail and continues until two consecutive tests pass ------------------------- ~~9 months~~ ← Insert 1

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	-----------------------------NOTE----------------------------- Only required to be performed upon entry or exit through the primary containment air lock when the primary containment is de-inerted. --- Verify only one door in the primary containment air lock can be opened at a time.	~~184 days~~ ← Insert 1

ACTIONS (continued)

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.	Immediately
	OR		
	F.2	-----------NOTE------------ Only applicable for inoperable RHR shutdown cooling valves. -------------------------------	
		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 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. ---	
	Verify each 18 inch primary containment purge valve is closed.	~~31 days~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

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 is required to be closed during accident conditions is closed.	~~31 days~~ ← Insert 1
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 is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	~~31 days~~ ← Insert 1
SR 3.6.1.3.5	Verify the isolation time of each power operated and each automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	~~24 months~~ ← Insert 1
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV (of a representative sample) actuates to restrict flow to within limits.	~~24 months~~ ← Insert 1
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~~ ← Insert 1
SR 3.6.1.3.10	Verify the combined leakage rate for all secondary containment bypass leakage paths is $\leq 0.009\ L_a$ when pressurized to $\geq P_a$.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify leakage rate through each MSIV is $\leq$ 100 scfh, and a combined maximum pathway leakage $\leq$ 250 scfh for all four main steam lines, when tested at $\geq$ 28.8 psig. However, the leakage rate acceptance criteria for the first test following discovery of leakage through an MSIV not meeting the 100 scfh limit, shall be $\leq$ 11.5 scfh for that MSIV.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.12	Deleted	
SR 3.6.1.3.13	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	~~24 months~~ ← Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be ≤ 1.75 psig.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify drywell pressure is within limit.	~~12 hours~~ ← Insert 1

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~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.6.1	Verify each LLS valve relief mode actuator strokes when manually actuated.	~~24 months~~ ← Insert 1
SR 3.6.1.6.2	---------------------------NOTE----------------------------- Valve actuation may be excluded. --- Verify the LLS System actuates on an actual or simulated automatic initiation signal.	~~24 months~~ ← Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.1.7.1	---------------------------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~~ ← Insert 1
SR 3.6.1.7.2	Perform a functional test of each vacuum breaker.	In accordance with the Inservice Testing Program
SR 3.6.1.7.3	Verify the opening setpoint of each vacuum breaker is ≤ 0.5 psid.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	----------------------------NOTE---------------------------- Not required to be met for vacuum breakers that are open during Surveillances. --- Verify each vacuum breaker is closed.	~~14 days~~ ← Insert 1
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	~~31 days~~ ← Insert 1 <u>AND</u> Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	~~24 months~~ ← Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	~~24 hours~~ ← Insert 1 AND 5 minutes when performing testing that adds heat to the suppression pool

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 146 inches and ≤ 150 inches.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.2.1	Verify suppression pool water level is within limits.	~~24 hours~~ ← Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	~~31 days~~ ← Insert 1

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray

LCO 3.6.2.4 Two RHR suppression pool spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR suppression pool spray subsystem inoperable.	A.1	Restore RHR suppression pool spray subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool spray subsystems inoperable.	B.1	Restore one RHR suppression pool spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR suppression pool spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	~~31 days~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.2	Verify each suppression pool spray nozzle is unobstructed.	~~10 years~~ ← Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.2.1	Verify primary containment oxygen concentration is within limits.	~~7 days~~ ← Insert 1

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Drywell Cooling System Fans

LCO 3.6.3.3 Two drywell cooling system fans shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required drywell cooling system fan inoperable.	A.1 Restore required drywell cooling system fan to OPERABLE status.	30 days
B. Two required drywell cooling system fans inoperable.	B.1 Restore one required drywell cooling system fan to OPERABLE status.	7 days
C. Required Action and Associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.3.1	Operate each required drywell cooling system fan for ≥ 15 minutes.	~~92 days~~ ← Insert 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	~~31 days~~ ← Insert 1
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed.	~~31 days~~ ← Insert 1
SR 3.6.4.1.3	----------------------------NOTE---------------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	~~24 months on a STAGGERED TEST BASIS~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.4	----------------------------NOTE---------------------------- The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --	
	Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	~~24 months on a STAGGERED TEST BASIS~~

Insert 1

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 required to be closed during accident conditions is closed.	~~31 days~~ ← Insert 1
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	~~92 days~~ ← Insert 1
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	~~24 months~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or more required SGT subsystems inoperable in MODE 1, 2, or 3.	E.1 Enter LCO 3.0.3.	Immediately
F. Two or more required SGT subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	F.1 -----------NOTE------------ LCO 3.0.3 is not applicable. ------------------------------ Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	F.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 15 continuous minutes.	~~31 days~~ ← Insert 1
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 required SGT subsystem actuates on an actual or simulated initiation signal.	~~24 months~~ ← Insert 1

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	~~31 days~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	Verify the water level in each PSW pump well of the intake structure is ≥ 60.7 ft mean sea level (MSL).	~~14 days~~ ← Insert 1 AND 12 hours when water level is ≤ 61.7 ft MSL
SR 3.7.2.2	----------------------------NOTE---------------------------- Isolation of flow to individual components or systems does not render PSW System inoperable. -- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	~~31 days~~ ← Insert 1
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW 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~~ ← Insert 1
SR 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	~~24 months~~ ← Insert 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----------------NOTE----------------- LCO 3.0.3 is not applicable. --	
	F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	F.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	~~31 days~~ ← Insert 1
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	~~24 months on a STAGGERED TEST BASIS~~

Insert 1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	~~24 months~~ ← Insert 1

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 ≤ 240 mCi/second.	~~31 days~~ ◄── Insert 1 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 Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

<u>OR</u>

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 ≥ 24% 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 < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.7.1	Verify one complete cycle of each main turbine bypass valve.	~~31 days~~ ← Insert 1
SR 3.7.7.2	Perform a system functional test.	~~24 months~~ ← Insert 1
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	~~24 months~~ ← Insert 1

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 ≥ 21 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.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify the spent fuel storage pool water level is ≥ 21 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	~~7 days~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

---NOTE---

SR 3.8.1.1 through SR 3.8.1.18 are applicable only to the Unit 2 AC sources. SR 3.8.1.19 is applicable only to the Unit 1 AC sources.

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	~~7 days~~ ← Insert 1
SR 3.8.1.2	---------------------------NOTES--------------------------- 1. Performance of SR 3.8.1.5 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. 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 3.8.1.5.a must be met. 4. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F for one periodic test, and the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F during the next periodic test. 5. DG loadings may include gradual loading as recommended by the manufacturer.	

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.2 (continued)	------------------------------NOTES------------------------------ 6. Starting transients above the upper voltage limit do not invalidate this test. 7. Momentary transients outside the load range do not invalidate this test. 8. This Surveillance shall be conducted on only one DG at a time. -- Verify each DG: a. Starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 1710 kW and ≤ 2000 kW.	~~31 days~~ ← Insert 1
SR 3.8.1.3	Verify each day tank contains ≥ 500 gallons of fuel oil.	~~31 days~~ ← Insert 1
SR 3.8.1.4	Check for and remove accumulated water from each day tank.	~~184 days~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. DG loadings may include gradual loading as recommended by the manufacturer. 3. Momentary load transients outside the load range do not invalidate this test. 4. This Surveillance shall be conducted on only one DG at a time. 5. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F for one periodic test and the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F during the next periodic test. ---	
	Verify each DG: a. Starts from standby conditions and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 2764 kW and ≤ 2825 kW for DG 2A, ≥ 2360 kW and ≤ 2425 kW for DG 1B, and ≥ 2742 kW and ≤ 2825 kW for DG 2C.	~~184 days~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.6	---NOTE--- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	~~24 months~~ ← Insert 1
SR 3.8.1.7	---NOTES--- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this 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 ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	---------------------------NOTES--------------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 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. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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 ≤ 12 seconds, 2. Energizes auto-connected shutdown loads through automatic load sequence timing devices, 3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	--------------------------NOTE-------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --	
	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; b. Generator differential current; and c. Low lube oil pressure.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	---------------------------NOTES--------------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this Surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG operating at a power factor ≤ 0.88 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 3000 kW; and b. For the remaining hours of the test loaded ≥ 2775 kW and ≤ 2825 kW.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	---NOTES--- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	~~24 months~~ ← Insert 1
SR 3.8.1.14	---NOTE--- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.15	---------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	~~24 months~~ ← Insert 1
SR 3.8.1.16	---------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	---NOTES--- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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 ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.18	----------------------------NOTE---------------------------- All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, the Unit 2 DGs achieve, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz.	~~10 years~~ ← Insert 1
SR 3.8.1.19	For required Unit 1 AC Sources, the SRs of Unit 1 Technical Specifications are applicable, except SR 3.8.1.6, SR 3.8.1.10, SR 3.8.1.15, and SR 3.8.1.17.	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 2 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	~~31 days~~ ← Insert 1
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	~~31 days~~ ← Insert 1
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 2 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	~~31 days~~ ← Insert 1
SR 3.8.3.5	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	~~31 days~~ ← Insert 1
SR 3.8.3.6	Check for and remove accumulated water from each Unit 2 and swing DG fuel oil storage tank.	~~184 days~~ ← Insert 1
SR 3.8.3.7	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	~~24 months~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

---NOTE---

SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 2 DC sources. SR 3.8.4.9 is applicable only to the Unit 1 DC sources.

	SURVEILLANCE	FREQUENCY	
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	~~7 days~~ ←	Insert 1
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is within limits.	~~92 days~~ ←	Insert 1
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	~~24 months~~ ←	Insert 1
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	~~24 months~~ ←	Insert 1
SR 3.8.4.5	Verify battery connection resistance is within limits.	~~24 months~~ ←	Insert 1
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	~~24 months~~ ←	Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.7	----------------------------NOTES---------------------------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --	
	Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	~~24 months~~ ← Insert 1

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.8	------------------------------NOTE--------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	~~60 months~~ ← Insert 1 AND 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of expected life with capacity ≥ 100% of manufacturer's rating
SR 3.8.4.9	For required Unit 1 DC sources, the SRs of Unit 1 Specification 3.8.4 are applicable.	In accordance with applicable SRs

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	~~7 days~~ ← Insert 1
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	~~92 days~~ ← Insert 1 AND Once within 24 hours after battery overcharge > 150 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each station service battery, and ≥ 40°F for each DG battery.	~~92 days~~ ← Insert 1

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~~ ← Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC and DC electrical power distribution subsystem(s) 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~~ ← Insert 1

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 full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	~~7 days~~ ← Insert 1

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~~ ← Insert 1
SR 3.9.2.2	------------------------------NOTE------------------------------ Not required to be performed until 1 hour after any control rod is withdrawn. --- Perform CHANNEL FUNCTIONAL TEST.	~~7 days~~ ← Insert 1

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~~ ← Insert 1

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~~ ← Insert 1
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.	~~7 days~~ ← Insert 1

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6	RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.
APPLICABILITY:	During movement of irradiated fuel assemblies within the RPV, During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.	~~24 hours~~ ← Insert 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	AND	
	B.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND	
	C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is operating.	~~12 hours~~ ← Insert 1

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	~~12 hours~~ ← Insert 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	~~12 hours~~ ← Insert 1
SR 3.10.2.2	Verify no CORE ALTERATIONS are in progress.	~~24 hours~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	---------------------------NOTE----------------------------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. --- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	~~24 hours~~ ← Insert 1
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	~~24 hours~~ ← Insert 1
SR 3.10.4.4	---------------------------NOTE----------------------------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. --- Verify a control rod withdrawal block is inserted.	~~24 hours~~ ← Insert 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.10.5.1	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted.	~~24 hours~~ ← Insert 1
SR 3.10.5.2	Verify all control rods, other than the control rod withdrawn for the removal of the associated CRD, in a five by five array centered on the control rod withdrawn for the removal of the associated CRD, are disarmed.	~~24 hours~~ ← Insert 1
SR 3.10.5.3	Verify a control rod withdrawal block is inserted.	~~24 hours~~ ← Insert 1
SR 3.10.5.4	Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.5.5	Verify no CORE ALTERATIONS are in progress.	~~24 hours~~ ← Insert 1

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.6.1	Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	~~24 hours~~ ← Insert 1
SR 3.10.6.2	Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	~~24 hours~~ ← Insert 1
SR 3.10.6.3	--------------------------NOTE----------------------------- Only required to be met during fuel loading. --- Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.	~~24 hours~~ ← Insert 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.3	------------------------------NOTE------------------------------ Not required to be met if SR 3.10.8.2 satisfied. --- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	~~12 hours~~ ← Insert 1
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to full-out position AND Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure ≥ 940 psig.	~~7 days~~ ← Insert 1

5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

Insert 3 →

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 5

Clean Typed Pages for HNP Unit 1 Proposed TS Changes

1.0 USE AND APPLICATION

1.1 Definitions

-----NOTE-----
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

(continued)

1.1 Definitions (continued)

CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites"; Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP 30, Supplement to Part 1, pages 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."

(continued)

1.1 Definitions (continued)

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.
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 consists of two components: a. The time from initial movement of the main turbine stop valve or control valve until 80% of the turbine bypass capacity is established; and b. The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve. 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.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, C, or D not met. <u>OR</u> Nine or more control rods inoperable.	E.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.2	------------------------------NOTE------------------------------ Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. --- Insert each fully withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
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 partially withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

-----NOTE-----
During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify each 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 reactor pressure vessel AND Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the Region A limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after water or sodium pentaborate is added to solution AND Once within 24 hours after solution temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.6	Verify each SLC 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.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 60.0 atom percent B-10.	Prior to addition to SLC tank

SPB Solution Volume vs. Concentration Requirements

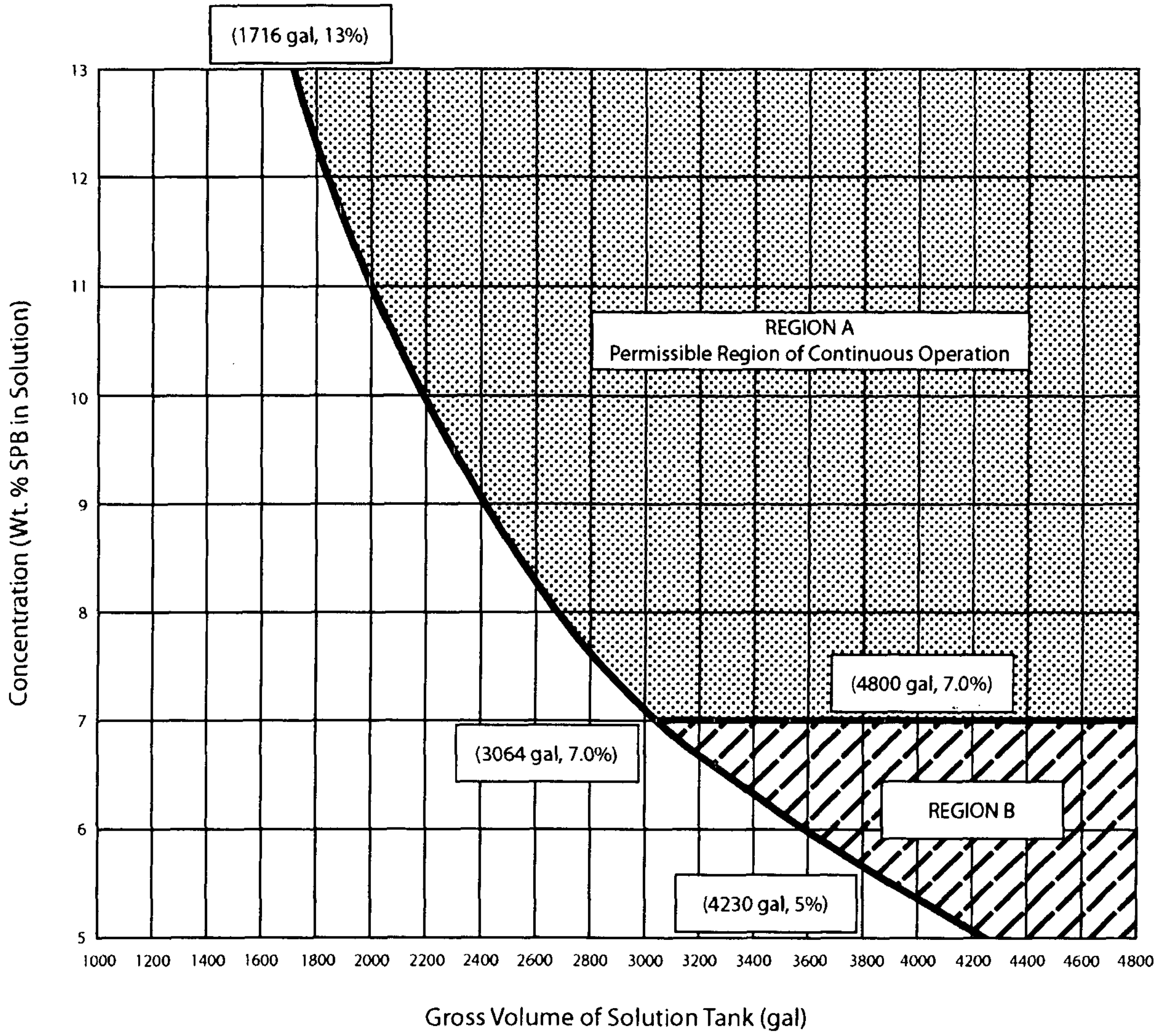

Figure 3.1.7-1 (page 1 of 1)
Sodium Pentaborate Solution Volume
Versus Concentration Requirements

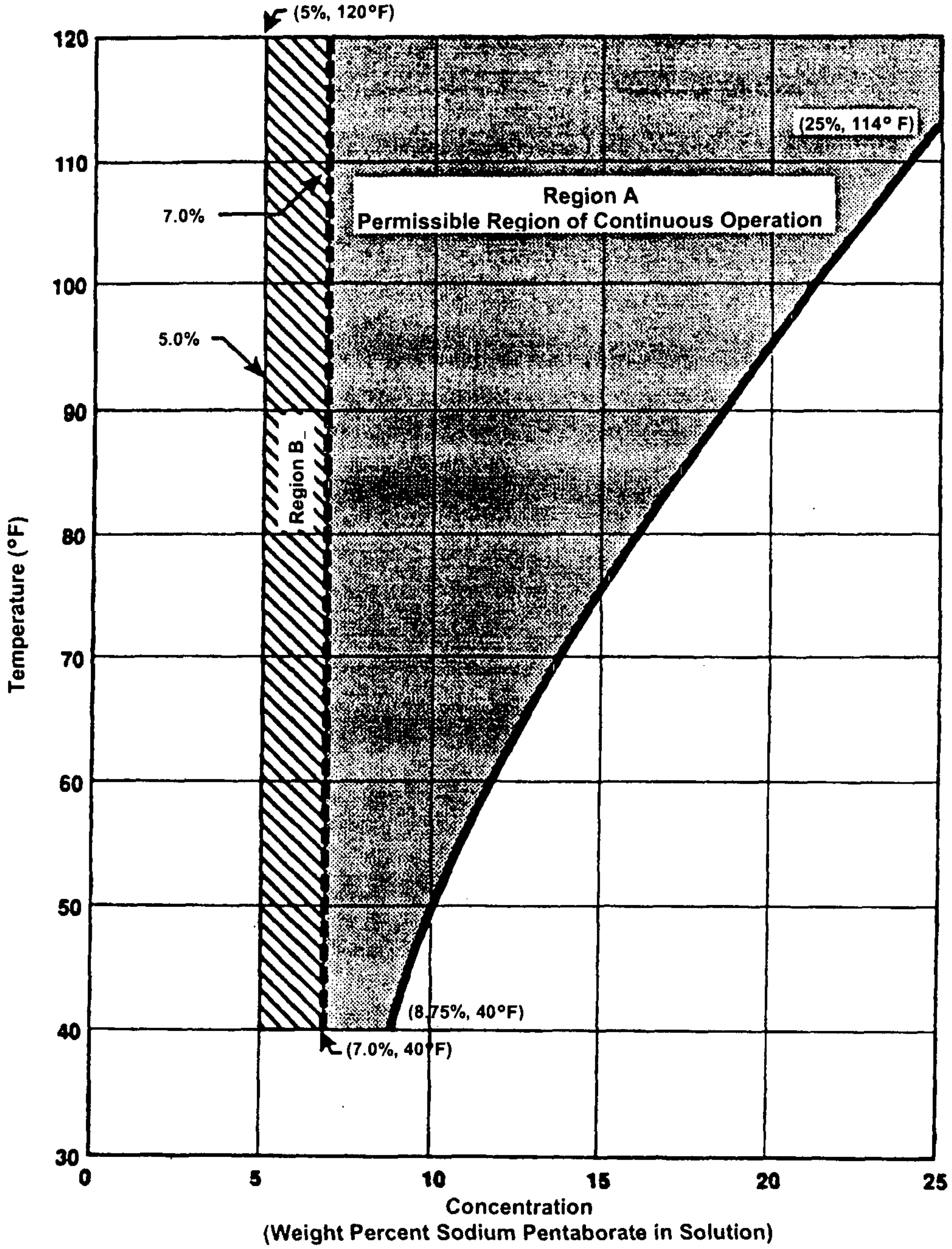

Figure 3.1.7-2 (page 1 of 1)
Sodium Pentaborate Solution Temperature
Versus Concentration Requirements

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Scram Discharge Volume (SDV) Vent and Drain Valves

LCO 3.1.8 Each SDV vent and drain valve shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTES---

1. Separate Condition entry is allowed for each SDV vent and drain line.
2. An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SDV vent or drain lines with one valve inoperable.	A.1 Isolate the associated line.	7 days
B. One or more SDV vent or drain lines with both valves inoperable.	B.1 Isolate the associated line.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	-----------------------------NOTE----------------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. --- Verify each SDV vent and drain valve is open.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 45 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

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

APPLICABILITY: THERMAL POWER ≥ 24% 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 < 24% 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 ≥ 24% RTP <u>AND</u> 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 ≥ 24% 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 < 24% 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 ≥ 24% RTP AND 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 ≥ 24% 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 < 24% 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 ≥ 24% RTP <u>AND</u> In accordance with the Surveillance Frequency Control Program

---

*This Specification is effective starting from Hatch 1/Cycle 22.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate alternate method to detect and suppress thermal-hydraulic instability oscillations. AND I.2 Restore required channels to OPERABLE.	12 hours 120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1 Be in MODE 2.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.2	-----NOTE----- Not required to be performed until 12 hours after THERMAL POWER ≥ 24% RTP. ---------- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP while operating at ≥ 24% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	(Not used.)	
SR 3.3.1.1.4	-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.6	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
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.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.10	------------------------------NOTE------------------------------ For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.13	------NOTES------ 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ------ Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.16	------NOTE------ Neutron detectors are excluded. ------ Verify the RPS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	AND	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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(s) is OPERABLE.

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.2	---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.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.3	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.2.4	---------------------------NOTES--------------------------- 1. 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. 2. Not required to be met during spiral unloading. --- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.6	-------------------------NOTE----------------------------- Not required to be performed until 12 hours after IRMs on Range 2 or below. --- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.7	---------------------------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

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.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.2	---------------------------NOTE-------------------------- Not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.3	---------------------------NOTE-------------------------- Not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.4	------------------------------NOTE------------------------------ Neutron detectors are excluded. -- Verify the RBM: a. Low Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.6	------------------------------NOTE------------------------------ Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.7	------------------------------NOTE------------------------------ Neutron detectors are excluded. -- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

Table 3.3.2.1-1 (page 1 of 1)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range - Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ 115.5/125 divisions of full scale
b. Intermediate Power Range - Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ 109.7/125 divisions of full scale
c. High Power Range - Upscale	(c)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ 105.9/125 divisions of full scale
d. Inop	(d)	2	SR 3.3.2.1.1	NA
e. Downscale	(d)	2	SR 3.3.2.1.1 SR 3.3.2.1.7	≥ 93/125 divisions of full scale
2. Rod Worth Minimizer	1(e), 2(e)	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.5 SR 3.3.2.1.8	NA
3. Reactor Mode Switch - Shutdown Position	(f)	2	SR 3.3.2.1.6	NA

a) THERMAL POWER ≥ 29% and < 64% RTP.

(b) THERMAL POWER ≥ 64% and < 84% RTP.

(c) THERMAL POWER ≥ 84%.

(d) THERMAL POWER ≥ 29%.

(e) With THERMAL POWER < 10% RTP, except during the reactor shutdown process if the coupling of each withdrawn control rod has been confirmed.

(f) Reactor mode switch in the shutdown position.

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine Trip High Water Level Instrumentation

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

APPLICABILITY: THERMAL POWER ≥ 24% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1 Place channel in trip.	7 days
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1 Restore feedwater and main turbine high water level trip capability.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 56.5 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.3.1 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3.1 The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.6.	Immediately
C. One or more Functions with two or more required channels inoperable.	C.1 Restore all but one required channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

1. These SRs apply to each Function in Table 3.3.3.1-1.

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.3.1-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION		REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1.	Reactor Steam Dome Pressure		2	E
2.	Reactor Vessel Water Level			
	a.	-317 inches to -17 inches	2	E
	b.	-150 inches to +60 inches	2	E
	c.	0 inches to +60 inches	2	E
	d.	0 inches to +400 inches	1	NA
3.	Suppression Pool Water Level			
	a.	0 inches to 300 inches	2	E
	b.	133 inches to 163 inches	2	E
4.	Drywell Pressure			
	a.	-10 psig to +90 psig	2	E
	b.	-5 psig to +5 psig	2	E
	c.	0 psig to +250 psig	2	E
5.	Drywell Area Radiation (High Range)		2	F
6.	Primary Containment Isolation Valve Position		2 per penetration flow path (a)(b)	E
7.	(Deleted)			
8.	(Deleted)			
9.	Suppression Pool Water Temperature		2(c)	E
10.	Drywell Temperature in Vicinity of Reactor Level Instrument Reference Leg		6	E
11.	Diesel Generator (DG) Parameters			
	a.	Output Voltage	1 per DG	NA
	b.	Output Current	1 per DG	NA
	c.	Output Power	1 per DG	NA
	d.	Battery Voltage	1 per DG	NA
12.	RHR Service Water Flow		2	E

(a) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Monitoring each of four quadrants.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

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

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

3.3 INSTRUMENTATION

3.3.4.1 End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation

LCO 3.3.4.1

a. Two channels per trip system for each EOC-RPT instrumentation Function listed below shall be OPERABLE:

1. Turbine Stop Valve (TSV) - Closure; and
2. Turbine Control Valve (TCV) Fast Closure, Trip Oil Pressure - Low.

<u>OR</u>

b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for inoperable EOC-RPT as specified in the COLR are made applicable.

APPLICABILITY: THERMAL POWER ≥ 27.6% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	72 hours
	<u>OR</u>	
	A.2 -----------NOTE------------ Not applicable if inoperable channel is the result of an inoperable breaker. ------------------------------- Place channel in trip.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. AND MCPR limit for inoperable EOC-RPT not made applicable.	B.1 Restore EOC-RPT trip capability.	2 hours
	OR	
	B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump from service.	4 hours
	OR	
	C.2 Reduce THERMAL POWER to < 27.6% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.2	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV - Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure - Low: ≥ 600 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.5	-------------------------NOTE---------------------------- Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. --- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.6	Determine RPT breaker interruption time.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.4.2 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LCO 3.3.4.2 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

a. Reactor Vessel Water Level - ATWS-RPT Level; and

b. Reactor Steam Dome Pressure - High.

APPLICABILITY: MODE 1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	14 days
	OR	
	A.2 -----------NOTE----------- Not applicable if inoperable channel is the result of an inoperable breaker. ------------------------------ Place channel in trip.	14 days
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service.	6 hours
	OR	
	D.2 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 ---------NOTES------------ 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ------------------------------ Declare supported feature(s) inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 -----------NOTE------------ Only applicable for Functions 3.a and 3.b. ------------------------------ Declare High Pressure Coolant Injection (HPCI) System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND	
	B.3 Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1 -----------NOTES---------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.c, 2.c, 2.d, and 2.f. ------------------------------ Declare supported feature(s) inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	
	C.2 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1	------------NOTE---------- Only applicable if HPCI pump suction is not aligned to the suppression pool. -------------------------------	
		Declare HPCI System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND		
	D.2.1	Place channel in trip.	24 hours
	OR		
	D.2.2	Align the HPCI pump suction to the suppression pool.	24 hours
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1	-----------NOTES--------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.d and 2.g. -------------------------------	
		Declare supported feature(s) inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	AND		
	E.2	Restore channel to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1 Declare Automatic Depressurization System (ADS) valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	<u>AND</u>	
	F.2 Place channel in trip.	96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable <u>AND</u> 8 days
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1 Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	<u>AND</u>	
	G.2 Restore channel to OPERABLE status.	96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable <u>AND</u> 8 days
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

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

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

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4(a), 5(a)	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1, 2, 3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Core Spray Pump Discharge Flow - Low (Bypass)	1, 2, 3, 4(a), 5(a)	1 per subsystem	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 610 gpm and ≤ 825 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2, 3, 4(a), 5(a)	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1, 2, 3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(b) Also required to initiate the associated diesel generator (DG) and isolate the associated plant service water (PSW) turbine building (T/B) isolation valves.

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1, 2, 3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)	1(c), 2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 335 psig
e. Reactor Vessel Shroud Level - Level 0	1, 2, 3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -202 inches
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1, 2, 3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A, B, D					≥ 9 seconds and ≤ 15 seconds
Pump C					≤ 1 second
g. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2, 3, 4(a), 5(a)	1 per subsystem	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 1670 gpm and ≤ 2205 gpm

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(c) With associated recirculation pump discharge valve open.

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level - Low Low, Level 2	1, $2^{(d)}$, $3^{(d)}$	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -47 inches
b. Drywell Pressure - High	1, $2^{(d)}$, $3^{(d)}$	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Vessel Water Level - High, Level 8	1, $2^{(d)}$, $3^{(d)}$	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 56.5 inches
d. Condensate Storage Tank Level - Low	1, $2^{(d)}$, $3^{(d)}$	2	D	SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 2.58 ft
e. Suppression Pool Water Level - High	1, $2^{(d)}$, $3^{(d)}$	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 154 inches
f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, $2^{(d)}$, $3^{(d)}$	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 605 gpm and ≤ 865 gpm

(continued)

(d) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 4 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, $2^{(d)}$, $3^{(d)}$	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1, $2^{(d)}$, $3^{(d)}$	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Automatic Depressurization System Initiation Timer	1, $2^{(d)}$, $3^{(d)}$	1	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, $2^{(d)}$, $3^{(d)}$	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 0 inches
e. Core Spray Pump Discharge Pressure - High	1, $2^{(d)}$, $3^{(d)}$	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 137 psig and ≤ 180 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, $2^{(d)}$, $3^{(d)}$	4	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 112 psig and ≤ 180 psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, $2^{(d)}$, $3^{(d)}$	2	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 12 minutes 18 seconds

(continued)

(d) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 5 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System B					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, $2^{(d)}$, $3^{(d)}$	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1, $2^{(d)}$, $3^{(d)}$	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Automatic Depressurization System Initiation Timer	1, $2^{(d)}$, $3^{(d)}$	1	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, $2^{(d)}$, $3^{(d)}$	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 0 inches
e. Core Spray Pump Discharge Pressure - High	1, $2^{(d)}$, $3^{(d)}$	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 137 psig and ≤ 180 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, $2^{(d)}$, $3^{(d)}$	4	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 112 psig and ≤ 180 psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, $2^{(d)}$, $3^{(d)}$	2	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 12 minutes 18 seconds

(d) With reactor steam dome pressure > 150 psig.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.2 The RCIC System instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND	
	B.2 Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1 ----------NOTE------------- Only applicable if RCIC pump suction is not aligned to the suppression pool. ------------------------------- Declare RCIC System inoperable.	 1 hour from discovery of loss of RCIC initiation capability
	AND	
	D.2.1 Place channel in trip.	24 hours
	OR	
	D.2.2 Align RCIC pump suction to the suppression pool.	24 hours
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1 Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

1. Refer to Table 3.3.5.2-1 to determine which SRs apply for each RCIC Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 2; and (b) for up to 6 hours for Functions 1, 3, and 4 provided the associated Function maintains RCIC initiation capability.

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

Table 3.3.5.2-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2	4	B	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.4 SR 3.3.5.2.5	≥ -47 inches
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.4 SR 3.3.5.2.5	≤ 56.5 inches
3. Condensate Storage Tank Level - Low	2	D	SR 3.3.5.2.3 SR 3.3.5.2.5	≥ 0.87 ft
4. Suppression Pool Water Level - High	2	D	SR 3.3.5.2.3 SR 3.3.5.2.5	≤ 151 inches

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, and 6.b AND 24 hours for Functions other than Functions 2.a, 2.b, and 6.b
B. -----NOTE----- Not applicable for Function 5.c. ----- One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).	12 hours
	OR	
	D.2.1 Be in MODE 3.	12 hours
	AND	
	D.2.2 Be in MODE 4.	36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Be in MODE 3.	12 hours
	AND	
OR	G.2 Be in MODE 4.	36 hours
Required Action and associated Completion Time of Condition F not met.		
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Declare Standby Liquid Control (SLC) System inoperable.	1 hour
	OR	
	H.2 Isolate the Reactor Water Cleanup (RWCU) System.	1 hour

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.1-1 (page 1 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 825 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 138% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 7 inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1,2,3	6	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 194°F
f. Turbine Building Area Temperature - High	1,2,3	16(b)	D	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 200°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig

(continued)

(a) With any turbine stop valve not closed.

(b) With 8 channels per trip string. Each trip string shall have 2 channels per main steam line, with no more than 40 ft separating any two OPERABLE channels.

Table 3.3.6.1-1 (page 2 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation (continued)					
c. Drywell Radiation - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 138 R/hr
d. Reactor Building Exhaust Radiation - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6	≤ 80 mR/hr
e. Refueling Floor Exhaust Radiation - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6	≤ 80 mR/hr
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 303% rated steam flow
b. HPCI Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 100 psig
c. HPCI Turbine Exhaust Diaphragm Pressure - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. HPCI Pipe Penetration Room Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Ambient Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F

(continued)

Table 3.3.6.1-1 (page 3 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation (continued)					
g. Suppression Pool Area Temperature - Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 16 minutes 15 seconds
h. Suppression Pool Area Differential Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
i. Emergency Area Cooler Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 306% rated steam flow
b. RCIC Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 60 psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. RCIC Suppression Pool Ambient Area Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Temperature - Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 31 minutes 15 seconds

(continued)

Table 3.3.6.1-1 (page 4 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RCIC System Isolation (continued)					
g. RCIC Suppression Pool Area Differential Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
h. Emergency Area Cooler Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
5. RWCU System Isolation					
a. Area Temperature - High	1,2,3	1 per area	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 150°F
b. Area Ventilation Differential Temperature - High	1,2,3	1 per area	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 67°F
c. SLC System Initiation	1,2	1(c)	H	SR 3.3.6.1.6	NA
d. Reactor Vessel Water Level - Low Low, Level 2	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47 inches
6. RHR Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 145 psig
b. Reactor Vessel Water Level - Low, Level 3	3,4,5	2 (d)	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches

(c) SLC System Initiation only inputs into one of the two trip systems.

(d) Only one trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

LCO 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Function 2 <u>AND</u> 24 hours for Functions other than Function 2
B. One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated penetration flow path(s).	1 hour
	<u>OR</u>	
	C.1.2 Declare associated secondary containment isolation valves inoperable.	1 hour
	<u>AND</u>	

(continued)

ACTIONS

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

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level Low - Low, Level 2	1 ,2, 3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≥ -47 inches
2. Drywell Pressure - High	1, 2, 3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 1.92 psig
3. Reactor Building Exhaust Radiation - High	1, 2, 3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 80 mR/hr
4. Refueling Floor Exhaust Radiation - High	1, 2, 3, $5^{(a),(b)}$	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 80 mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in secondary containment.

3.3 INSTRUMENTATION

3.3.6.3 Low-Low Set (LLS) Instrumentation

LCO 3.3.6.3 The LLS valve instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LLS valve with initiation capability not maintained.	A.1 Restore LLS valve initiation capability.	24 hours
B. One or more safety/relief valves (S/RVs) with one Function 3 channel inoperable.	B.1 Restore tailpipe pressure switches to OPERABLE status.	Prior to entering MODE 2 or 3 from MODE 4
C. -------------NOTE------------- Separate Condition entry is allowed for each S/RV. --------------------------------- One or more S/RVs with two Function 3 channels inoperable.	C.1 Restore one tailpipe pressure switch to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Two or more LLS valves with initiation capability not maintained.	D.1 Declare the associated LLS valve(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each 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 LLS initiation capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.3	-----------------------------NOTE----------------------------- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. --- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.3-1 (page 1 of 1)
Low-Low Set Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Steam Dome Pressure - High	1 per LLS valve	SR 3.3.6.3.1 SR 3.3.6.3.4 SR 3.3.6.3.5 SR 3.3.6.3.6	≤ 1085 psig
2. Low-Low Set Pressure Setpoints	2 per LLS valve	SR 3.3.6.3.1 SR 3.3.6.3.4 SR 3.3.6.3.5 SR 3.3.6.3.6	Low: Open ≤ 1005 psig Close ≤ 857 psig Medium-Low: Open ≤ 1020 psig Close ≤ 872 psig Medium-High: Open ≤ 1035 psig Close ≤ 887 psig High: Open ≤ 1045 psig Close ≤ 897 psig
3. Tailpipe Pressure Switch	2 per S/RV	SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.5 SR 3.3.6.3.6	≥ 80 psig and ≤ 100 psig

3.3 INSTRUMENTATION

3.3.7.1 Main Control Room Environmental Control (MCREC) System Instrumentation

LCO 3.3.7.1 Two channels of the Control Room Air Inlet Radiation - High Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both channels inoperable.	A.1 Declare associated MCREC subsystem(s) inoperable. <u>AND</u> A.2 Place channel in trip.	1 hour from discovery of loss of MCREC initiation capability in both trip systems 6 hours
B. Required Action and associated Completion Time not met.	B.1 Place the associated MCREC subsystem(s) in the pressurization mode of operation. <u>OR</u> B.2 Declare associated MCREC subsystem(s) inoperable.	1 hour 1 hour

SURVEILLANCE REQUIREMENTS

-----NOTE-----

When a Control Room Air Inlet Radiation - High 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 channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator (DG) is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable for Functions 1 and 2.	A.1 Restore channel to OPERABLE status.	1 hour
B. One or more channels inoperable for Function 3.	B.1 Verify voltage on associated 4.16 kV bus is ≥ 3825 V.	Once per hour
C. Required Action and associated Completion Time not met.	C.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

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

2. When a 4.16 kV Emergency Bus Undervoltage 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 initiation capability (for Functions 1 and 2) and annunciation capability (for Function 3).

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.8.1-1 (page 1 of 1)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)			
a. Bus Undervoltage	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2800 V
b. Time Delay	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≤ 6.5 seconds
2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)			
a. Bus Undervoltage	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3280 V
b. Time Delay	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≤ 21.5 seconds
3. 4.16 kV Emergency Bus Undervoltage (Annunciation)			
a. Bus Undervoltage	2	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3825 V
b. Time Delay	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≤ 65 seconds

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2	Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.
APPLICABILITY:	MODES 1, 2, and 3, MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both residual heat removal (RHR) shutdown cooling (SDC) isolation valves open.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both RHR SDC isolation valves open.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>AND</u>	
	D.2.1 Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation.	Immediately
	<u>OR</u>	
	D.2.2 Initiate action to isolate the RHR SDC.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When an RPS electric power monitoring assembly is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the other RPS electric power monitoring assembly for the associated power supply maintains trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	-----NOTE----- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ---------- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.3	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> No recirculation loops in operation.	B.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 recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	(Not used.)	

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, b, or c) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns. c. Each jet pump flow differs by ≤ 10% from established patterns.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. All required leakage detection systems inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

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

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

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	------------------------------NOTE------------------------------ Not required to be met until 2 hours after reactor steam dome pressure is less than the RHR low pressure permissive pressure. --- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulation 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.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify: a. RCS pressure and RCS temperature are within the limits specified in Figures 3.4.9-1 and 3.4.9-2 during RCS inservice leak and hydrostatic testing, and during RCS non-nuclear heatup and cooldown operations; and b. RCS heatup and cooldown rates are ≤ 100°F in any 1 hour period during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	---------------------------NOTE--------------------------- Only required to be met when the reactor is critical and immediately prior to control rod withdrawal for the purpose of achieving criticality. --- Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.9-3.	Once within 15 minutes prior to initial control rod withdrawal for the purpose of achieving criticality
SR 3.4.9.3	---------------------------NOTE--------------------------- Only required to be met in MODES 1, 2, 3, and 4 during startup of a recirculation pump. --- 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 starting an idle recirculation pump

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.9.4	-----NOTE----- Only required to be met in MODES 1, 2, 3, and 4 during startup of a recirculation pump. ---------- 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 starting an idle recirculation pump
SR 3.4.9.5	-----NOTE----- Only required to be met when tensioning/ detensioning the reactor vessel head bolting studs. ---------- Verify reactor vessel flange and head flange temperatures are ≥ 76°F.	Once within 30 minutes prior to tensioning/ detensioning the reactor vessel head bolting studs and in accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.9.6	----------NOTE---------- Only required to be met when the reactor vessel head is tensioned. --------------------------------	
	Verify reactor vessel flange and head flange temperatures are ≥ 76°F.	Once within 12 hours after RCS temperature is ≤ 106°F in MODE 4, and in accordance with the Surveillance Frequency Control Program AND Once within 30 minutes after RCS temperature is ≤ 86°F in MODE 4, and in accordance with the Surveillance Frequency Control Program

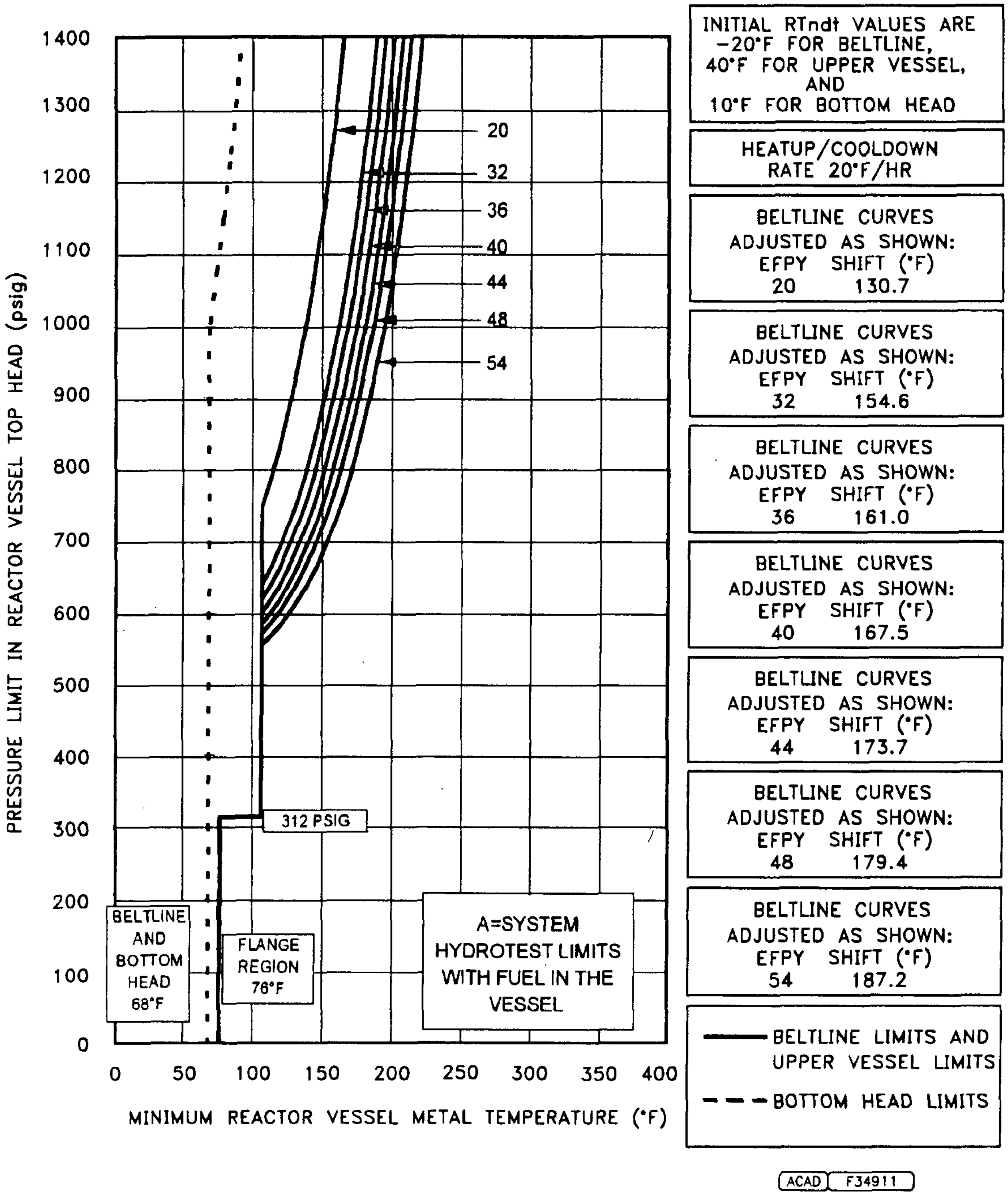

Figure 3.4.9-1 (page 1 of 1)
Pressure/Temperature Limits for
Inservice Hydrostatic and Inservice Leakage Tests

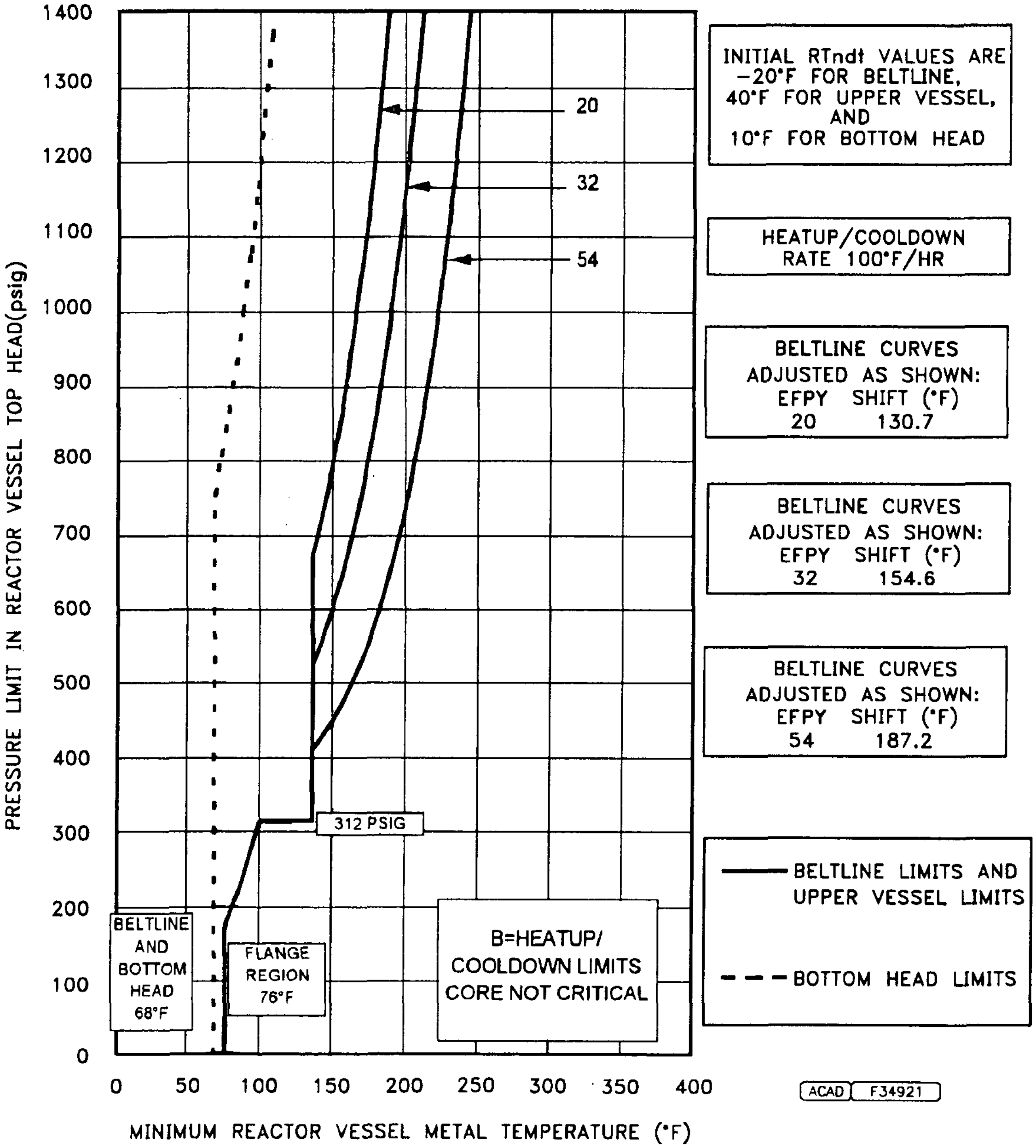

Figure 3.4.9-2 (page 1 of 1)
Pressure/Temperature Limits for Non-Nuclear Heatup,
Low Power Physics Tests, and Cooldown Following a Shutdown

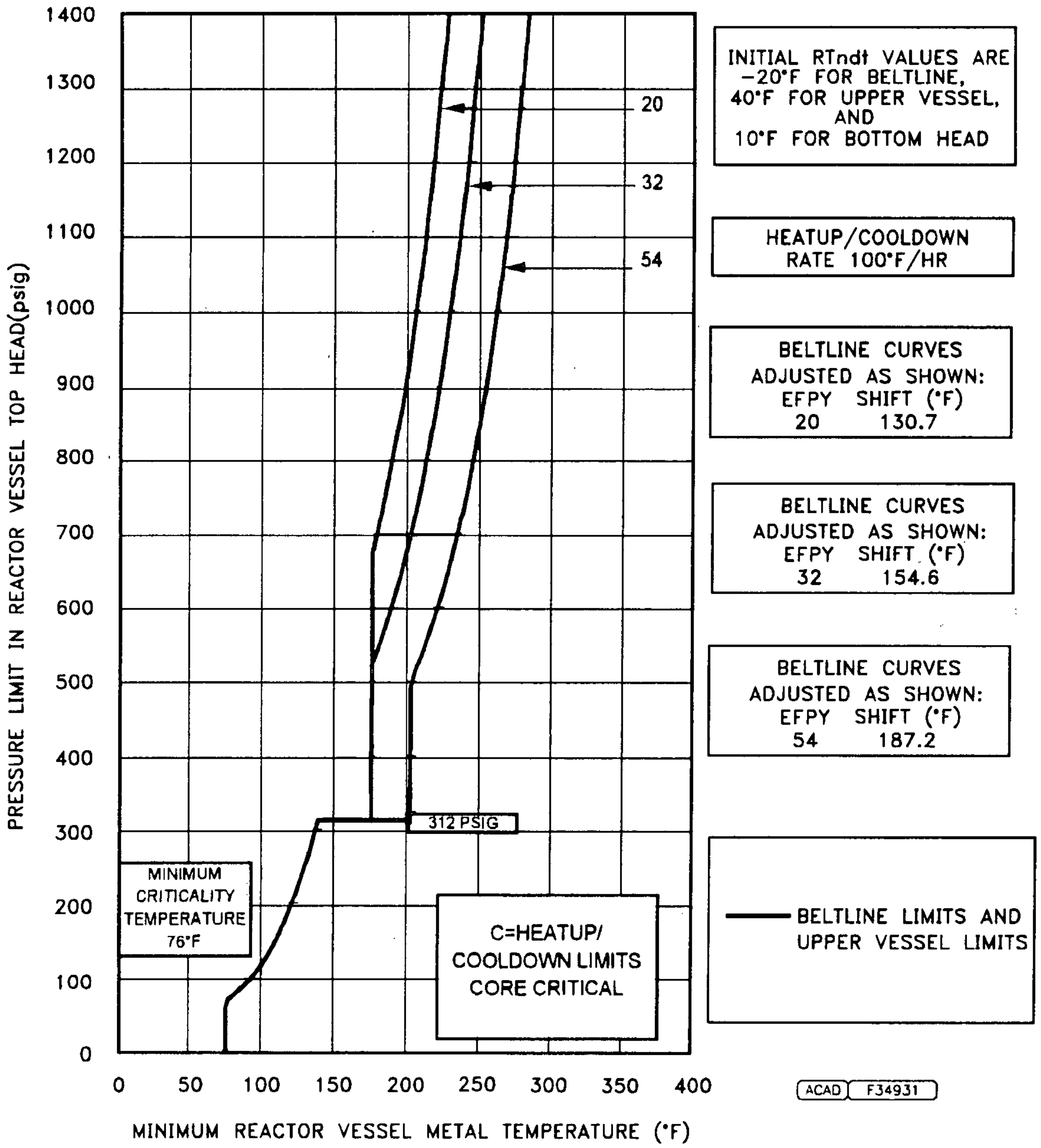

Figure 3.4.9-3 (page 1 of 1)
Pressure/Temperature Limits for Criticality

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Reactor Steam Dome Pressure

LCO 3.4.10 The reactor steam dome pressure shall be ≤ 1058 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 ≤ 1058 psig.	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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	---------------------------NOTE----------------------------- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) low pressure permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. --- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify ADS air supply header pressure is ≥ 90 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify the RHR System cross tie valve is closed and power is removed from the valve operator.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.5	(Not used.)	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.1.6	---------------------------NOTE------------------------------ Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 > 48 hours. --- 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 Surveillance Frequency Control Program
SR 3.5.1.7	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure. SYSTEM / FLOW RATE / NO. OF PUMPS / SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF CS / ≥ 4250 gpm / 1 / ≥ 113 psig LPCI / ≥ 1700 gpm / 1 / ≥ 20 psig	In accordance with the Inservice Testing Program
SR 3.5.1.8	---------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program

SR 3.5.1.7 values:

SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF
CS	≥ 4250 gpm	1	≥ 113 psig
LPCI	≥ 1700 gpm	1	≥ 20 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.1.9	----------------------------NOTE---------------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor system pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.10	----------------------------NOTE---------------------------- Vessel injection/spray may be excluded. --- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.11	----------------------------NOTE---------------------------- Valve actuation may be excluded. --- Verify the ADS actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.12	Verify each ADS valve relief mode actuator strokes when manually actuated.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.2 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	<u>AND</u>	
	D.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 146 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, the: a. Suppression pool water level is ≥ 146 inches; or b. ------------------------NOTE------------------------ Only one required CS subsystem may take credit for this option during OPDRVs. --- Condensate storage tank water level is ≥ 13 ft.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.2.3</td><td>Verify, for each required ECCS injection/ spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
<tr><td>SR 3.5.2.4</td><td>--------------------------NOTE--------------------------
One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.
--</td><td></td></tr>
<tr><td></td><td>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.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
<tr><td>SR 3.5.2.5</td><td>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.2.6</td><td>--------------------------NOTE--------------------------
Vessel injection/spray may be excluded.
--</td><td></td></tr>
<tr><td></td><td>Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
</table>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.3	--------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.4	--------------------------NOTE------------------------------ Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.5	--------------------------NOTE------------------------------ Vessel injection may be excluded. --- Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	In accordance with the Surveillance Frequency Control Program AND ---------NOTE-------- Only required after two consecutive tests fail and continues until two consecutive tests pass ------------------------ 9 months

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	-----NOTE----- Only required to be performed upon entry or exit through the primary containment air lock when the primary containment is de-inerted. ---------- Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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.	Immediately
	OR	
	F.2 ------------NOTE----------- Only applicable for inoperable RHR shutdown cooling valves. ------------------------------- 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 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. --- Verify each 18 inch primary containment purge valve is closed.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	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 is required to be closed during accident conditions is closed.	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 is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.5	Verify the isolation time of each power operated and each automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV (of a representative sample) actuates to restrict flow to within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP system.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 11.5 scfh when tested at ≥ 28.0 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Deleted	
SR 3.6.1.3.12	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	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 ≤ 1.75 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.	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	12 hours
	B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	-----------------------------NOTE----------------------------- Not required to be met for vacuum breakers that are open during Surveillances. --- Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 146 inches and ≤ 150 inches.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray

LCO 3.6.2.4 Two RHR suppression pool spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool spray subsystem inoperable.	A.1 Restore RHR suppression pool spray subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool spray subsystems inoperable.	B.1 Restore one RHR suppression pool spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR suppression pool spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.2	Verify each suppression pool spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1.1	Verify ≥ 2000 gal of liquid nitrogen are contained in each N_2 storage tank.	In accordance with the Surveillance Frequency Control Program
SR 3.6.3.1.2	Verify each CAD subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	---------------------------NOTE--------------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. -- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.4	------------------------------NOTE------------------------------ The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --	
	Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	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 required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 15 continuous minutes.	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 required SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in each PSW pump well of the intake structure is ≥ 60.7 ft mean sea level (MSL).	In accordance with the Surveillance Frequency Control Program AND 12 hours when water level is ≤ 61.7 ft MSL
SR 3.7.2.2	------------------------NOTE------------------------ Isolation of flow to individual components or systems does not render PSW System inoperable. -- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------------NOTE------------------ LCO 3.0.3 is not applicable. --	
	F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	F.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
.SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.6.1	-----------------------------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 ≤ 240 mCi/second.	In accordance with the Surveillance Frequency Control Program 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 Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

<u>OR</u>

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 ≥ 24% 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 < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify one complete cycle of each main turbine bypass valve.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.7.7.3 Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be ≥ 21 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.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify the spent fuel storage pool water level is ≥ 21 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	In accordance with the Surveillance Frequency Control Program

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	---------------------------NOTES--------------------------- 1. Performance of SR 3.8.1.5 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. 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 3.8.1.5.a must be met. 4. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F for one periodic test, and the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F during the next periodic test. 5. DG loadings may include gradual loading as recommended by the manufacturer.	(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.2 (continued)	---------------------------NOTES--------------------------- 6. Starting transients above the upper voltage limit do not invalidate this test. 7. Momentary transients outside the load range do not invalidate this test. 8. This Surveillance shall be conducted on only one DG at a time. --- Verify each DG: a. Starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 1710 kW and ≤ 2000 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.3	Verify each day tank contains ≥ 500 gallons of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.5	---NOTES--- 1. All DG starts may be preceded by an engine prelube period. 2. DG loadings may include gradual loading as recommended by the manufacturer. 3. Momentary load transients outside the load range do not invalidate this test. 4. This Surveillance shall be conducted on only one DG at a time. 5. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F for one periodic test and the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F during the next periodic test. ---	
	Verify each DG: a. Starts from standby conditions and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 2250 kW and ≤ 2400 kW for DGs 1A and 1C, and ≥ 2360 kW and ≤ 2425 kW for DG 1B.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.6	-----NOTE----- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.7	-----NOTES----- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this 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 ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.8	--------------------------NOTES---------------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 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. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---	
	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 ≤ 12 seconds, 2. Energizes auto-connected shutdown loads through automatic load sequence timing devices, 3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.10	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. --- *Verify on an actual or simulated* Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	*In accordance* with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.11	--------------------------NOTE-------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- 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; b. Generator differential current; and c. Low lube oil pressure.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.12	---------------------------NOTES--------------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --- Verify each DG operating at a power factor ≤ 0.88 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 3000 kW; and b. For the remaining hours of the test loaded ≥ 2775 kW and ≤ 2825 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	----------------------------NOTES--------------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.14	---------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---	
	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.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.15	-----------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.16	-----------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.17	------------------------------NOTES------------------------------ 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- 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 ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.18	----------------------------NOTE---------------------------- All DG starts may be preceded by an engine prelube period. -- Verify, when started simultaneously from standby condition, the Unit 1 DGs and the swing DG achieve, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.19	For required Unit 2 AC Sources, the SRs of Unit 2 Technical Specifications are applicable, except SR 3.8.1.6, SR 3.8.1.10, SR 3.8.1.15, and SR 3.8.1.17.	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 1 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 1 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.6	Check for and remove accumulated water from each Unit 1 and swing DG fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.7	Verify each Unit 1 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-NOTE-

SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 1 DC sources. SR 3.8.4.9 is applicable only to the Unit 2 DC sources.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.5	Verify battery connection resistance is within limits.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.7	----------------------------NOTES---------------------------- 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.8	-----------------------------NOTE----------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. -- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program <u>AND</u> 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of expected life with capacity ≥ 100% of manufacturer's rating
SR 3.8.4.9	For required Unit 2 DC sources, the SRs of Unit 2 Specification 3.8.4 are applicable.	In accordance with applicable SRs

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after battery overcharge > 150 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each station service battery, and ≥ 40°F for each DG battery.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	AND	
	A.2.4 Initiate actions to restore required AC and DC electrical power distribution subsystem(s) to OPERABLE status.	Immediately
	AND	
	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.	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 full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY - Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	<u>AND</u>	
	B.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter
	<u>AND</u>	
	C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND	
	C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	-------------------------NOTE------------------------------ Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. --	
	Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.4	-------------------------NOTE------------------------------ Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. --	
	Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.3	-----------------------------NOTE----------------------------- Not required to be met if SR 3.10.8.2 satisfied. --- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to full-out position <u>AND</u> Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure $\geq$ 940 psig.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.13 Surveillance Frequency Control Program

This program provides controls for the 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 the 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.

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 6

Clean Typed Pages for HNP Unit 2 Proposed TS Changes

1.0 USE AND APPLICATION

1.1 Definitions

NOTE

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

(continued)

1.1 Definitions (continued)

CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites"; Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP 30, Supplement to Part 1, pages 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."

(continued)

1.1 Definitions (continued)

PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter 14, Initial Tests and Operation, of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2804 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. 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.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, C, or D not met. <u>OR</u> Nine or more control rods inoperable.	E.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	In accordance with the Surveillance Frequency Control Program
SR 3.1.3.2	-------------------------NOTE------------------------- Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. -- Insert each fully withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program
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 partially withdrawn control rod at least one notch.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

--NOTE--
During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify each 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 reactor pressure vessel <u>AND</u> Prior to exceeding 40% RTP after each reactor shutdown ≥ 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Place the reactor mode switch in the shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the Region A limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the Region A limits of Figure 3.1.7-2.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.3	Verify temperature of pump suction piping is within the Region A limits of Figure 3.1.7-2.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.4	Verify continuity of explosive charge.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.5	Verify the concentration of sodium pentaborate in solution is within the Region A limits of Figure 3.1.7-1.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Once within 24 hours after water or sodium pentaborate is added to solution <u>AND</u> Once within 24 hours after solution temperature is restored within the Region A limits of Figure 3.1.7-2

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.1.7.6	Verify each SLC 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.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	In accordance with the Surveillance Frequency Control Program
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after pump suction piping temperature is restored within the Region A limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 60.0 atom percent B-10.	Prior to addition to SLC tank

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	---------------------------NOTE--------------------------- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. --- Verify each SDV vent and drain valve is open.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.2	Cycle each SDV vent and drain valve to the fully closed and fully open position.	In accordance with the Surveillance Frequency Control Program
SR 3.1.8.3	Verify each SDV vent and drain valve: a. Closes in ≤ 60 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2 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 ≥ 24% 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 < 24% 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 ≥ 24% RTP <u>AND</u> In accordance with the Surveillance Frequency Control Program

(continued)

3.2 POWER DISTRIBUTION LIMITS

3.2.3 LINEAR HEAT GENERATION RATE (LHGR)*

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

APPLICABILITY: THERMAL POWER ≥ 24% 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 < 24% 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 ≥ 24% RTP AND In accordance with the Surveillance Frequency Control Program

*This Specification is effective starting from Hatch 2/Cycle 19.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate alternate method to detect and suppress thermal-hydraulic instability oscillations.	12 hours
	AND	
	I.2 Restore required channels to OPERABLE.	120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1 Be in MODE 2.	4 hours

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.2	---------------------------NOTE--------------------------- Not required to be performed until 12 hours after THERMAL POWER ≥ 24% RTP. -- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP while operating at ≥ 24% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.3	(Not used.)	
SR 3.3.1.1.4	---------------------------NOTE--------------------------- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.5	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.6	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.8	Calibrate the local power range monitors.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.9	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.10	----------NOTE---------- For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ------------------------------ Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.11	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.1.13	---------------------------NOTES--------------------------- 1. Neutron detectors are excluded. 2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.14	(Not used.)	
SR 3.3.1.1.15	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.1.16	---------------------------NOTES--------------------------- 1. Neutron detectors are excluded. 2. (Not used.) 3. 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.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	In accordance with the Surveillance Frequency Control Program

Table 3.3.1.1-1 (page 1 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitor					
a. Neutron Flux - High	2	2(d)	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 120/125 divisions of full scale
	5(a)	2(d)	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 120/125 divisions of full scale
b. Inop	2	2(d)	G	SR 3.3.1.1.4 SR 3.3.1.1.15	NA
	5(a)	2(d)	H	SR 3.3.1.1.5 SR 3.3.1.1.15	NA
2. Average Power Range Monitor					
a. Neutron Flux - High (Setdown)	2	3(c)	G	SR 3.3.1.1.1 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13	≤ 20% RTP
b. Simulated Thermal Power - High	1	3(c)	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13	≤ 0.57W + 56.8% RTP and ≤ 115.5% RTP(b)
c. Neutron Flux - High	1	3(c)	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13	≤ 120% RTP
d. Inop	1, 2	3(c)	G	SR 3.3.1.1.10	NA

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(b) 0.57W + 56.8% - 0.57 ΔW RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."

(c) Each APRM channel provides inputs to both trip systems.

(d) One channel in each quadrant of the core must be OPERABLE whenever the IRMs are required to be OPERABLE. Both the RWM and a second licensed operator must verify compliance with the withdrawal sequence when less than three channels in any trip system are OPERABLE.

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitor (continued)					
e. Two-out-of-Four Voter	1, 2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.10 SR 3.3.1.1.15 SR 3.3.1.1.16	NA
f. OPRM Upscale	1	3(c)	I	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.17	NA
3. Reactor Vessel Steam Dome Pressure - High	1, 2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1085 psig
4. Reactor Vessel Water Level - Low, Level 3	1, 2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ 0 inches
5. Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16	≤ 10% closed
6. Drywell Pressure - High	1, 2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1.92 psig
7. Scram Discharge Volume Water Level - High					
a. Resistance Temperature Detector	1, 2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 57.15 gallons
	5(a)	2	H	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 57.15 gallons
b. Float Switch	1, 2	2	G	SR 3.3.1.1.12 SR 3.3.1.1.15	≤ 57.15 gallons
	5(a)	2	H	SR 3.3.1.1.12 SR 3.3.1.1.15	≤ 57.15 gallons

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(c) Each APRM channel provides inputs to both trip systems.

Table 3.3.1.1-1 (page 3 of 3)
Reactor Protection System Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8.	Turbine Stop Valve - Closure	≥ 27.6% RTP	4	E	SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16	≤ 10% closed
9.	Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	≥ 27.6% RTP	2	E	SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.16	≥ 600 psig
10.	Reactor Mode Switch - Shutdown Position	1, 2	2	G	SR 3.3.1.1.12 SR 3.3.1.1.15	NA
		5[(a)]	2	H	SR 3.3.1.1.12 SR 3.3.1.1.15	NA
11.	Manual Scram	1, 2	2	G	SR 3.3.1.1.5 SR 3.3.1.1.15	NA
		5[(a)]	2	H	SR 3.3.1.1.5 SR 3.3.1.1.15	NA

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

3.3 INSTRUMENTATION

3.3.1.2 Source Range Monitor (SRM) Instrumentation

LCO 3.3.1.2 The SRM instrumentation in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required SRMs inoperable in MODE 2 with intermediate range monitors (IRMs) on Range 2 or below.	A.1 Restore required SRMs to OPERABLE status.	4 hours
B. Three required SRMs inoperable in MODE 2 with IRMs on Range 2 or below.	B.1 Suspend control rod withdrawal.	Immediately
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	12 hours
D. One or more required SRMs inoperable in MODE 3 or 4.	D.1 Fully insert all insertable control rods.	1 hour
	<u>AND</u>	
	D.2 Place reactor mode switch in the shutdown position.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more required SRMs inoperable in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	AND	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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(s) is OPERABLE.

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.2.2	---------------------------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.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.3	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	-----NOTES----- 1. 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. 2. Not required to be met during spiral unloading. ----- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 2:1.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.6	-----NOTE----- Not required to be performed until 12 hours after IRMs on Range 2 or below. ----- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.2.7	-----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

Table 3.3.1.2-1 (page 1 of 1)
Source Range Monitor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Source Range Monitor	2[(a)]	3	SR 3.3.1.2.1 SR 3.3.1.2.4 SR 3.3.1.2.6 SR 3.3.1.2.7
	3, 4	2	SR 3.3.1.2.3 SR 3.3.1.2.4 SR 3.3.1.2.6 SR 3.3.1.2.7
	5	2[(b)(c)]	SR 3.3.1.2.1 SR 3.3.1.2.2 SR 3.3.1.2.4 SR 3.3.1.2.5 SR 3.3.1.2.7

(a) With IRMs on Range 2 or below.

(b) Only one SRM channel is required to be OPERABLE during spiral offload or reload when the fueled region includes only that SRM detector.

(c) Special movable detectors may be used in place of SRMs if connected to normal SRM circuits.

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1 Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two RBM channels inoperable.	B.1 Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1 Suspend control rod movement except by scram.	Immediately
	<u>OR</u>	
	C.2.1.1 Verify ≥ 12 rods withdrawn. <u>OR</u>	Immediately
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year.	Immediately
	<u>AND</u>	
	C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement
E. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	E.1 Suspend control rod withdrawal.	Immediately
	<u>AND</u>	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.2	----------------------------NOTE---------------------------- Not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.3	----------------------------NOTE---------------------------- Not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. -- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.4	---------------------------NOTE--------------------------- Neutron detectors are excluded. --- Verify the RBM: a. Low Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 29% and < 64% RTP. b. Intermediate Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 64% and < 84% RTP. c. High Power Range - Upscale Function is not bypassed when THERMAL POWER is ≥ 84% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.5	Verify the RWM is not bypassed when THERMAL POWER is < 10% RTP.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.6	---------------------------NOTE--------------------------- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. --- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.1.7	---------------------------NOTE--------------------------- Neutron detectors are excluded. --- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.8	Verify control rod sequences input to the RWM are in conformance with BPWS.	Prior to declaring RWM OPERABLE following loading of sequence into RWM

Table 3.3.2.1-1 (page 1 of 1)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range - Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ 115.5/125 divisions of full scale
b. Intermediate Power Range - Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ 109.7/125 divisions of full scale
c. High Power Range - Upscale	(c)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.7	≤ 105.9/125 divisions of full scale
d. Inop	(d)	2	SR 3.3.2.1.1	NA
e. Downscale	(d)	2	SR 3.3.2.1.1 SR 3.3.2.1.7	≥ 93/125 divisions of full scale
2. Rod Worth Minimizer	1(e), 2(e)	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.5 SR 3.3.2.1.8	NA
3. Reactor Mode Switch - Shutdown Position	(f)	2	SR 3.3.2.1.6	NA

(a) THERMAL POWER ≥ 29% and < 64% RTP.

(b) THERMAL POWER ≥ 64% and < 84% RTP.

(c) THERMAL POWER ≥ 84%.

(d) THERMAL POWER ≥ 29%.

(e) With THERMAL POWER < 10% RTP, except during the reactor shutdown process if the coupling of each withdrawn control rod has been confirmed.

(f) Reactor mode switch in the shutdown position.

3.3 INSTRUMENTATION

3.3.2.2 Feedwater and Main Turbine Trip High Water Level Instrumentation

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

APPLICABILITY: THERMAL POWER ≥ 24% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One feedwater and main turbine high water level trip channel inoperable.	A.1 Place channel in trip.	7 days
B. Two or more feedwater and main turbine high water level trip channels inoperable.	B.1 Restore feedwater and main turbine high water level trip capability.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Reduce THERMAL POWER to < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

---NOTE---

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 55.5 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2.3	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.3.1 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3.1 The PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.6.	Immediately
C. One or more Functions with two or more required channels inoperable.	C.1 Restore all but one required channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	E.1 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action D.1 and referenced in Table 3.3.3.1-1.	F.1 Initiate action in accordance with Specification 5.6.6.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. These SRs apply to each Function in Table 3.3.3.1-1.

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

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.3.1-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1
1.	Reactor Steam Dome Pressure	2	E
2.	Reactor Vessel Water Level		
	a. -317 inches to -17 inches	2	E
	b. -150 inches to +60 inches	2	E
	c. 0 inches to +60 inches	2	E
	d. 0 inches to +400 inches	1	NA
3.	Suppression Pool Water Level		
	a. 0 inches to 300 inches	2	E
	b. 133 inches to 163 inches	2	E
4.	Drywell Pressure		
	a. -10 psig to +90 psig	2	E
	b. -5 psig to +5 psig	2	E
	c. 0 psig to +250 psig	2	E
5.	Drywell Area Radiation (High Range)	2	F
6.	Primary Containment Isolation Valve Position	2 per penetration flow path(a)(b)	E
7.	(Deleted)		
8.	(Deleted)		
9.	Suppression Pool Water Temperature	2(c)	E
10.	Drywell Temperature in Vicinity of Reactor Level Instrument Reference Leg	6	E
11.	Diesel Generator (DG) Parameters		
	a. Output Voltage	1 per DG	NA
	b. Output Current	1 per DG	NA
	c. Output Power	1 per DG	NA
	d. Battery Voltage	1 per DG	NA
12.	RHR Service Water Flow	2	E

(a) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Monitoring each of four quadrants.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

LCO 3.3.3.2 The Remote Shutdown System Functions shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

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

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

3.3 INSTRUMENTATION

3.3.4.1 End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation

LCO 3.3.4.1

a. Two channels per trip system for each EOC-RPT instrumentation Function listed below shall be OPERABLE:

1. Turbine Stop Valve (TSV) - Closure; and
2. Turbine Control Valve (TCV) Fast Closure, Trip Oil Pressure - Low.

<u>OR</u>

b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for inoperable EOC-RPT as specified in the COLR are made applicable.

APPLICABILITY: THERMAL POWER ≥ 27.6% RTP.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status. <u>OR</u> A.2 ------------NOTE----------- Not applicable if inoperable channel is the result of an inoperable breaker. ------------------------------ Place channel in trip.	72 hours 72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with EOC-RPT trip capability not maintained. AND MCPR limit for inoperable EOC-RPT not made applicable.	B.1 Restore EOC-RPT trip capability. OR B.2 Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.	2 hours 2 hours
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump from service. OR C.2 Reduce THERMAL POWER to < 27.6% RTP.	4 hours 4 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.2	Verify TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 27.6% RTP.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: TSV - Closure: ≤ 10% closed; and TCV Fast Closure, Trip Oil Pressure - Low: ≥ 600 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.5	--------------------------NOTE------------------------------ Breaker interruption time may be assumed from the most recent performance of SR 3.3.4.1.6. --- Verify the EOC-RPT SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.1.6	Determine RPT breaker interruption time.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.4.2 Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation

LCO 3.3.4.2 Two channels per trip system for each ATWS-RPT instrumentation Function listed below shall be OPERABLE:

a. Reactor Vessel Water Level - ATWS-RPT Level; and

b. Reactor Steam Dome Pressure - High.

APPLICABILITY: MODE 1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Restore channel to OPERABLE status.	14 days
	OR	
	A.2 ------------NOTE----------- Not applicable if inoperable channel is the result of an inoperable breaker. ------------------------------ Place channel in trip.	14 days
B. One Function with ATWS-RPT trip capability not maintained.	B.1 Restore ATWS-RPT trip capability.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Functions with ATWS-RPT trip capability not maintained.	C.1 Restore ATWS-RPT trip capability for one Function.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Remove the associated recirculation pump from service.	6 hours
	<u>OR</u>	
	D.2 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - ATWS-RPT Level: ≥ -73 inches; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation

LCO 3.3.5.1 The ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.1-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	B.1 ----------NOTES----------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ------------------------------- Declare supported feature(s) inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	-----------NOTE------------ Only applicable for Functions 3.a and 3.b. --------------------------------	
		Declare High Pressure Coolant Injection (HPCI) System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	<u>AND</u>		
	B.3	Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	C.1	----------NOTES----------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.c, 2.c, 2.d, and 2.f. -------------------------------	
		Declare supported feature(s) inoperable.	1 hour from discovery of loss of initiation capability for feature(s) in both divisions
	<u>AND</u>		
	C.2	Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	D.1 -----------NOTE----------- Only applicable if HPCI pump suction is not aligned to the suppression pool. ------------------------------- Declare HPCI System inoperable.	1 hour from discovery of loss of HPCI initiation capability
	AND	
	D.2.1 Place channel in trip.	24 hours
	OR	
	D.2.2 Align the HPCI pump suction to the suppression pool.	24 hours
E. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	E.1 ----------NOTES----------- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.d and 2.g. ------------------------------- Declare supported feature(s) inoperable.	1 hour from discovery of loss of initiation capability for subsystems in both divisions
	AND	
	E.2 Restore channel to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	F.1 Declare Automatic Depressurization System (ADS) valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	<u>AND</u>	
	F.2 Place channel in trip.	96 hours from discovery of inoperable channel concurrent with HPCI or reactor core isolation cooling (RCIC) inoperable <u>AND</u> 8 days
G. As required by Required Action A.1 and referenced in Table 3.3.5.1-1.	G.1 Declare ADS valves inoperable.	1 hour from discovery of loss of ADS initiation capability in both trip systems
	<u>AND</u>	
	G.2 Restore channel to OPERABLE status.	96 hours from discovery of inoperable channel concurrent with HPCI or RCIC inoperable <u>AND</u> 8 days
H. Required Action and associated Completion Time of Condition B, C, D, E, F, or G not met.	H.1 Declare associated supported feature(s) inoperable.	Immediately

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

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

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3, 4(a), 5(a)	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3, 4(a), 5(a)	1 per subsystem	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 570 gpm and ≤ 745 gpm
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3, 4(a), 5(a)	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1,2,3	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(b) Also required to initiate the associated diesel generator (DG) and isolate the associated plant service water (PSW) turbine building (T/B) isolation valves.

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
c. Reactor Steam Dome Pressure - Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
	4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 390 psig and ≤ 476 psig
d. Reactor Steam Dome Pressure - Low (Recirculation Discharge Valve Permissive)	1(c), 2(c), 3(c)	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 335 psig
e. Reactor Vessel Shroud Level - Level 0	1, 2, 3	2	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -202 inches
f. Low Pressure Coolant Injection Pump Start - Time Delay Relay	1, 2, 3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.4 SR 3.3.5.1.5	
Pumps A, B, D					≥ 9 seconds and ≤ 15 seconds
Pump C					≤ 1 second
g. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, 2, 3, 4(a), 5(a)	1 per subsystem	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 1675 gpm and ≤ 2215 gpm

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(c) With associated recirculation pump discharge valve open.

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level - Low Low, Level 2	1, $2^{(d)}$, $3^{(d)}$	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -47 inches
b. Drywell Pressure - High	1, $2^{(d)}$, $3^{(d)}$	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Reactor Vessel Water Level - High, Level 8	1, $2^{(d)}$, $3^{(d)}$	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 56.5 inches
d. Condensate Storage Tank Level - Low	1, $2^{(d)}$, $3^{(d)}$	2	D	SR 3.3.5.1.3 SR 3.3.5.1.5	≥ 2.61 ft
e. Suppression Pool Water Level - High	1, $2^{(d)}$, $3^{(d)}$	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 154 inches
f. High Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1, $2^{(d)}$, $3^{(d)}$	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 590 gpm and ≤ 845 gpm

(continued)

(d) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 4 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System (ADS) Trip System A					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2(d), 3(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1, 2(d), 3(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	1	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 0 inches
e. Core Spray Pump Discharge Pressure - High	1, 2(d), 3(d)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 137 psig and ≤ 180 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2(d), 3(d)	4	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 112 psig and ≤ 180 psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, 2(d), 3(d)	2	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 12 minutes 18 seconds

(continued)

(d) With reactor steam dome pressure > 150 psig.

Table 3.3.5.1-1 (page 5 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System B					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1, 2(d), 3(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -113 inches
b. Drywell Pressure - High	1, 2(d), 3(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.92 psig
c. Automatic Depressurization System Initiation Timer	1, 2(d), 3(d)	1	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 114 seconds
d. Reactor Vessel Water Level - Low, Level 3 (Confirmatory)	1, 2(d), 3(d)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 0 inches
e. Core Spray Pump Discharge Pressure - High	1, 2(d), 3(d)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 137 psig and ≤ 180 psig
f. Low Pressure Coolant Injection Pump Discharge Pressure - High	1, 2(d), 3(d)	4	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 112 psig and ≤ 180 psig
g. Automatic Depressurization System Low Water Level Actuation Timer	1, 2(d), 3(d)	2	G	SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 12 minutes 18 seconds

---

(d) With reactor steam dome pressure > 150 psig.

3.3 INSTRUMENTATION

3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

LCO 3.3.5.2 The RCIC System instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	B.1 Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	<u>AND</u>	
	B.2 Place channel in trip.	24 hours
C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	C.1 Restore channel to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.	D.1	----------NOTE------------ Only applicable if RCIC pump suction is not aligned to the suppression pool. ------------------------------	
		Declare RCIC System inoperable.	1 hour from discovery of loss of RCIC initiation capability
	AND		
	D.2.1	Place channel in trip.	24 hours
	OR		
	D.2.2	Align RCIC pump suction to the suppression pool.	24 hours
E. Required Action and associated Completion Time of Condition B, C, or D not met.	E.1	Declare RCIC System inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

NOTES

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

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

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

Table 3.3.5.2-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2	4	B	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.4 SR 3.3.5.2.5	≥ -47 inches
2. Reactor Vessel Water Level - High, Level 8	2	C	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.4 SR 3.3.5.2.5	≤ 56.5 inches
3. Condensate Storage Tank Level - Low	2	D	SR 3.3.5.2.3 SR 3.3.5.2.5	≥ 1.0 ft
4. Suppression Pool Water Level - High	2	D	SR 3.3.5.2.3 SR 3.3.5.2.5	≤ 151 inches

3.3 INSTRUMENTATION

3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, and 6.b <u>AND</u> 24 hours for Functions other than Functions 2.a, 2.b, and 6.b
B. -----NOTE----- Not applicable for Function 5.c. ----- One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).	12 hours
	OR	
	D.2.1 Be in MODE 3.	12 hours
	AND	
	D.2.2 Be in MODE 4.	36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1. OR Required Action and associated Completion Time of Condition F not met.	G.1 Be in MODE 3.	12 hours
	AND	
	G.2 Be in MODE 4.	36 hours
H. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	H.1 Declare Standby Liquid Control (SLC) System inoperable.	1 hour
	OR	
	H.2 Isolate the Reactor Water Cleanup (RWCU) System.	1 hour

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

---NOTES---

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.7	-------------------------NOTE---------------------------- Channel sensors are excluded. --- Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.1-1 (page 1 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 825 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 138% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 7 inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1,2,3	6	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 194°F
f. Turbine Building Area Temperature - High	1,2,3	16(b)	D	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 200°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low, Level 3	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig

(continued)

(a) With any turbine stop valve not closed.

(b) With 8 channels per trip string. Each trip string shall have 2 channels per main steam line, with no more than 40 ft separating any two OPERABLE channels.

Table 3.3.6.1-1 (page 2 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation (continued)					
c. Drywell Radiation - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 138 R/hr
d. Reactor Building Exhaust Radiation - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6	≤ 80 mR/hr
e. Refueling Floor Exhaust Radiation - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.6	≤ 80 mR/hr
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 303% rated steam flow
b. HPCI Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 100 psig
c. HPCI Turbine Exhaust Diaphragm Pressure - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. HPCI Pipe Penetration Room Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Ambient Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F

(continued)

Table 3.3.6.1-1 (page 3 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. HPCI System Isolation (continued)					
g. Suppression Pool Area Temperature - Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 16 minutes 15 seconds
h. Suppression Pool Area Differential Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
i. Emergency Area Cooler Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 307% rated steam flow
b. RCIC Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 60 psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
d. Drywell Pressure - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.92 psig
e. RCIC Suppression Pool Ambient Area Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
f. Suppression Pool Area Temperature - Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 31 minutes 15 seconds

(continued)

Table 3.3.6.1-1 (page 4 of 4)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RCIC System Isolation (continued)					
g. RCIC Suppression Pool Area Differential Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 42°F
h. Emergency Area Cooler Temperature - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 169°F
5. RWCU System Isolation					
a. Area Temperature - High	1,2,3	1 per area	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 150°F
b. Area Ventilation Differential Temperature - High	1,2,3	1 per area	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 67°F
c. SLC System Initiation	1,2	1(c)	H	SR 3.3.6.1.6	NA
d. Reactor Vessel Water Level - Low Low, Level 2	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ - 47 inches
6. RHR Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure - High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 145 psig
b. Reactor Vessel Water Level - Low, Level 3	3,4,5	2(d)	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 0 inches

(c) SLC System Initiation only inputs into one of the two trip systems.

(d) Only one trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

LCO 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Function 2 <u>AND</u> 24 hours for Functions other than Function 2
B. One or more automatic Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated penetration flow path(s).	1 hour
	<u>OR</u>	
	C.1.2 Declare associated secondary containment isolation valves inoperable.	1 hour
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Place the associated standby gas treatment (SGT) subsystem(s) in operation.	1 hour
	<u>OR</u>	
	C.2.2 Declare associated SGT subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.4	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.2.5	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low Low, Level 2	1, 2, 3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≥ -47 inches
2. Drywell Pressure - High	1, 2, 3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 1.92 psig
3. Reactor Building Exhaust Radiation - High	1, 2, 3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 80 mR/hr
4. Refueling Floor Exhaust Radiation - High	1, 2, 3, 5(a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.3 SR 3.3.6.2.5	≤ 80 mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in secondary containment.

3.3 INSTRUMENTATION

3.3.6.3 Low-Low Set (LLS) Instrumentation

LCO 3.3.6.3 The LLS valve instrumentation for each Function in Table 3.3.6.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One LLS valve with initiation capability not maintained.	A.1 Restore LLS valve initiation capability.	24 hours
B. One or more safety/relief valves (S/RVs) with one Function 3 channel inoperable.	B.1 Restore tailpipe pressure switches to OPERABLE status.	Prior to entering MODE 2 or 3 from MODE 4
C. --------------NOTE--------------- Separate Condition entry is allowed for each S/RV. ----------------------------------- One or more S/RVs with two Function 3 channels inoperable.	C.1 Restore one tailpipe pressure switch to OPERABLE status.	14 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met. OR Two or more LLS valves with initiation capability not maintained.	D.1 Declare the associated LLS valve(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.3-1 to determine which SRs apply for each 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 LLS initiation capability is maintained.

SURVEILLANCE		FREQUENCY
SR 3.3.6.3.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.2	Perform CHANNEL FUNCTIONAL TEST for portion of the channel outside primary containment.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.6.3.3	-----------------------------NOTE---------------------------- Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment. --- Perform CHANNEL FUNCTIONAL TEST for portions of the channel inside primary containment.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.4	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6.3-1 (page 1 of 1)
Low-Low Set Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Steam Dome Pressure - High	1 per LLS valve	SR 3.3.6.3.1 SR 3.3.6.3.4 SR 3.3.6.3.5 SR 3.3.6.3.6	≤ 1085 psig
2. Low-Low Set Pressure Setpoints	2 per LLS valve	SR 3.3.6.3.1 SR 3.3.6.3.4 SR 3.3.6.3.5 SR 3.3.6.3.6	Low: Open ≤ 1010 psig Close ≤ 860 psig Medium-Low: Open ≤ 1025 psig Close ≤ 875 psig Medium-High: Open ≤ 1040 psig Close ≤ 890 psig High: Open ≤ 1050 psig Close ≤ 900 psig
3. Tailpipe Pressure Switch	2 per S/RV	SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.5 SR 3.3.6.3.6	≥ 80 psig and ≤ 100 psig

3.3 INSTRUMENTATION

3.3.7.1 Main Control Room Environmental Control (MCREC) System Instrumentation

LCO 3.3.7.1 Two channels of the Control Room Air Inlet Radiation - High Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

---NOTE---

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both channels inoperable.	A.1 Declare associated MCREC subsystem(s) inoperable.	1 hour from discovery of loss of MCREC initiation capability in both trip systems
	<u>AND</u>	
	A.2 Place channel in trip.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Place the associated MCREC subsystem(s) in the pressurization mode of operation.	1 hour
	<u>OR</u>	
	B.2 Declare associated MCREC subsystem(s) inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

---NOTE---

When a Control Room Air Inlet Radiation - High 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 channel is OPERABLE.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 1 mr/hour.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When the associated diesel generator (DG) is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable for Functions 1 and 2.	A.1 Restore channel to OPERABLE status.	1 hour
B. One or more channels inoperable for Function 3.	B.1 Verify voltage on associated 4.16 kV bus is ≥ 3825 V.	Once per hour
C. Required Action and associated Completion Time not met.	C.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTES-----

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

2. When a 4.16 kV Emergency Bus Undervoltage 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 initiation capability (for Functions 1 and 2) and annunciation capability (for Function 3).

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.2	Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.3	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.8.1-1 (page 1 of 1)
Loss of Power Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)			
a. Bus Undervoltage	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 2800 V
b. Time Delay	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≤ 6.5 seconds
2. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)			
a. Bus Undervoltage	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3280 V
b. Time Delay	2	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≤ 21.5 seconds
3. 4.16 kV Emergency Bus Undervoltage (Annunciation)			
a. Bus Undervoltage	1	SR 3.3.8.1.1 SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≥ 3825 V
b. Time Delay	1	SR 3.3.8.1.2 SR 3.3.8.1.3 SR 3.3.8.1.4	≤ 65 seconds

3.3 INSTRUMENTATION

3.3.8.2 Reactor Protection System (RPS) Electric Power Monitoring

LCO 3.3.8.2 Two RPS electric power monitoring assemblies shall be OPERABLE for each inservice RPS motor generator set or alternate power supply.

APPLICABILITY: MODES 1, 2, and 3,
MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both residual heat removal (RHR) shutdown cooling (SDC) isolation valves open.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both inservice power supplies with one electric power monitoring assembly inoperable.	A.1 Remove associated inservice power supply(s) from service.	72 hours
B. One or both inservice power supplies with both electric power monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both RHR SDC isolation valves open.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>AND</u>	
	D.2.1 Initiate action to restore one electric power monitoring assembly to OPERABLE status for inservice power supply(s) supplying required instrumentation.	Immediately
	<u>OR</u>	
	D.2.2 Initiate action to isolate the RHR SDC.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When an RPS electric power monitoring assembly is placed in an inoperable status solely for performance of required Surveillances, entry into the associated Conditions and Required Actions may be delayed for up to 6 hours provided the other RPS electric power monitoring assembly for the associated power supply maintains trip capability.

	SURVEILLANCE	FREQUENCY
SR 3.3.8.2.1	-----NOTE----- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for ≥ 24 hours. ----- Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.2	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Overvoltage ≤ 132 V, with time delay set to ≤ 4 seconds. b. Undervoltage ≥ 108 V, with time delay set to ≤ 4 seconds. c. Underfrequency ≥ 57 Hz, with time delay set to ≤ 4 seconds.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2.3	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	24 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> No recirculation loops in operation.	B.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 recirculation loop jet pump flow mismatch with both recirculation loops in operation is: a. ≤ 10% of rated core flow when operating at < 70% of rated core flow; and b. ≤ 5% of rated core flow when operating at ≥ 70% of rated core flow.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	(Not used.)	

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, b, or c) is satisfied for each operating recirculation loop: a. Recirculation pump flow to speed ratio differs by ≤ 5% from established patterns, and jet pump loop flow to recirculation pump speed ratio differs by ≤ 5% from established patterns. b. Each jet pump diffuser to lower plenum differential pressure differs by ≤ 20% from established patterns. c. Each jet pump flow differs by ≤ 10% from established patterns.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. All required leakage detection systems inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

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

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

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

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

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.7.1	------------------------------NOTE------------------------------ Not required to be met until 2 hours after reactor steam dome pressure is less than the RHR low pressure permissive pressure. -- Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation. AND No recirculation pump in operation.	B.1 Verify reactor coolant circulation 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.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR shutdown cooling subsystem or recirculation pump is operating.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.9.1	Verify: a. RCS pressure and RCS temperature are within the limits specified in Figures 3.4.9-1 and 3.4.9-2 during RCS inservice leak and hydrostatic testing, and during RCS non-nuclear heatup and cooldown operations; and b. RCS heatup and cooldown rates are ≤ 100°F in any 1 hour period during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing.	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2	---------------------------NOTE--------------------------- Only required to be met when the reactor is critical and immediately prior to control rod withdrawal for the purpose of achieving criticality. --- Verify RCS pressure and RCS temperature are within the criticality limits specified in Figure 3.4.9-3.	Once within 15 minutes prior to initial control rod withdrawal for the purpose of achieving criticality
SR 3.4.9.3	---------------------------NOTE--------------------------- Only required to be met in MODES 1, 2, 3, and 4 during startup of a recirculation pump. --- 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 starting an idle recirculation pump

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Reactor Steam Dome Pressure

LCO 3.4.10 The reactor steam dome pressure shall be ≤ 1058 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 ≤ 1058 psig.	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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	---------------------------NOTE--------------------------- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) low pressure permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. --- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify ADS air supply header pressure is ≥ 90 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify the RHR System cross tie valve is closed and power is removed from the valve operator.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.5	(Not used.)	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.1.6</td><td>-----------------------------NOTE-----------------------------
Only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 > 48 hours.

Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
<tr><td>SR 3.5.1.7</td><td>Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified reactor pressure.

<table><tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr><tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr><tr><td>LPCI</td><td>≥ 17,000 gpm</td><td>2</td><td>≥ 20 psig</td></tr></table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.1.8</td><td>-----------------------------NOTE-----------------------------
Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.

Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor pressure.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
</table>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	---------------------------NOTE--------------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --- Verify, with reactor pressure ≤ 165 psig, the HPCI pump can develop a flow rate ≥ 4250 gpm against a system head corresponding to reactor system pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.10	---------------------------NOTE--------------------------- Vessel injection/spray may be excluded. --- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.11	---------------------------NOTE--------------------------- Valve actuation may be excluded. --- Verify the ADS actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.12	Verify each ADS valve relief mode actuator strokes when manually actuated.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.13	---------------------------NOTE-------------------------- ECCS injection/spray initiation instrumentation response time may be assumed from established limits. --- Verify each ECCS injection/spray subsystem ECCS RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.2 ECCS - Shutdown

LCO 3.5.2 Two low pressure ECCS injection/spray subsystems shall be OPERABLE.

APPLICABILITY: MODE 4,
MODE 5, except with the spent fuel storage pool gates removed and water level ≥ 22 ft 1/8 inches over the top of the reactor pressure vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
C. Two required ECCS injection/spray subsystems inoperable.	C.1 Initiate action to suspend OPDRVs.	Immediately
	<u>AND</u>	
	C.2 Restore one ECCS injection/spray subsystem to OPERABLE status.	4 hours
D. Required Action C.2 and associated Completion Time not met.	D.1 Initiate action to restore secondary containment to OPERABLE status.	Immediately
	<u>AND</u>	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.2 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	<u>AND</u>	
	D.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ 146 inches.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	Verify, for each required core spray (CS) subsystem, the: a. Suppression pool water level is ≥ 146 inches; or b. ------------------------NOTE----------------------- Only one required CS subsystem may take credit for this option during OPDRVs. --- Condensate storage tank water level is ≥ 15 ft.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<table>
<tr><th colspan="2">SURVEILLANCE</th><th>FREQUENCY</th></tr>
<tr><td>SR 3.5.2.3</td><td>Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
<tr><td>SR 3.5.2.4</td><td>-------------------------NOTE-------------------------
One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
<tr><td>SR 3.5.2.5</td><td>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.
<table>
<tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr>
<tr><td>CS</td><td>≥ 4250 gpm</td><td>1</td><td>≥ 113 psig</td></tr>
<tr><td>LPCI</td><td>≥ 7700 gpm</td><td>1</td><td>≥ 20 psig</td></tr>
</table></td><td>In accordance with the Inservice Testing Program</td></tr>
<tr><td>SR 3.5.2.6</td><td>-------------------------NOTE-------------------------
Vessel injection/spray may be excluded.

Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</td><td>In accordance with the Surveillance Frequency Control Program</td></tr>
</table>

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.3 RCIC System

LCO 3.5.3 The RCIC System shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to RCIC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCIC System inoperable.	A.1 Verify by administrative means high pressure coolant injection (HPCI) System is OPERABLE.	1 hour
	<u>AND</u>	
	A.2 Restore RCIC System to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	B.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.2	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.3	--------------------------NOTE--------------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --	
	Verify, with reactor pressure ≤ 1058 psig and ≥ 920 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.4	--------------------------NOTE--------------------------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. --	
	Verify, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.5	--------------------------NOTE--------------------------- Vessel injection may be excluded. --	
	Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.1.2	Verify drywell to suppression chamber differential pressure does not decrease at a rate > 0.25 inch water gauge per minute tested over a 10 minute period at an initial differential pressure of 1 psid.	In accordance with the Surveillance Frequency Control Program AND -------NOTE---------- Only required after two consecutive tests fail and continues until two consecutive tests pass ------------------------- In accordance with the Surveillance Frequency Control Program

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	---NOTE--- Only required to be performed upon entry or exit through the primary containment air lock when the primary containment is de-inerted. --- Verify only one door in the primary containment air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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.	Immediately
	<u>OR</u>		
	F.2	----------NOTE----------- Only applicable for inoperable RHR shutdown cooling valves. ------------------------------	
		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 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. ---	
	Verify each 18 inch primary containment purge valve is closed.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	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 is required to be closed during accident conditions is closed.	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 is required to be closed during accident conditions is closed.	Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.5	Verify the isolation time of each power operated and each automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV, excluding EFCVs, actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV (of a representative sample) actuates to restrict flow to within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP system.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.3.10	Verify the combined leakage rate for all secondary containment bypass leakage paths is $\leq 0.009\ L_a$ when pressurized to $\geq P_a$.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify leakage rate through each MSIV is $\leq$ 100 scfh, and a combined maximum pathway leakage $\leq$ 250 scfh for all four main steam lines, when tested at $\geq$ 28.8 psig. However, the leakage rate acceptance criteria for the first test following discovery of leakage through an MSIV not meeting the 100 scfh limit, shall be $\leq$ 11.5 scfh for that MSIV.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.12	Deleted	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.13	Cycle each 18 inch excess flow isolation damper to the fully closed and fully open position.	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 ≤ 1.75 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.	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.	12 hours
	<u>AND</u>		
	B.2	Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.1.6 Low-Low Set (LLS) Valves

LCO 3.6.1.6 The LLS function of three of four safety/relief valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two or more LLS valves inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.1.7 Reactor Building-to-Suppression Chamber Vacuum Breakers

LCO 3.6.1.7 Each reactor building-to-suppression chamber vacuum breaker shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

--NOTE--

Separate Condition entry is allowed for each line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more lines with one reactor building-to-suppression chamber vacuum breaker not closed.	A.1 Close the open vacuum breaker.	72 hours
B. One or more lines with two reactor building-to-suppression chamber vacuum breakers not closed.	B.1 Close one open vacuum breaker.	1 hour
C. One line with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	C.1 Restore the vacuum breaker(s) to OPERABLE status.	72 hours
D. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	D.1 Restore all vacuum breakers in one line to OPERABLE status.	1 hour

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.1.8 Suppression Chamber-to-Drywell Vacuum Breakers

LCO 3.6.1.8 Ten suppression chamber-to-drywell vacuum breakers shall be OPERABLE for opening.

<u>AND</u>

Twelve suppression chamber-to-drywell vacuum breakers shall be closed, except when performing their intended function.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required suppression chamber-to-drywell vacuum breaker inoperable for opening.	A.1 Restore one vacuum breaker to OPERABLE status.	72 hours
B. One suppression chamber-to-drywell vacuum breaker not closed.	B.1 Close the open vacuum breaker.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	AND	
	C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.8.1	----------NOTE---------- Not required to be met for vacuum breakers that are open during Surveillances. ------------------------------ Verify each vacuum breaker is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.1.8.2	Perform a functional test of each required vacuum breaker.	In accordance with the Surveillance Frequency Control Program <u>AND</u> Within 12 hours after any discharge of steam to the suppression chamber from the S/RVs
SR 3.6.1.8.3	Verify the opening setpoint of each required vacuum breaker is ≤ 0.5 psid.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.2.1 Suppression Pool Average Temperature

LCO 3.6.2.1 Suppression pool average temperature shall be:

a. ≤ 100°F when any OPERABLE intermediate range monitor (IRM) channel is > 25/40 divisions of full scale on Range 7 and no testing that adds heat to the suppression pool is being performed;

b. ≤ 105°F when any OPERABLE IRM channel is > 25/40 divisions of full scale on Range 7 and testing that adds heat to the suppression pool is being performed; and

c. ≤ 110°F when all OPERABLE IRM channels are ≤ 25/40 divisions of full scale on Range 7.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool average temperature > 100°F but ≤ 110°F. <u>AND</u> Any OPERABLE IRM channel > 25/40 divisions of full scale on Range 7. <u>AND</u> Not performing testing that adds heat to the suppression pool.	A.1 Verify suppression pool average temperature ≤ 110°F. <u>AND</u> A.2 Restore suppression pool average temperature to ≤ 100°F.	Once per hour 24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER until all OPERABLE IRM channels ≤ 25/40 divisions of full scale on Range 7.	12 hours
C. Suppression pool average temperature > 105°F. AND Any OPERABLE IRM channel > 25/40 divisions of full scale on Range 7. AND Performing testing that adds heat to the suppression pool.	C.1 Suspend all testing that adds heat to the suppression pool.	Immediately
D. Suppression pool average temperature > 110°F but ≤ 120°F.	D.1 Place the reactor mode switch in the shutdown position.	Immediately
	AND	
	D.2 Verify suppression pool average temperature ≤ 120°F.	Once per 30 minutes
	AND	
	D.3 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2 Suppression pool water level shall be ≥ 146 inches and ≤ 150 inches.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Two RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool cooling subsystems inoperable.	B.1 Restore one RHR suppression pool cooling subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.2	Verify each required RHR pump develops a flow rate ≥ 7700 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the Inservice Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.2.4 Residual Heat Removal (RHR) Suppression Pool Spray

LCO 3.6.2.4 Two RHR suppression pool spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool spray subsystem inoperable.	A.1 Restore RHR suppression pool spray subsystem to OPERABLE status.	7 days
B. Two RHR suppression pool spray subsystems inoperable.	B.1 Restore one RHR suppression pool spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR suppression pool spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.2	Verify each suppression pool spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.6 CONTAINMENT SYSTEMS

3.6.3.3 Drywell Cooling System Fans

LCO 3.6.3.3 Two drywell cooling system fans shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required drywell cooling system fan inoperable.	A.1 Restore required drywell cooling system fan to OPERABLE status.	30 days
B. Two required drywell cooling system fans inoperable.	B.1 Restore one required drywell cooling system fan to OPERABLE status.	7 days
C. Required Action and Associated Completion Time not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.3.1	Operate each required drywell cooling system fan for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRV).

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1	Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	B.2	Be in MODE 4.	36 hours
C. Secondary containment inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	C.1	-----------NOTE------------ LCO 3.0.3 is not applicable. ------------------------------ Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	----------------------------NOTE---------------------------- The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --- Verify required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.4	----------------------------NOTE---------------------------- The number of SGT subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. --	
	Verify required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 4000 cfm for each subsystem.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRV).

ACTIONS

---NOTES---

1. Penetration flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	8 hours
	<u>AND</u>	
	A.2 ------------NOTE------------ Isolation devices in high radiation areas may be verified by use of administrative means. ------------------------------ Verify the affected penetration flow path is isolated.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more penetration flow paths with two SCIVs inoperable.	B.1	Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2	Be in MODE 4.	36 hours
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	D.1	-------------NOTE---------- LCO 3.0.3 is not applicable. ------------------------------- Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>		
	D.2	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	D.3	Initiate action to suspend OPDRVs.	Immediately

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 required to be closed during accident conditions is closed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.2	Verify the isolation time of each power operated and each automatic SCIV is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 The Unit 1 and Unit 2 SGT subsystems required to support LCO 3.6.4.1, "Secondary Containment," shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRV).

ACTIONS

---NOTE---

When two Unit 1 SGT subsystems are placed in an inoperable status solely for inspection of the Unit 1 hardened vent rupture disk, entry into associated Conditions and Required Actions may be delayed for up to 24 hours, provided both Unit 2 SGT subsystems are OPERABLE.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required Unit 1 SGT subsystem inoperable while: 1. Four SGT subsystems required OPERABLE, and 2. Unit 1 reactor building-to-refueling floor plug not installed.	A.1 Restore required Unit 1 SGT subsystem to OPERABLE status.	30 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required Unit 2 SGT subsystem inoperable. OR One required Unit 1 SGT subsystem inoperable for reasons other than Condition A.	B.1 Restore required SGT subsystem to OPERABLE status.	7 days AND 30 days from discovery of failure to meet the LCO
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
	AND	
	C.2 Be in MODE 4.	36 hours
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----------------NOTE----------------- LCO 3.0.3 is not applicable. --	
	D.1 Place remaining OPERABLE SGT subsystem(s) in operation.	Immediately
	OR	
	D.2.1 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	D.2.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	D.2.3 Initiate action to suspend OPDRVs.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or more required SGT subsystems inoperable in MODE 1, 2, or 3.	E.1 Enter LCO 3.0.3.	Immediately
F. Two or more required SGT subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	F.1 -----------NOTE------------ LCO 3.0.3 is not applicable. ------------------------------- Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	AND	
	F.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each required SGT subsystem for ≥ 15 continuous minutes.	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 required SGT subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify each RHRSW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in each PSW pump well of the intake structure is ≥ 60.7 ft mean sea level (MSL).	In accordance with the Surveillance Frequency Control Program <u>AND</u> 12 hours when water level is ≤ 61.7 ft MSL
SR 3.7.2.2	----------------------------NOTE---------------------------- Isolation of flow to individual components or systems does not render PSW System inoperable. --- Verify each PSW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.3	Verify each PSW subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each DG 1B SSW System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.3.2	Verify the DG 1B SSW System pump starts automatically when DG 1B starts and energizes the respective bus.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	------------------NOTE------------------ LCO 3.0.3 is not applicable. ---	
	F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	AND	
	F.2 Suspend CORE ALTERATIONS.	Immediately
	AND	
	F.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each MCREC subsystem ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.4.2	Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each MCREC subsystem actuates on an actual or simulated initiation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.4.4	Verify each MCREC subsystem can maintain a positive pressure of ≥ 0.1 inches water gauge relative to the turbine building during the pressurization mode of operation at a subsystem flow rate of ≤ 2750 cfm and an outside air flow rate ≤ 400 cfm.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each control room AC subsystem has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.6.1	------------------------------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 ≤ 240 mCi/second.	In accordance with the Surveillance Frequency Control Program 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 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 ≥ 24% 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 < 24% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify one complete cycle of each main turbine bypass valve.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.2	Perform a system functional test.	In accordance with the Surveillance Frequency Control Program
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.8 Spent Fuel Storage Pool Water Level

LCO 3.7.8 The spent fuel storage pool water level shall be ≥ 21 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.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify the spent fuel storage pool water level is ≥ 21 ft over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

--NOTE--

SR 3.8.1.1 through SR 3.8.1.18 are applicable only to the Unit 2 AC sources. SR 3.8.1.19 is applicable only to the Unit 1 AC sources.

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	---------------------------NOTES--------------------------- 1. Performance of SR 3.8.1.5 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. 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 3.8.1.5.a must be met. 4. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F for one periodic test, and the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F during the next periodic test. 5. DG loadings may include gradual loading as recommended by the manufacturer.	

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.2 (continued)	-----NOTES----- 6. Starting transients above the upper voltage limit do not invalidate this test. 7. Momentary transients outside the load range do not invalidate this test. 8. This Surveillance shall be conducted on only one DG at a time. ---------- Verify each DG: a. Starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 1710 kW and ≤ 2000 kW.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.3	Verify each day tank contains ≥ 500 gallons of fuel oil.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4	Check for and remove accumulated water from each day tank.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. DG loadings may include gradual loading as recommended by the manufacturer. 3. Momentary load transients outside the load range do not invalidate this test. 4. This Surveillance shall be conducted on only one DG at a time. 5. For the swing DG, a single test will satisfy this Surveillance for both units, using the starting circuitry of Unit 2 and synchronized to 4160 V bus 2F for one periodic test and the starting circuitry of Unit 1 and synchronized to 4160 V bus 1F during the next periodic test. ---	
	Verify each DG: a. Starts from standby conditions and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and b. Operates for ≥ 60 minutes at a load ≥ 2764 kW and ≤ 2825 kW for DG 2A, ≥ 2360 kW and ≤ 2425 kW for DG 1B, and ≥ 2742 kW and ≤ 2825 kW for DG 2C.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.6	---------------------------NOTE--------------------------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.7	---------------------------NOTES--------------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 2. For the swing DG, a single test at the specified Frequency will satisfy this 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 ≤ 65.5 Hz; and b. Within 3 seconds following load rejection, the voltage is ≥ 3740 V and ≤ 4580 V.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.8	-----------------------------NOTES--------------------------- 1. This Surveillance shall not be performed in MODE 1 or 2, except for the swing DG. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 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. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. --	
	Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	---------------------------NOTES--------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --	
	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 ≤ 12 seconds, 2. Energizes auto-connected shutdown loads through automatic load sequence timing devices, 3. Maintains steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.10	---NOTES--- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---	
	Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In ≤ 12 seconds after auto-start achieves voltage ≥ 3740 V, and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V; b. In ≤ 12 seconds after auto-start achieves frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and c. Operates for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-------------------------NOTE------------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- 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; b. Generator differential current; and c. Low lube oil pressure.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	-------------------------NOTES--------------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2, unless the other two DGs are OPERABLE. If either of the other two DGs becomes inoperable, this Surveillance shall be suspended. Credit may be taken for unplanned events that satisfy this SR. 3. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 4. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ---	
	Verify each DG operating at a power factor ≤ 0.88 operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 3000 kW; and b. For the remaining hours of the test loaded ≥ 2775 kW and ≤ 2825 kW.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	-----NOTES----- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 2565 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. ----------	
	Verify each DG starts and achieves, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and after steady state conditions are reached, maintains voltage ≥ 3740 V and ≤ 4243 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.14	-----NOTE----- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ----------	
	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.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.15	-------------------------NOTE------------------------------ This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.16	---------------------------NOTE----------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. --- Verify interval between each sequenced load block is within ± 10% of design interval for each load sequence timing device.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.17	-------------------------NOTES------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. -- 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 ≤ 12 seconds, 2. Energizes auto-connected emergency loads through automatic load sequence timing devices, 3. Achieves steady state voltage ≥ 3740 V and ≤ 4243 V, 4. Achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. Supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.18	---------------------------NOTE------------------------------ All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, the Unit 2 DGs achieve, in ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.19	For required Unit 1 AC Sources, the SRs of Unit 1 Technical Specifications are applicable, except SR 3.8.1.6, SR 3.8.1.10, SR 3.8.1.15, and SR 3.8.1.17.	In accordance with applicable SRs

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each Unit 2 and swing DG fuel oil storage tank contains ≥ 33,320 gallons of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify each required DG lube oil inventory is ≥ 400 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil total particulate concentration of Unit 2 and swing DG stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each required DG air start receiver pressure is ≥ 225 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.6	Check for and remove accumulated water from each Unit 2 and swing DG fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.7	Verify each Unit 2 and swing DG fuel oil transfer subsystem operates to manually transfer fuel from the associated fuel oil storage tank to the day tank of each required DG.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

-NOTE-

SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 2 DC sources. SR 3.8.4.9 is applicable only to the Unit 1 DC sources.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 125 V on float charge.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.4	Remove visible corrosion, and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.5	Verify battery connection resistance is within limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.6	Verify each required battery charger supplies ≥ 400 amps for station service subsystems, and ≥ 100 amps for DG subsystems at ≥ 129 V for ≥ 1 hour.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.7	------------------NOTES------------------ 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. --- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.8	------------------------------NOTE--------------------------- This Surveillance shall not be performed in MODE 1, 2, or 3, except for the swing DG battery. However, credit may be taken for unplanned events that satisfy this SR. -- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program <u>AND</u> 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of expected life with capacity ≥ 100% of manufacturer's rating
SR 3.8.4.9	For required Unit 1 DC sources, the SRs of Unit 1 Specification 3.8.4 are applicable.	In accordance with applicable SRs

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program AND Once within 24 hours after battery overcharge > 150 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 65°F for each station service battery, and ≥ 40°F for each DG battery.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC and DC electrical power distribution subsystem(s) 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.	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 full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	In accordance with the Surveillance Frequency Control Program

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

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

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY - Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	<u>AND</u>	
	B.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation <u>AND</u> Once per 12 hours thereafter
	<u>AND</u>	
	C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is operating.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND	
	C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	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
	OR	
	A.3.2 -----------NOTE----------- Only applicable in MODE 5. -------------------------------	
	Place the reactor mode switch in the refuel position.	1 hour

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.4.2	--------------------------NOTE---------------------------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. --- Verify all control rods, other than the control rod being withdrawn, in a five by five array centered on the control rod being withdrawn, are disarmed.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.3	Verify all control rods, other than the control rod being withdrawn, are fully inserted.	In accordance with the Surveillance Frequency Control Program
SR 3.10.4.4	--------------------------NOTE---------------------------- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. --- Verify a control rod withdrawal block is inserted.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

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

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.3	----------------------------NOTE----------------------------- Not required to be met if SR 3.10.8.2 satisfied. --- Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.	During control rod movement
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	In accordance with the Surveillance Frequency Control Program
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to full-out position AND Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling
SR 3.10.8.6	Verify CRD charging water header pressure ≥ 940 psig.	In accordance with the Surveillance Frequency Control Program

5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.13 Surveillance Frequency Control Program

This program provides controls for the 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 the 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.

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License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 7

TS Bases Changes for HNP Unit 1

Insert 1

In accordance with the Surveillance Frequency Control Program

Insert 2

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program

Insert 3

5.5.13 Surveillance Frequency Control Program

This program provides controls for the 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 the 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.

BASES

ACTIONS (continued)

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

Insert 2 →

The position of each control rod must be determined to ensure adequate information on control rod position is available to the operator for determining control rod OPERABILITY and controlling rod patterns. Control rod position may be determined by the use of OPERABLE position indicators, by moving control rods to a position with an OPERABLE indicator, or by the use of other appropriate methods~~. The 24 hour Frequency of this SR is based on operating experience related to expected changes in control rod position and the availability of control rod position indications in the control room.~~

SR 3.1.3.2 and 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. These Surveillances are not required when THERMAL POWER is less than or equal to the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of the Banked Position Withdrawal Sequence (BPWS) (LCO 3.1.6) and the RWM (LCO 3.3.2.1). ~~The 7 day Frequency of SR 3.1.3.2 is based on operating experience related to the changes in CRD performance and the ease of~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.3.2 and SR 3.1.3.3 (continued)

Insert 2

~~performing notch testing for fully withdrawn control rods. Partially withdrawn control rods are tested at a 31 day Frequency, based on the potential power reduction required to allow the control rod movement and considering the large testing sample of SR 3.1.3.2. Furthermore, the 31 day Frequency takes into account operating experience related to changes in CRD performance.~~ At any time, if a control rod is immovable, a determination of that control rod's tripability (capable of insertion by scram, i.e., OPERABILITY) must be made and appropriate action taken.

These SRs are each modified by a Note that allows 7 days and 31 days, respectively, after withdrawal of the control rod and THERMAL POWER is greater than the LPSP to perform the Surveillance. This acknowledges that the control rod must first be withdrawn and THERMAL POWER must be greater than the LPSP before performance of the Surveillance, and therefore 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 notch position 06 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 SR 3.1.4.4. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," and the functional testing of SDV vent and drain valves in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," overlap this Surveillance to provide complete testing of the assumed safety function. The associated Frequencies are acceptable, considering the more frequent testing performed to demonstrate other aspects of control rod OPERABILITY and operating experience, which shows scram times do not significantly change over an operating cycle.

SR 3.1.3.5

Coupling verification is performed to ensure the control rod is connected to the CRDM and will perform its intended function when necessary. The Surveillance requires verifying a control rod does not go to the withdrawn overtravel position. The overtravel position

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1 (continued)

acceptable scram times for the transients analyzed in References 3 and 4.

Maximum scram insertion times occur at a reactor steam dome pressure of approximately 800 psig because of the competing effects of reactor steam dome pressure and stored accumulator energy. Therefore, demonstration of adequate scram times at reactor steam dome pressure ≥ 800 psig ensures that the measured scram times will be within the specified limits at higher pressures. Limits are specified as a function of reactor pressure to account for the sensitivity of the scram insertion times with pressure and to allow a range of pressures over which scram time testing can be performed. To ensure that scram time testing is performed within a reasonable time following fuel movement within the reactor pressure vessel or after a shutdown ≥ 120 days or longer, control rods are required to be tested before exceeding 40% RTP. In the event fuel movement is limited to selected core cells, it is the intent of this SR that only those CRDs associated with the core cells affected by the fuel movements are required to be scram time tested. This Frequency is acceptable considering the additional surveillances performed for control rod OPERABILITY, the frequent verification of adequate accumulator pressure, and the required testing of control rods affected by work on control rods or the CRD System.

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 7.5% of the control rods in the sample tested are determined to be "slow". With more than 7.5% of the sample declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this 7.5% criterion (i.e., 7.5% 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 200 day Frequency is based on operating experience that has shown control rod scram times do not significantly change over an operating cycle. This Frequency is also reasonable based on the additional Surveillances~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.4.2 (continued)

Insert 2

~~done on the CRDs at more frequent intervals in accordance with LCO 3.1.3 and LCO 3.1.5, "Control Rod Scram Accumulators."~~

SR 3.1.4.3

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

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

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

SR 3.1.4.4

When work that could affect the scram insertion time is performed on a control rod or CRD System, testing must be done to demonstrate each affected control rod is still within the limits of Table 3.1.4-1 with the reactor steam dome pressure ≥ 800 psig. Where work has been performed at high reactor pressure, the requirements of SR 3.1.4.3 and SR 3.1.4.4 can be satisfied with one test. However, for a control rod affected by work performed while shutdown, a zero pressure test and a high pressure test may be required. This testing ensures that,

(continued)

ACTIONS
(continued)

C.1 and C.2

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

D.1

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

SURVEILLANCE
REQUIREMENTS

SR 3.1.5.1

SR 3.1.5.1 requires that the accumulator pressure be checked ~~every 7 days~~ periodically to ensure adequate accumulator pressure exists to provide sufficient scram force. The primary indicator of accumulator OPERABILITY is the accumulator pressure. A minimum accumulator pressure is specified, below which the capability of the accumulator to perform its intended function becomes degraded and the accumulator is considered inoperable. The minimum accumulator pressure of 940 psig is well below the expected pressure of 1100 psig (Ref. 1).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1 (continued)

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.~~

Insert 2

REFERENCES

1. FSAR, Section 3.4.
2. FSAR, Appendix M.
3. FSAR, Sections 14.3 and 14.4.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

B.1 and B.2 (continued)

Control rod withdrawal should be suspended immediately to prevent the potential for further deviation from the prescribed sequence. Control rod insertion to correct control rods withdrawn beyond their allowed position is allowed since, in general, insertion of control rods has less impact on control rod worth than withdrawals have. Required Action B.1 is modified by a Note which allows the RWM to be bypassed to allow the affected control rods to be returned to their correct position. LCO 3.3.2.1 requires verification of control rod movement by a second licensed operator or other qualified member of the technical staff.

When nine or more OPERABLE control rods are not in compliance with BPWS, 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 BPWS ~~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 BPWS 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 RWM

REFERENCES

1. NEDE-24011-P-A-US, "General Electric Standard Application for Reactor Fuel, Supplement for United States," (revision specified in the COLR).

2. Letter from T. A. Pickens (BWROG) to G. C. Lainas (NRC), "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," BWROG-8644, August 15, 1988.

3. NUREG-0979, Section 4.2.1.3.2, April 1983.

4. NUREG-0800, Section 15.4.9, Revision 2, July 1981.

(continued)

BASES

ACTIONS

B.1 (continued)

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock," resulting in establishing the "time zero" at the time the LCO was initially not met instead of at the time Condition B was entered. The 10 day Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.

C.1

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

D.1

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

SURVEILLANCE REQUIREMENTS

SR 3.1.7.1, SR 3.1.7.2, and SR 3.1.7.3

SR 3.1.7.1 through SR 3.1.7.3 ~~are 24 hour Surveillances~~ verify~~ing~~ certain characteristics of the SLC System (e.g., the volume and temperature of the borated solution in the storage tank), thereby ensuring SLC System OPERABILITY without disturbing normal plant operation. These Surveillances ensure that the proper borated solution volume and temperature, including the temperature of the pump suction piping, are maintained (within Region A limits of Figures 3.1.7-1 and 3.7.1-2). 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

(continued)

SURVEILLANCE REQUIREMENTS

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

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.~~

Insert 2

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.~~

Insert 2

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 and power operated 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.~~

Insert 2

SR 3.1.7.5

This Surveillance requires an examination of the sodium pentaborate solution by using chemical analysis to ensure that the proper concentration of boron exists in the storage tank (within Region A limits of Figures 3.1.7-1 and 3.1.7-2). SR 3.1.7.5 must be performed any time sodium pentaborate or water is added to the storage tank solution to determine that the boron solution concentration is within the specified limits. SR 3.1.7.5 must also be performed any time the temperature is restored to within the Region A limits of Figure 3.1.7-2,

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.7.5 (continued)

to ensure that no significant boron precipitation occurred. ~~The 31 day Frequency of this Surveillance is appropriate because of the relatively slow variation of boron concentration between surveillances.~~

Insert 2

SR 3.1.7.7

Demonstrating that each SLC System pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 psig ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the sodium pentaborate 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. The 24 month Frequency of SR 3.1.7.8 is based on a review of the surveillance test history and Reference 4.~~

Insert 2

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

Demonstrating that all heat traced piping between the sodium pentaborate 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 acceptable method for verifying that the suction piping is unblocked is to pump from the storage tank to the test tank.

Insert 2

~~The 24 month Frequency is acceptable since there is a low probability that the subject piping will be blocked due to precipitation of the boron from solution in the heat traced piping.~~ This is especially true in light of the temperature verification of this piping required by SR 3.1.7.3. However, if, in performing SR 3.1.7.3, it is determined that the temperature of this piping has fallen below the specified minimum, SR 3.1.7.9 must be performed once within 24 hours after the piping temperature is restored to within the Region A limits of Figure 3.1.7-2. ~~The 24 month Frequency of SR 3.1.7.9 is based on a review of the surveillance test history and Reference 4.~~

SR 3.1.7.10

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Isotopic tests on the granular sodium pentaborate to verify the actual B-10 enrichment must be performed prior to addition to the SLC tank in order to ensure that the proper B-10 atom percentage is being used.

REFERENCES

1. 10 CFR 50.62.
2. FSAR, Section 3.8.4.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.8.1 (continued)

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.

Insert 2

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

SR 3.1.8.2

Insert 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

Insert 2

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 45 seconds after receipt of a scram signal is based on the bounding leakage case evaluated in the accident analysis (Ref. 1). Similarly, after receipt of a simulated or actual scram reset signal, the opening of the SDV vent and drain valves is verified. Although not explicitly stated in the SR, the valves are required to open prior to receipt of a control rod block on high SDV level. This criterion ensures the valves can open in time to preclude a scram on SDV high level and maintain sufficient volume in the SDV to receive and contain the water discharged by the control rod drives during a scram per the requirements of the applicable safety analysis (Ref.1). The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3 overlap this Surveillance to provide complete testing of the assumed safety function. ~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 3.4.
2. 10 CFR 100.
3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES

ACTIONS (continued)

B.1

If the APLHGR cannot be restored to within its required limits within the associated Completion Time, the plant must be brought to a MODE or other specified condition in which the LCO does not apply.

To achieve this status, THERMAL POWER must be reduced to < 24% RTP within 4 hours. The allowed Completion Time is reasonable, based on operating experience, to reduce THERMAL POWER to < 24% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.1.1

periodically

APLHGRs are required to be initially calculated within 12 hours after THERMAL POWER is ≥ 24% RTP and ~~then every 24 hours~~ thereafter. They are compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis.

Insert 2

~~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 ≥ 24% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels.

REFERENCES

1. NEDE-24011-P-A "General Electric Standard Application for Reactor Fuel," (revision specified in the COLR).
2. (Not used)
3. FSAR, Chapter 6.
4. FSAR, Chapter 15, Unit 2.
5. (Not used)
6. NEDC-32749P, "Extended Power Uprate Safety Analysis Report for Edwin I. Hatch Units 1 and 2," July 1997.
7. NEDC-30474-P "Average Power Range Monitor, Rod Block Monitor and Technical Specification Improvements (ARTS) Program for E.I. Hatch Nuclear Plant, Units 1 and 2," December 1983.
8. (Not used)

(continued)

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 < 24% RTP within 4 hours. The allowed Completion Time is reasonable, based on operating experience, to reduce THERMAL POWER to < 24% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.2.1

periodically

The MCPR is required to be initially calculated within 12 hours after THERMAL POWER is ≥ 24% RTP and ~~then every 24 hours~~ thereafter. It is compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. ~~The 24 hour Frequency is based on both engineering judgment and recognition of the slowness of changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER ≥ 24% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels.

Insert 2

SR 3.2.2.2

Because the transient analysis takes credit for conservatism in the scram speed performance, it must be demonstrated that the specific scram speed distribution is consistent with that used in the transient analysis. SR 3.2.2.2 determines the value of τ, which is a measure of the actual scram speed distribution compared with the assumed distribution. The MCPR operating limit is then determined based on an interpolation between the applicable limits for Option A (scram

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.2.3.1

periodically

Insert 2

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

REFERENCES

1. NEDE-24011-P-A "General Electric Standard Application for Reactor Fuel."
2. FSAR, Chapter 15 (Unit 2).
3. NUREG-0800, Section II.A.2(g), Revision 2, July 1981.
4. NEDC-32749P, "Extended Power Uprate Safety Analysis Report for Edwin I. Hatch Units 1 and 2," July 1997.
5. NEDC-30474-P, "Average Power Range Monitor, Rod Block Monitor and Technical Specification Improvements (ARTS) Program for E. I. Hatch Nuclear Plant, Units 1 and 2," December 1983.
6. NRC approval of "Amendment 26 to GE Licensing Topical Report NEDE-24011-P-A, "GESTAR II"—Implementing Improved GE Steady-State Methods (TAC No. MA6481)," November 10, 1999.
7. NEDO-24154-A, "Qualification of the One-Dimensional Core Transient Model (ODYN) for Boiling Water Reactors," August 1986, and NEDE-24154-P-A, Supplement 1, Volume 4, Revision 1, February 2000.
8. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
9. Letter from Global Nuclear Fuel, M. E. Harding to E. B. Gibson, January 22, 2004, "Plant Hatch Technical Specification Modification to include LHGR."

BASES

ACTIONS (continued)

I.2

The alternate method to detect and suppress oscillations implemented in accordance with Required Action I.1 was evaluated based on use up to 120 days (Ref. 12). The evaluation, based on engineering judgment, concluded that the likelihood of an instability event that could not be adequately handled by the alternate method during this 120 day period is negligibly small. The 120 day period is intended to be an outside limit to allow for the case where design changes or extensive analysis may be required to understand or correct some unanticipated characteristic of the instability detection algorithm or equipment. This action is not intended to be, and was not evaluated as, a routine alternative to returning failed or inoperable equipment to OPERABLE status. Correction of routine equipment failure or inoperability is expected to normally be accomplished within the Completion Times allowed for Required Actions for Conditions A and B.

SURVEILLANCE REUIREMENTS

As noted at the beginning of the SRs, the SRs for each RPS instrumentation Function are located in the SRs column of Table 3.3.1.1-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains RPS 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. 9) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RPS will trip when necessary.

SR 3.3.1.1.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations

(continued)

BASES

SURVEILLANCE REUIREMENTS

SR 3.3.1.1.1 (continued)

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.

Insert 2

~~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

Insert 2

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

A restriction to satisfying this SR when < 24% RTP is provided that requires the SR to be met only at ≥ 24% RTP because it is difficult to accurately maintain APRM indication of core THERMAL POWER consistent with a heat balance when < 24% RTP. At low power levels, a high degree of accuracy is unnecessary because of the large, inherent margin to thermal limits (MCPR and APLHGR). At ≥ 24% 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 24% 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 24% RTP. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.3

(Not used.)

SR 3.3.1.1.4

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. 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 Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This allows entry into MODE 2 if the ~~7 day~~ Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after entering MODE 2 from MODE 1. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

Insert 2

~~A Frequency of 7 days provides an acceptable level of system average unavailability over the Frequency interval and is based on reliability analysis (Ref. 9).~~

SR 3.3.1.1.5

Insert 2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. ~~A Frequency of 7 days provides an acceptable level of system average availability over the Frequency and is based on the reliability analysis of Reference 9. (The Manual Scram Function's CHANNEL FUNCTIONAL TEST Frequency was credited in the analysis to extend many automatic scram Functions' Frequencies.)~~

SR 3.3.1.1.6 and SR 3.3.1.1.7

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

The overlap between SRMs and IRMs is required to be demonstrated to ensure that reactor power will not be increased into a neutron flux region without adequate indication. This is required prior to

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.6 and SR 3.3.1.1.7 (continued)

withdrawing SRMs from the fully inserted position since indication is being transitioned from the SRMs to the IRMs.

The overlap between IRMs and APRMs is of concern when reducing power into the IRM range. On power increases, the system design will prevent further increases (by initiating a rod block) if adequate overlap is not maintained. Overlap between IRMs and APRMs exists when sufficient IRMs and APRMs concurrently have onscale readings such that the transition between MODE 1 and MODE 2 can be made without either APRM downscale rod block, or IRM upscale rod block. Overlap between the SRMs and IRMs similarly exists when, prior to withdrawing an SRM from the fully inserted position, its associated IRMs have cleared their downscale rod block Allowable Values, prior to the SRM having reached its upscale rod block Allowable Value. Plant procedures should be consulted to determine the associated detectors.

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.

Insert 2

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

SR 3.3.1.1.8

Insert 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 APRM System. ~~The 1000 effective full power hours Frequency is based on ensuring the nodal power uncertainty is within the licensing basis analysis.~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.9 and SR 3.3.1.1.12

Insert 2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. ~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.1.1.9 is based on a review of the surveillance test history, drift analysis of the associated trip units (if applicable), and Reference 20.~~

Insert 2

~~The 24 month Frequency of SR 3.3.1.1.12 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency of SR 3.3.1.1.12 is based on a review of the surveillance test history and Reference 18.~~

SR 3.3.1.1.10

Insert 2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. For the APRM Functions, this test supplements the automatic self-test functions that operate continuously in the APRM and voter channels. The APRM CHANNEL FUNCTIONAL TEST covers the APRM channels (including recirculation flow processing - applicable to Function 2.b only), the two-out-of-four voter channels, and the interface connections to the RPS trip systems from the voter channels. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. ~~The 184 day Frequency of SR 3.3.1.1.10 is based on the reliability analysis of References 12 and 16. (NOTE: The actual voting logic of the two-out-of-four voter channels is tested as part of SR 3.3.1.1.15.)~~

For Function 2.a, a Note that requires this SR to be performed within 12 hours of entering MODE 2 from MODE 1 is provided. Testing of the MODE 2 APRM Function cannot be performed in MODE 1 without utilizing jumpers or lifted leads. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2.

SR 3.3.1.1.11

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.11 (continued)

POWER is ≥ 27.6% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed during the calibration at THERMAL POWER ≥ 27.6% RTP to ensure that the calibration is valid.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 27.6% 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 (Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are enabled), this SR is met and the channel is considered OPERABLE.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 18.~~

SR 3.3.1.1.13

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. For MSIV - Closure, SDV Water Level - High (Float Switch), and TSV - Closure Functions, this SR also includes a physical inspection and actuation of the switches. For the APRM Simulated Thermal Power - High Function, this SR also includes calibrating the associated recirculation loop flow channel.

Note 1 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the ~~7 day~~ calorimetric calibration (SR 3.3.1.1.2) and the ~~1000 effective full power hours~~ LPRM calibration against the TIPs (SR 3.3.1.1.8). A second Note is provided that requires the IRM SRs

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.13 (continued)

to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2.

Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 18.~~

SR 3.3.1.1.14

(Not used.)

SR 3.3.1.1.15

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

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 18.~~

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM and OPRM trip conditions at the two-out-of-four voter channel inputs to check all combinations of two tripped inputs to the two-out-of-four logic in the voter channels and APRM related redundant RPS relays.

SR 3.3.1.1.16

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.16 (continued)

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 10.

RPS RESPONSE TIME for APRM Two-out-of-Four Voter Function 2.e includes the output relays of the voter and the associated RPS relays and contactors. (The digital portions of the APRM and two-out-of-four voter channels are excluded from RPS RESPONSE TIME testing because self-testing and calibration check the time base of the digital electronics.) Confirmation of the time base is adequate to assure required response times are met. Neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

Insert 2

~~RPS RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. This 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. The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 18.~~

SR 3.3.1.1.17

This SR ensures that scrams initiated from OPRM Upscale Function 2.f will not be inadvertently bypassed when THERMAL POWER, as indicated by APRM Simulated Thermal Power, is ≥ 25% RTP and core flow, as indicated by recirculation drive flow, is < 60% rated core flow. This normally involves confirming the bypass setpoints. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. The actual Surveillance ensures that the OPRM Upscale Function is enabled (not bypassed) for the correct values of APRM Simulated Thermal Power and recirculation drive flow. Other Surveillances ensure that the APRM Simulated Thermal Power and recirculation flow properly correlate with THERMAL POWER and core flow, respectively.

If any bypass setpoint is nonconservative (i.e., the OPRM Upscale Function is bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% rated), the affected channel is considered inoperable for the OPRM Upscale Function.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.17 (continued)

Alternatively, the bypass setpoint may be adjusted to place the channel in a conservative condition (unbypass). If placed in the unbypass condition, this SR is met and the channel is considered OPERABLE.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 18.~~

REFERENCES

1. FSAR, Section 7.2.
2. FSAR, Chapter 14.
3. FSAR, Section 6.5.
4. FSAR, Appendix M.
5. FSAR, Subsection 14.3.3.
6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
7. FSAR, Subsections 14.4.2 and 14.5.5.
8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.
9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.
10. Technical Requirements Manual, Table T5.0-1.
11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
12. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.
13. NEDO-31960-A, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

(continued)

BASES

REFERENCES (continued)

14. NEDO-31960-A, Supplement 1, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

15. NEDO-32465-A, "BWR Owners' Group Long-Term Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications," March 1996.

16. NEDO-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," November 1997.

17. Letter, L.A. England (BWROG) to M.J. Virgilio, "BWR Owners' Group Guidelines for Stability Interim Corrective Action," June 6, 1994.

Not used

~~18. NRC Safety Evaluation Report for Amendment 232.~~

19. GE Letter NSA 02-250, “Plant Hatch IRM Technical Specifications,” April 19, 2002.

~~20. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.1 and SR 3.3.1.2.3 (continued)

indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

Insert 2

~~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 when the fueled region encompasses more than one SRM, one SRM is required to be OPERABLE in the quadrant where CORE ALTERATIONS are being performed, and the other OPERABLE SRM must be in an adjacent quadrant containing fuel. Note 1 states that the SR is required to be met only during CORE ALTERATIONS. It is not required to be met at other times in MODE 5 since core reactivity changes are not occurring. This Surveillance consists of a review of plant logs to ensure that SRMs required to be OPERABLE for given CORE ALTERATIONS are, in fact, OPERABLE. In the event that only one SRM is required to be OPERABLE (when the fueled region encompasses only one SRM), per Table 3.3.1.2-1, footnote (b), only the a. portion of this SR is required. Note 2 clarifies that more than one of the three requirements can be met by the same OPERABLE SRM. ~~The 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.~~

Insert 2

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, which ensures that the detectors are indicating count rates indicative of neutron flux levels within the core. This surveillance also requires the signal to noise ratio to be verified to be ≥ 2:1. A signal to noise ratio that meets this requirement ensures the detectors are inserted to an acceptable operating level. Therefore, to meet this portion of the surveillance, it is necessary only to verify the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.4 (continued)

detectors are inserted to the same operating level as they were when SR 3.3.1.2.5 and SR 3.3.1.2.6 were performed satisfactorily. SR 3.3.1.2.5 and SR 3.3.1.2.6 require the actual ratio (and hence, an acceptable operating level) to be determined periodically while the detectors are required to be OPERABLE. 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 (Note 1) 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 fewer 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. In addition, Note 2 states that this requirement does not have to be met during spiral unloading. If the core is being unloaded in this manner, the various core configurations encountered will not be critical.

Insert 2

~~The Frequency is based upon channel redundancy and other information available in the control room, and ensures that the required channels are frequently monitored while core reactivity changes are occurring. When no reactivity changes are in progress, the Frequency is relaxed from 12 hours to 24 hours.~~

SR 3.3.1.2.5 and SR 3.3.1.2.6

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. 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.

Insert 2

SR 3.3.1.2.6 is required 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 has been extended from 7 days to 31 days. The 31 day Frequency is based on operating experience and on other Surveillances (such as CHANNEL CHECK) that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

Determination 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.

The Note to the 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

Insert 2

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 24 month Frequency is based on a review of the surveillance test history and Reference 2.~~ The neutron detectors are excluded from the CHANNEL CALIBRATION (Note 1) because they cannot readily be adjusted. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range and with an accuracy specified for a fixed useful life.

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the ~~24 month~~ Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels.

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.3.1.2.7 (continued) 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	1. NRC Safety Evaluation Report for Amendment 185, April 30, 1993. ~~2. NRC Safety Evaluation Report for Amendment 232.~~

Insert 2

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.1 (continued)

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. ~~The Frequency of 184 days is based on reliability analyses (Ref. 11).~~

Insert 2

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. The CHANNEL FUNCTIONAL TEST for the RWM is performed by attempting to withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs. This test is performed as soon as possible after the applicable conditions are entered. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2, and SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. This allows entry into MODE 2 (and if entered during a shutdown, concurrent power reduction to < 10% RTP) for SR 3.3.2.1.2 and THERMAL POWER reduction to < 10% RTP in MODE 1 for SR 3.3.2.1.3 to perform the required Surveillances if the ~~92 day on an ALTERNATE TEST BASIS~~ 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 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history and Reference 13.~~

Insert 2

SR 3.3.2.1.4

The RBM setpoints are automatically varied as a function of power. Three Allowable Values are specified in Table 3.3.2.1-1, each within a specific power range. The power at which the control rod block Allowable Values automatically change are based on the APRM signal's input to each RBM channel. Below the minimum power setpoint, the RBM is automatically bypassed. These power Allowable Values must be verified periodically to be less than or equal to the specified values. If any power range setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the power range channel can be placed in the conservative condition (i.e., enabling the proper RBM setpoint). 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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.4 (continued)

tested in SR 3.3.1.1.2 and SR 3.3.1.1.8. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 12.~~

Insert 2

SR 3.3.2.1.5

The RWM is automatically bypassed when power is above a specified value. The power level is determined from APRM power 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 24 month Frequency is based on Reference 12.~~

Insert 2

SR 3.3.2.1.6

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. 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 ~~18 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 SR.

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 12.~~

SR 3.3.2.1.7

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.7 (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.

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 3.3.1.1.8.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 12.~~

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.

REFERENCES

1. FSAR, Section 7.5.8.2.3.
2. FSAR, Section 7.2.2.4.
3. NEDC-30474-P, "Average Power Range Monitor, Rod Block Monitor, and Technical Specification Improvements (ARTS) Program for Edwin I. Hatch Nuclear Plants," December 1983.
4. NEDE-24011-P-A-US, "General Electrical Standard Application for Reload Fuel," Supplement for United States, (revision specified in the COLR).
5. 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.
6. NEDO-21231, "Banked Position Withdrawal Sequence," January 1977.

(continued)

REFERENCES (continued)

7. 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.

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

9. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals and Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.

10. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Not used

~~11. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.~~

Not used

~~12. NRC Safety Evaluation Report for Amendment 232.~~

Not used

~~13. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

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

SURVEILLANCE REQUIREMENTS (continued)

demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the feedwater pump turbines and main turbine will trip when necessary.

SR 3.3.2.2.1

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.

Due to the high turbine trip and reactor scram potential incurred when valving reactor water level differential pressure transmitters into and out of service, it is acceptable to perform the CHANNEL FUNCTIONAL TEST for this logic from the input of the alarm unit. This is consistent with the CHANNEL FUNCTIONAL TEST definition requiring the signal to be injected "as close to the sensor as practicable." Additionally, due to the physical location of the turbine trip relays and their close proximity to other sensitive equipment, accessibility is extremely limited. Verification of relay actuation and associated relay contact status by accessing the relay introduces a high potential for turbine trip and reactor scram. One contact from each turbine trip relay energizes an amber light indicating relay actuation. Therefore, it is acceptable to terminate the test at the turbine trip relay, utilizing light indication for relay status. These allowances are only acceptable if the CHANNEL CALIBRATION and the LOGIC SYSTEM FUNCTIONAL TEST overlap both the initiation and termination point of this CHANNEL FUNCTIONAL TEST such that the entire trip logic is tested.

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 5.~~

SR 3.3.2.2.2

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2.2 (continued)

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.~~

SR 3.3.2.2.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater and main turbine valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation channels 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

REFERENCES

1. FSAR, Section 14.3.2.1.
2. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~4. NRC Safety Evaluation Report for Amendment 232.~~

~~5. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS (continued)

6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The Note is based upon a NRC Safety Evaluation Report (Ref. 2) which concluded that the 6 hour testing allowance does not significantly reduce the probability of properly monitoring post accident parameters, when necessary.

SR 3.3.3.1.1

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

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

Insert 2

~~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

~~A CHANNEL CALIBRATION is performed every 24 months.~~ 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.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

(continued)

BASES (continued)

REFERENCES

1. Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980.

2. NRC Safety Evaluation Report, "Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Conformance to Regulatory Guide 1.97," dated July 30, 1985.

3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~4. NRC Safety Evaluation Report for Amendment 232.~~

BASES

ACTIONS (continued)

B.1

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

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when an instrument channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The Note is based upon a NRC Safety Evaluation Report (Ref. 1) which concluded that the 6 hour testing allowance does not significantly reduce the probability of monitoring required parameters, when necessary.

SR 3.3.3.2.1

Performance of the CHANNEL CHECK ~~once every 31 days~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel 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.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1 (continued)

~~The Frequency is based upon plant operating experience that demonstrates channel failure is rare.~~

Insert 2

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check, or, in the case of the DG controls, the routine Surveillances of LCO 3.8.1 (since local control is utilized during the performance of some of the Surveillances of LCO 3.8.1). This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. ~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

SR 3.3.3.2.3

Insert 2

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

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.
2. Technical Requirements Manual, Table T6.0-1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.1

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history and Reference 8.~~

SR 3.3.4.1.2

This SR ensures that an EOC-RPT initiated from the TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 27.6% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from first stage pressure) the main turbine bypass valves must remain closed during the calibration at THERMAL POWER ≥ 27.6% RTP to ensure that the calibration is valid. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 27.6% RTP, either due to open main turbine bypass valves or other reasons), the affected TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition (Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are enabled), this SR is met with the channel considered OPERABLE.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 7.~~

SR 3.3.4.1.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations, consistent with the plant specific setpoint methodology. For the TSV - Closure Function, this SR also includes a physical inspection and actuation of the switches.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.3 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation (if applicable), and Reference 7.~~

Insert 2

SR 3.3.4.1.4

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

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 7.~~

SR 3.3.4.1.5

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The EOC-RPT SYSTEM RESPONSE TIME acceptance criteria are included in Reference 5.

A Note to the Surveillance states that breaker interruption (i.e., trip) time may be assumed from the most recent performance of SR 3.3.4.1.6. This is allowed since the time to open the contacts after energization of the trip coil and the arc suppression time are short and do not appreciably change, due to the design of the breaker opening device and the fact that the breaker is not routinely cycled.

Insert 2

~~EOC-RPT SYSTEM RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS.~~ Response times cannot be determined at power because operation of final actuated devices is required. ~~Therefore, this Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components that cause serious response time degradation, but not channel failure, are infrequent occurrences. The 24 month Frequency, on a~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.5 (continued)

~~STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 7.~~

SR 3.3.4.1.6

This SR ensures that the RPT breaker interruption time is provided to the EOC-RPT SYSTEM RESPONSE TIME test. Breaker interruption (i.e., trip) time is defined as breaker response time plus arc suppression time. Breaker response time is the time from application of voltage to the trip coil until the main contacts separate. Arc suppression time is the time from main contact separation until the complete suppression of the electrical arc across the open contacts. Breaker response shall be verified by testing and added to the manufacturer's design arc suppression time to determine breaker interruption time. The breaker arc suppression time shall be validated by the performance of periodic contact gap measurements in accordance with plant procedures. ~~The 60 month Frequency of the testing is based on the difficulty of performing the test and the reliability of the circuit breakers.~~

Insert 2

REFERENCES

1. FSAR, Section 7.17.
2. FSAR, Subsection 14.3.1.
3. Unit 2 FSAR, Paragraph 5.5.16.1 and Subsection 7.6.10.
4. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
5. Technical Requirements Manual, Table T5.0-1.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
7. ~~NRC Safety Evaluation Report for Amendment 232.~~
8. ~~NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

BASES

ACTIONS

C.1 (continued)

The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1 above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

D.1 and D.2

With any Required Action and associated Completion Time not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

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

SR 3.3.4.2.1

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1 (continued)

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.

Insert 2

~~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 3.3.4.2.2

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 5.~~

SR 3.3.4.2.3

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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.3 (continued)

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.~~

SR 3.3.4.2.4

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

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

REFERENCES

1. FSAR, Section 7.23.
2. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 232.~~
5. ~~NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS
(continued)

required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours as follows: (a) for Functions 3.c and 3.f; and (b) for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains 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 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.

Insert 2

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

SR 3.3.5.1.2 and SR 3.3.5.1.3

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1.2 (continued)

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 8.~~

SR 3.3.5.1.4

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

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 7.~~

SR 3.3.5.1.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.1, LCO 3.5.2, LCO 3.7.2, LCO 3.8.1, and LCO 3.8.2 overlaps this Surveillance to complete testing of the assumed safety function.

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 7.~~

REFERENCES

1. FSAR, Section 4.8.
2. FSAR, Section 6.5.
3. FSAR, Section 14.4.

(continued)

BASES

REFERENCES (continued)

4. NEDC-31376-P, "Edwin I. Hatch Nuclear Power Plant, SAFER/GESTR-LOCA, Loss-of-Coolant Accident Analysis," December 1986.

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

6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~7. NRC Safety Evaluation Report for Amendment 232.~~

~~8. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

BASES

ACTIONS

D.1, D.2.1, and D.2.2 (continued)

suppression pool). Alternatively, Required Action D.2.2 allows the manual alignment of the RCIC suction to the suppression pool, which also performs the intended function. If Required Action D.2.1 or D.2.2 is performed, measures should be taken to ensure that the RCIC System piping remains filled with water. If it is not desired to perform Required Actions D.2.1 and D.2.2 (e.g., as in the case where shifting the suction source could drain down the RCIC suction piping), Condition E must be entered and its Required Action taken.

E.1

With any Required Action and associated Completion Time not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

SURVEILLANCE REQUIREMENTS

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

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 2; and (b) for up to 6 hours for Functions 1, 3, and 4, provided the associated Function maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 1) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RCIC will initiate when necessary.

SR 3.3.5.2.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a parameter on other similar channels. It is based on the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.1 (continued)

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.

Insert 2

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

SR 3.3.5.2.2 and SR 3.3.5.2.3

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 4.~~

SR 3.3.5.2.4

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 range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations, consistent with the plant specific setpoint methodology.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.4 (continued)

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.5.2.3 is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 4.~~

~~The 24 month Frequency of SR 3.3.5.2.4 is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 3.~~

SR 3.3.5.2.5

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

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 3.~~

REFERENCES

1. GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. ~~NRC Safety Evaluation Report for Amendment 232.~~
4. ~~NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 4 and 5) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary.

SR 3.3.6.1.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. ~~p~~ 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.

Insert 2

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

SR 3.3.6.1.2

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.2 (continued)

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units (if applicable), and Reference 8.~~

SR 3.3.6.1.3, SR 3.3.6.1.4, and SR 3.3.6.1.5

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.6.1.3 is based on a review of the surveillance test history, drift analysis of the associated pressure (or vacuum) switches (if applicable), and Reference 8. The 184 day Frequency of SR 3.3.6.1.4 and the 24 month Frequency of SR 3.3.6.1.5 are based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 7.~~

SR 3.3.6.1.6

Insert 2

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. The 24 month Frequency is based on a review of the surveillance test history and Reference 7.~~

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Chapter 14.

(continued)

BASES

REFERENCES (continued)

3. FSAR, Section 3.8.3.

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

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

6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~7. NRC Safety Evaluation Report for Amendment 232.~~

~~8. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS (continued)

be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 5 and 6) assumption of the average time required to perform channel surveillance. That analysis demonstrated the 6 hour testing allowance does not significantly reduce the probability that the SCIVs will isolate the associated penetration flow paths and that the SGT System will initiate when necessary.

SR 3.3.6.2.1

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

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.

Insert 2

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

SR 3.3.6.2.2

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 9.~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.3 and SR 3.3.6.2.4

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 range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations, consistent with the plant specific setpoint methodology.

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.6.2.3 is based on a review of the surveillance test history and Reference 9. The 24 month Frequency of SR 3.3.6.2.4 is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 8.~~

SR 3.3.6.2.5

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.

Insert 2

~~This Surveillance can be performed with the reactor at power for some of the Functions. The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 14.4.
3. FSAR, Sections 14.4.5 and 14.5.4.
4. FSAR, Sections 14.4.3, 14.4.4, 14.5.2, and 14.5.3.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

(continued)

BASES

REFERENCES (continued)

7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~8. NRC Safety Evaluation Report for Amendment 232.~~

~~9. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS
(continued)

The Surveillances are also modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains LLS initiation capability. LLS initiation capability is maintained provided three LLS valves are maintaining 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. 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 LLS valves will initiate when necessary.

SR 3.3.6.3.1

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 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.

Insert 2

~~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 channels required by the LCO.

SR 3.3.6.3.2, SR 3.3.6.3.3, and SR 3.3.6.3.4

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.6.3.2, SR 3.3.6.3.3, and SR 3.3.6.3.4 (continued)

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units (if applicable), and Reference 6.~~

A portion of the S/RV tailpipe pressure switch instrument channels are located inside the primary containment. The Note for SR 3.3.6.3.3, "Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment," is based on the location of these instruments, ALARA considerations, and compatibility with the Completion Time of the associated Required Action (Required Action B.1).

For this Note, a scheduled outage is a refueling outage or an outage for which at least a 72 hour period exists between discovery of an off-normal condition and a corresponding change in power level. Outage duration is measured from the time the generator is removed from the grid to the time the generator is tied to the grid, i.e., "breaker-to-breaker."

SR 3.3.6.3.5

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.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 5.~~

SR 3.3.6.3.6

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/Relief Valves (S/RVs)" and LCO 3.6.1.8, "Low-Low Set (LLS) Safety/Relief Valves (S/RVs)," for S/RVs overlaps this test to provide complete testing of the assumed safety function.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Insert 2

SR 3.3.6.3.6 (continued)

~~The Frequency of once every 24 months for SR 3.3.6.3.6 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

REFERENCES

1. FSAR, Section 7.19.
2. FSAR, Section 4.11.
3. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~5. NRC Safety Evaluation Report for Amendment 232.~~

~~6. NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS (continued)

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. 6) 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 MCREC System will initiate when necessary.

SR 3.3.7.1.1

Performance of the CHANNEL CHECK ~~once every 24 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument 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.

Insert 2

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

SR 3.3.7.1.2

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

Insert 2

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history and Reference 9.~~

SR 3.3.7.1.4

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

Insert 2

~~This Surveillance can be performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

REFERENCES

1. Unit 2 FSAR, Section 7.3.5.
2. FSAR, Section 5.2.
3. Unit 2 FSAR, Section 6.4.1.2.2.
4. FSAR, Chapter 14.
5. Unit 2 FSAR, Table 15.1-28.
6. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. ~~NRC Safety Evaluation Report for Amendment 232.~~
9. ~~NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

BASES

ACTIONS

B.1 (continued)

Since the intended function is to alert personnel to a lowering voltage condition and the voltage reading is available for each bus on the control room front panels, the Required Action is verification of the voltage to be above the annunciator setpoint (nominal) hourly.

C.1

If any Required Action and associated Completion Time are not met, the associated Function does not maintain initiation capability for the associated emergency bus. Therefore, the associated DG(s) is declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable DG(s).

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LOP instrumentation Function are located in the SRs column of Table 3.3.8.1-1. The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains initiation capability (for Functions 1 and 2) and annunciation capability (for Function 3). Functions 1 and 2 maintain initiation capability provided that, for 2 of the 3 emergency buses, the following can be initiated by the Function: DG start, disconnect from the offsite power source, DG output breaker closure, load shed, and activation of the ECCS pump power permissive. 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.

SR 3.3.8.1.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation or a failure of annunciation has not occurred. A CHANNEL CHECK is defined for Function 3 to be a comparison of the annunciator status to the bus voltage and an annunciator test confirming the annunciator is capable of lighting and sounding. A CHANNEL CHECK will detect gross channel failure or an annunciator failure; thus, it is key to verifying the instrumentation

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1.1 (continued)

continues to operate properly between each CHANNEL CALIBRATION.

If a channel is outside the match criteria, it may be an indication that the instrument has drifted outside its limit.

Insert 2

~~The frequency is based upon operating experience that demonstrates channel failure is rare. Thus, performance of the CHANNEL CHECK ensures that undetected outright channel or annunciator failure is limited to 12 hours.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with channels required by the LCO.

SR 3.3.8.1.2

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

Insert 2

~~The Frequency of 31 days is 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 31 day interval is a rare event.~~

SR 3.3.8.1.3

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.

Insert 2

~~The Frequency is based upon the assumption of the magnitude of equipment drift in the setpoint analysis.~~

SR 3.3.8.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1.4 (continued)

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.

Insert 2

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

REFERENCES

1. FSAR, Section 8.4.
2. FSAR, Section 4.8.
3. FSAR, Section 6.5.
4. FSAR, Chapter 14.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1 (continued)

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.

is

The ~~184 day Frequency and the~~ Note in the Surveillance ~~are~~ based on guidance provided in Generic Letter 91-09 (Ref. 2).

Insert 2

SR 3.3.8.2.2

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

Insert 2

~~The 184 day Frequency is based on Reference 4.~~

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. 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.

Insert 2

~~The 184 day Frequency is based on Reference 4.~~

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 8.7.
2. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electrical Protective Assemblies in Power Supplies for the Reactor Protection System."
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~4. NRC Safety Evaluation Report for Amendment 232.~~

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 MCPR requirements provide larger margins to the fuel cladding integrity Safety Limit such that the potential adverse effect of early boiling transition during a LOCA is reduced. A larger flow mismatch can therefore be allowed when core flow is < 70% of rated core flow. The recirculation loop jet pump flow, as used in this Surveillance, is the summation of the flows from all of the jet pumps associated with a single recirculation loop.

The mismatch is measured in terms of percent of rated core flow. If the flow mismatch exceeds the specified limits, the loop with the lower flow is considered not in operation. The 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.~~

Insert 2

SR 3.4.1.2

(Not used.)

REFERENCES

1. NEDC-32720P, "E. I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," March 1997.
2. FSAR, Section 4.3.5.
3. NEDO-24205, "E. I. Hatch Nuclear Plant Units 1 and 2 Single-Loop Operation," August 1979.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

C.1 (continued)

The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1 above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

D.1 and D.2

With any Required Action and associated Completion Time not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

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

SR 3.3.4.2.1

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1 (continued)

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.

Insert 2

~~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 3.3.4.2.2

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

Insert 2

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 5.~~

SR 3.3.4.2.3

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.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.3 (continued)

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.~~

SR 3.3.4.2.4

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

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

REFERENCES

1. FSAR, Section 7.23.
2. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 232.~~
5. ~~NRC Safety Evaluation Report for Amendment 234, Quarterly Surveillance Extension.~~

ACTIONS

A.1 (continued)

has been identified and quantified, it may be reclassified and considered as identified LEAKAGE; however, the total LEAKAGE would remain unchanged. The total LEAKAGE must be averaged over the previous 24 hours for comparison to the limit.

B.1

An unidentified LEAKAGE increase of > 2 gpm within a 24 hour period is an indication of a potential flaw in the RCPB and must be quickly evaluated. Although the increase does not necessarily violate the absolute unidentified LEAKAGE limit, certain susceptible components must be determined not to be the source of the LEAKAGE increase within the required Completion Time.

The 4 hour Completion Time is reasonable to properly reduce the LEAKAGE increase before the reactor must be shut down without unduly jeopardizing plant safety.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B is not met or if pressure boundary LEAKAGE exists, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant safety systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

The RCS LEAKAGE is monitored by a variety of instruments designed to provide alarms when LEAKAGE is indicated and to quantify the various types of LEAKAGE. Leakage detection instrumentation is discussed in more detail in the Bases for LCO 3.4.5, "RCS Leakage Detection Instrumentation." Sump level and flow rate are typically monitored to determine actual LEAKAGE rates; however, any method may be used to quantify LEAKAGE within the guidelines of Reference 7. ~~In conjunction with alarms and other administrative~~

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1 (continued)

~~controls, a 12 hour Frequency for this Surveillance is appropriate for identifying LEAKAGE and for tracking required trends (Ref. 8).~~

The identified portion of the total LEAKAGE is usually determined by the drywell equipment drain sump monitoring system which collect expected leakage not indicative of a degraded RCS boundary. The system equipment and operation is identical to that of the drywell floor drain monitoring system described in the Bases for LCO 3.4.5, "RCS Leakage Detection Instrumentation." If a contributor to the unidentified LEAKAGE has been identified and quantified, it may be reclassified and considered as identified LEAKAGE.

REFERENCES

1. 10 CFR 50.2.
2. 10 CFR 50.55a(c).
3. 10 CFR 50, Appendix A, GDC 55.
4. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
5. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactors," October 1975.
6. FSAR, Section 4.10.3.2.
7. Regulatory Guide 1.45, May 1973.

Not used

8. ~~Generic Letter 88-01, Supplement 1, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," February 1992.~~
9. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS
(continued)

D.1

With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE
REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required instrumentation (either the drywell floor drain sump monitoring system or the primary containment atmospheric monitoring channel, as applicable) is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The Note is based upon a NRC Safety Evaluation Report (Ref. 6) which concluded that the 6 hour testing allowance does not significantly reduce the probability of detecting an unidentified LEAKAGE when necessary.

SR 3.4.5.1

Insert 2

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

SR 3.4.5.2

Insert 2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument string. ~~The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Insert 2

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. FSAR, Section 4.10.3.4.
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 Reactors," October 1975.
5. FSAR, Section 4.10.3.2.
6. NRC Safety Evaluation Report for Amendment 185, April 30, 1993.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES

ACTIONS

A.1 and A.2 (continued)

probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to power operation.

B.1, B.2.1, B.2.2.1, and B.2.2.2

If the DOSE EQUIVALENT I-131 cannot be restored to ≤ 0.2 μCi/gm within 48 hours, or if at any time it is > 4.0 μCi/gm, it must be determined at least once every 4 hours and all the main steam lines must be isolated within 12 hours. Isolating the main steam lines precludes the possibility of releasing radioactive material to the environment in an amount that is not well within the requirements of 10 CFR 100 during a postulated MSLB accident. Alternatively, the plant can be placed in MODE 3 within 12 hours and in MODE 4 within 36 hours. This option is provided for those instances when isolation of main steam lines is not desired (e.g., due to the decay heat loads). In MODE 4, the requirements of the LCO are no longer applicable.

The Completion Time of once every 4 hours is the time needed to take and analyze a sample. The 12 hour Completion Time is reasonable, based on operating experience, to isolate the main steam lines in an orderly manner and without challenging plant systems. Also, the allowed Completion Times for Required Actions B.2.2.1 and B.2.2.2 for placing the 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.

SR 3.4.6.1

Insert 2

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.~~

This SR is modified by a Note that requires this Surveillance to be performed only in MODE 1 because the level of fission products generated in other MODES is much less.

(continued)

ACTIONS

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

However, due to the potentially reduced reliability of the alternate methods of decay heat removal, it is also required to reduce the reactor coolant temperature to the point where MODE 4 is entered.

B.1, B.2, and B.3

With no RHR shutdown cooling subsystem and no recirculation pump in operation, except as permitted by LCO Note 1, reactor coolant circulation by the RHR shutdown cooling subsystem or recirculation pump must be restored without delay.

Until RHR or recirculation pump operation is re-established, an alternate method of reactor coolant circulation must be placed into service. This will provide the necessary circulation for monitoring coolant temperature. The 1 hour Completion Time is based on the coolant circulation function and is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

Insert 2

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

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

function and is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

Insert 2

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

REFERENCES

1. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

C.1 and C.2 (continued)

be completed before approaching criticality or heating up to > 212°F. Several methods may be used, including comparison with pre-analyzed transients, new analyses, or inspection of the components. ASME Code, Section XI, Appendix E (Ref. 6), may be used to support the evaluation; however, its use is restricted to evaluation of the beltline.

Condition C is modified by a Note requiring Required Action C.2 be completed whenever the Condition is entered. The Note emphasizes the need to perform the evaluation of the effects of the excursion outside the allowable limits.

Restoration alone per Required Action C.1 is insufficient because higher than analyzed stresses may have occurred and may have affected the RCPB integrity.

SURVEILLANCE REQUIREMENTS

Insert 2

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 change limits are specified in hourly increments, 30 minutes permits a reasonable time for assessment and correction of minor deviations.~~

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

Verification of Figures 3.4.9-1 and 3.4.9-2 is required during non-nuclear heatups and cooldowns, and inservice leak and hydrostatic testing. Verification of the ≤ 100°F change in any 1 hour period is required during any heatup or cooldown.

SR 3.4.9.2

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.9.3 and SR 3.4.9.4 (continued)

General Electric test data from BWR plants shows that stratification up to the 145°F differential does not occur any sooner than 1 hour following the RPT (Refs. 10 and 11). Adding HPCI and RCIC injection, and feedwater temperature constraints provides assurance that the temperature differential will not be exceeded within 30 minutes of the RPT.

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.

in accordance with the Frequency contained in the Surveillance Frequency Control Program thereafter

3.4.9.5 and SR 3.4.9.6

and in accordance with the Frequency contained in the Surveillance Frequency Control Program thereafter

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.

Once within

To be verified once within 30 minutes, and in accordance with the Surveillance Frequency Control Program thereafter

The flange temperatures must be verified to be above the limits 30 minutes before and while tensioning the vessel head bolting studs to ensure that once the head is tensioned the limits are satisfied. Verification of flange temperatures is also required while detensioning is in progress until all reactor vessel head bolts are completely detensioned. (The head is considered tensioned if one or more bolts are partly or completely tensioned.) When in MODE 4 with RCS temperature ≤ 86°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 ≤ 106°F, monitoring of the flange temperature is required ~~every~~ 12 hours to ensure the temperature is within the limits specified.

Once within

Insert 2

~~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.~~

(continued)

APPLICABILITY
(continued)

In MODES 3, 4, and 5, the limit is not applicable because the reactor is shut down. In these MODES, the reactor pressure is well below the required limit, and no anticipated events will challenge the overpressure limits.

ACTIONS

A.1

With the reactor steam dome pressure greater than the limit, prompt action should be taken to reduce pressure to below the limit and return the reactor to operation within the bounds of the analyses. The 15 minute Completion Time is reasonable considering the importance of maintaining the pressure within limits. This Completion Time also ensures that the probability of an accident occurring while pressure is greater than the limit is minimized.

B.1

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

SURVEILLANCE
REQUIREMENTS

SR 3.4.10.1

Insert 2

Verification that reactor steam dome pressure is ≤ 1058 psig ensures that the initial conditions of the vessel overpressure protection analysis is met. ~~Operating experience has shown the 12 hour Frequency to be sufficient for identifying trends and verifying operation within safety analyses assumptions.~~

REFERENCES

1. FSAR, Appendix M.
2. FSAR, Section 14.3.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

Insert 2

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. In addition, when HPCI is aligned to the suppression pool (instead of the CST), one acceptable method is to monitor pump suction pressure. ~~The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.~~

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

Insert 2

~~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.~~

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2 (continued)

manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

SR 3.5.1.3

Insert 2

Verification ~~every 31 days~~ that ADS air supply header pressure is ≥ 90 psig ensures adequate air pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve actuation. The design pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least two valve actuations can occur with the drywell at 70% of design pressure (Ref. 11). 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 ≥ 90 psig (for one actuation) is provided by the ADS instrument air supply. ~~The 31 day Frequency takes into consideration administrative controls over operation of the air system and alarms for low air pressure.~~

SR 3.5.1.4

Insert 2

Verification ~~every 31 days~~ that the RHR System cross tie valve is closed and power to its operator is disconnected ensures that each LPCI subsystem remains independent and a failure of the flow path in one subsystem will not affect the flow path of the other LPCI subsystem. Acceptable methods of removing power to the operator include de-energizing breaker control power or racking out or removing the breaker. If the RHR System cross tie valve is open or power has not been removed from the valve operator, both LPCI subsystems must be considered inoperable. ~~The 31 day Frequency has been found acceptable, considering that these valves are under strict administrative controls that will ensure the valves continue to remain closed with either control or motive power removed.~~

SR 3.5.1.5 (Not used.)

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to 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.

Insert 2

~~The specified Frequency is once per 31 days.~~ However, this SR is modified by a Note that states the Surveillance is only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 > 48 hours. Verification during or following MODE 4 > 48 hours and prior to entering MODE 2 from MODE 3 or 4 is an exception to the normal Inservice Testing Program generic valve cycling Frequency ~~of 92 days~~, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 7). This periodic Surveillance is performed (in accordance with the ASME Code, Section XI, requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of Reference 9. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established during preoperational testing.

The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow is

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9 (continued)

tested at both the higher and lower operating ranges of the system. The pump flow rates are verified against a system head corresponding to the RPV pressure. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. The reactor steam pressure must be ≥ 920 psig to perform SR 3.5.1.8 and ≥ 150 psig to perform SR 3.5.1.9. Adequate steam flow for SR 3.5.1.8 is represented by at least two turbine bypass valves open, or ≥ 200 MWE from the main turbine generator; and for SR 3.5.1.9 adequate steam flow is represented by at least 1.25 turbine bypass valves open, or total steam flow ≥ 1E6 lb/hour. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable. Therefore, SR 3.5.1.8 and SR 3.5.1.9 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR.

Insert 2

The Frequency for SR 3.5.1.7 ~~and SR 3.5.1.8~~ is consistent with the Inservice Testing Program pump testing requirements. ~~The 24 month Frequency for SR 3.5.1.9 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. The 24 month Frequency of SR 3.5.1.9 is based on a review of the surveillance test history and Reference 15.~~

SR 3.5.1.10

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.10 (continued)

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 water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

Insert 2

~~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. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

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 3.5.1.11

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.12 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.

Insert 2

~~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. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.12

The pneumatic actuator of each ADS valve is stroked to verify that the pilot disc rod lifts when the actuator strokes. Pilot rod lift is determined by measurement of rod travel. The total amount of lift of the pilot rod from the valve closed position to the open position shall meet criteria established by the S/RV supplier. SRs 3.5.1.11 and 3.3.5.1.5 overlap this SR to provide testing of the S/RV relief mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 14).

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

REFERENCES

1. FSAR, Section 6.4.3.
2. FSAR, Section 6.4.4.
3. FSAR, Section 6.4.1.
4. FSAR, Section 6.4.2.
5. FSAR, Section 14.4.3.
6. FSAR, Section 14.4.5.
7. 10 CFR 50, Appendix K.
8. FSAR, Section 6.5.
9. NEDC-31376P, "E.I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," December 1986.
10. 10 CFR 50.46.
11. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
12. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

(continued)

BASES

REFERENCES (continued)

13. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.

14. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants," Appendix I.

~~15. NRC Safety Evaluation Report for Amendment 232.~~

BASES

ACTIONS

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

controls to assure isolation capability. The administrative controls can consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.). OPERABILITY may be verified by an administrative check, or by examining logs or other information, to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 and SR 3.5.2.2

The minimum water level of 146 inches required for the suppression pool is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the CS System and LPCI subsystem pumps, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, all ECCS injection/spray subsystems are inoperable unless they are aligned to an OPERABLE CST.

When suppression pool level is < 146 inches, the CS System is considered OPERABLE only if it can take suction from the CST, and the CST water level is sufficient to provide the required NPSH for the CS pump. Therefore, a verification that either the suppression pool water level is ≥ 146 inches or that CS is aligned to take suction from the CST and the CST contains ≥ 150,000 gallons of water, equivalent to 13 ft, ensures that the CS System can supply at least 50,000 gallons of makeup water to the RPV. The CS suction is uncovered at the 100,000 gallon level. However, as noted, only one required CS subsystem may take credit for the CST option during OPDRVs. During OPDRVs, the volume in the CST may not provide adequate makeup if the RPV were completely drained. Therefore, only one CS subsystem is allowed to use the CST. This ensures the other required ECCS subsystem has adequate makeup volume.

Insert 2

~~The 12 hour Frequency of these SRs was developed considering operating experience related to suppression pool water level and CST~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 and SR 3.5.2.2 (continued)

~~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 CST water level condition.~~

SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6

The Bases provided for SR 3.5.1.1, SR 3.5.1.7, and SR 3.5.1.10 are applicable to SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6, respectively. However, the LPCI flow rate requirement for SR 3.5.2.5 is based on a single pump, not the two pump flow rate requirement of SR 3.5.1.7.

SR 3.5.2.4

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. ~~The 31 day Frequency is appropriate because the valves are operated under procedural control and the probability of their being mispositioned during this time period is low.~~

Insert 2

In MODES 4 and 5, the RHR System may operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. Therefore, RHR valves that are required for LPCI subsystem operation may be aligned for decay heat removal. Therefore, this SR is modified by a Note that allows one LPCI subsystem of the RHR System to be considered OPERABLE for the ECCS function if all the required valves in the LPCI flow path can be manually realigned (remote or local) to allow injection into the RPV, and the system is not otherwise inoperable. This will ensure adequate core cooling if an inadvertent RPV draindown should occur.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.3.1

Insert 2

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge line of the RCIC System full of water ensures that the system will perform properly, injecting its full capacity into the Reactor Coolant System upon demand. This will also prevent a water hammer following an initiation signal. One acceptable method of ensuring the line is full when aligned to the CST is to vent at the high points and, when aligned to the suppression pool, by monitoring pump suction pressure. ~~The 31 day Frequency is based on the gradual nature of void buildup in the RCIC piping, the procedural controls governing system operation, and operating experience.~~

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in the RCIC flow path provides assurance that the proper flow path will exist for RCIC operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

Insert 2

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

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.3 and SR 3.5.3.4 (continued)

isolated. The required flow rate (400 gpm) is the pump design flow rate. Analysis has demonstrated that RCIC can fulfill its design function at a system flow rate of 360 gpm (Ref. 4). The pump flow rates are verified against a system head equivalent to the RPV pressure. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be ≥ 920 psig to perform SR 3.5.3.3 and ≥ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve open, or for SR 3.5.3.3 ≥ 200 MWE from the main turbine-generator and for SR 3.5.3.4 total steam flow ≥ 1E6 lb/hour. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. ~~A 92-day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. The 24 month Frequency of SR 3.5.3.4 is based on a review of the surveillance test history and Reference 6.~~

Insert 2

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.5 (continued)

emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed safety function.

Insert 2

~~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. The 24 month Frequency is based on a review of the surveillance test history and Reference 6.~~

This SR is modified by a Note that excludes vessel injection during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 33.
2. FSAR, Section 4.7.
3. Memorandum from R. L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
4. GE Report AES-41-0688, "Safety Evaluation for Relaxation of RCIC Performance Requirements for Plant Hatch Units 1 and 2," July 1988.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
6. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.1.2

Maintaining the pressure suppression function of primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurized the drywell, the steam would be directed through the downcomers into the suppression pool. This SR measures drywell to suppression chamber differential pressure during a 10 minute period to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

Insert 2

Satisfactory performance of this SR can be achieved by establishing a known differential pressure between the drywell and the suppression chamber and verifying that the pressure in either the suppression chamber or the drywell does not change by more than 0.25 inch of water per minute over a 10 minute period. ~~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 view of the fact that component failures that might have affected this test are identified by other primary containment SRs. The 24 month Frequency is based on a review of the surveillance test history and Reference 9. Two consecutive test failures, however, would indicate unexpected primary containment degradation; in this event, as the Note indicates, increasing the Frequency to once every 9 months is required until the situation is remedied as evidenced by passing two consecutive tests.~~

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 14.4.3.
3. 10 CFR 50, Appendix J, Option B.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. Primary Containment Leakage Rate Testing Program.
6. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.
7. NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995.

(continued)

BASES

REFERENCES (continued)

8. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirements," 1994.

~~9. NRC Safety Evaluation Report for Amendment 232.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.2.2

Insert 2

The air lock interlock mechanism is designed to prevent simultaneous opening of both doors in the air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident primary containment pressure, 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 only challenged when the primary containment air lock door is opened, this test is only required to be performed upon entering or exiting the primary containment air lock, but is not required more frequently than 184 days when primary containment is de-inerted. The 184 day Frequency is based on engineering judgment and is considered adequate in view of other administrative controls such as indications of interlock mechanism status, available to operations personnel.~~

REFERENCES

1. FSAR, Section 5.2.3.4.5.
2. FSAR, Section 5.2.
3. Primary Containment Leakage Rate Testing Program.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1 (continued)

Note stating that the SR is not required to be met when the 18 inch 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. The 18 inch 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.~~

Insert 2

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 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 isolation devices outside primary containment, and capable of being mispositioned, are in the correct position. ~~Since verification of valve position for isolation devices outside primary containment is relatively easy, the 31 day Frequency was chosen to provide added assurance that the isolation devices are in the correct positions.~~

Insert 2

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 during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in the proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.3

This SR verifies that each primary containment manual isolation valve and blind flange that is located inside primary containment and is

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.3 (continued)

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 these isolation devices inside primary containment, the Frequency defined as "Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days" is appropriate since these isolation devices are operated under administrative controls and the probability of their misalignment is low.

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 and personnel safety reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in their proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Actuation and monitoring circuitry is provided in the main control room. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. The circuitry is such that a light illuminates upon loss of explosive charge continuity. Ensuring that the light illuminates when voltage is applied and that it is extinguished when installed in the circuit provides assurance of explosive valve continuity. 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.~~

Insert 2

SR 3.6.1.3.5

Verifying the isolation time of each power operated and each automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.5 (continued)

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 listed in the FSAR and that no degradation affecting valve closure since the performance of the last Surveillance has occurred. (EFCVs are not required to be tested because they have no specified time limit). The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 100 limits. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.1.6 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

Insert 2

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) (of a representative sample) is OPERABLE by verifying that the valve reduces flow to within limits on an actual or simulated instrument line break condition. (The representative sample consists of an approximately equal number of EFCVs, such that each EFCV is tested ~~at least once every 10 years~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.8 (continued)

Insert 2

~~[nominal].~~ In addition, the EFCVs in the sample are representative of the various plant configurations, models, sizes, and operating environments. This ensures that any potentially common problem with a specific type of 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 24 month Frequency is based on a review of the surveillance test history and Reference 8. (The nominal 10 year interval is based on performance testing as discussed in NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation" (Ref. 7). 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.) Any EFCV that fails to check flow during its surveillance test will be documented in the Hatch corrective action program as a surveillance test failure. The failure will be evaluated and corrected and, if the valve is repaired and not replaced, it will be added to the next cycle's surveillance.~~

SR 3.6.1.3.9

Insert 2

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). The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.10

The analyses in References 1 and 3 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be ≤ 11.5 scfh when tested at ≥ 28.0 psig.

The Frequency is required by the Primary Containment Leakage Rate Testing Program (Ref. 6).

SR 3.6.1.3.11

Deleted

SR 3.6.1.3.12

Insert 2

This SR provides assurance that the excess flow isolation dampers can close following an isolation signal. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

REFERENCES

1. FSAR, Section 14.4.
2. Technical Requirements Manual, Table T7.0-1.
3. FSAR, Section 5.2.
4. 10 CFR 50, Appendix J, Option B.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
6. Primary Containment Leakage Rate Testing Program.
7. ~~NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation."~~
8. ~~NRC Safety Evaluation Report for Amendment 232.~~

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 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

Insert 2

SR 3.6.1.4.1

Verifying that drywell pressure is within 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.~~

REFERENCES

1. FSAR, Sections 5.2 and 14.4.3.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1 (continued)

For the situation in which some or all of the normal temperature channels are inoperable, plant procedures contain instructions on how to determine the volumetric average to determine an accurate representation of the actual average temperature using the remaining OPERABLE instruments. Depending upon the location and number of inoperable temperature channels and the plant condition, a correction factor may have to be added to the volumetric average temperature calculated from the remaining OPERABLE temperature channels. The correction factor accounts for the inoperable channels and ensures a reasonable value for the average volumetric temperature is calculated.

Insert 2

~~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.~~

REFERENCES

1. FSAR, Sections 5.2 and 14.4.3.
2. FSAR, Section 5.2.3.2.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 2). ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

SR 3.6.1.6.2

The LLS designated S/RVs 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 LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.6 overlaps this SR to provide complete testing of the safety function.

Insert 2

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

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

REFERENCES

1. FSAR, Section 4.11.
2. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants, Appendix I."
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.
5. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES

ACTIONS (continued)

C.1

With one line with one or more vacuum breakers inoperable for opening, the leak tight primary containment boundary is intact. The ability to mitigate an event that causes a containment depressurization is threatened, however, if both vacuum breakers in at least one vacuum breaker penetration are not OPERABLE. Therefore, the inoperable vacuum breaker must be restored to OPERABLE status within 72 hours. This is consistent with the Completion Time for Condition A and the fact that the leak tight primary containment boundary is being maintained.

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 require that primary containment be restored to OPERABLE status within 1 hour.

E.1 and E.2

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

SURVEILLANCE REQUIREMENTS

Insert 2

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 or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. ~~The 14 day Frequency is based on engineering judgment, is considered adequate in view of other~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1 (continued)

~~indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.~~

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

SR 3.6.1.7.2

Each vacuum breaker must be cycled to ensure that it opens 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 is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.7.3

Insert 2

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. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

(continued)

BASES (continued)

REFERENCES	1.	FSAR, Section 5.2.
	2.	Unit 2 FSAR, Section 6.2.1.
	3.	NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
	~~4.~~	~~NRC Safety Evaluation Report for Amendment 232.~~

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.1 (continued)

Chamber-to-Drywell Vacuum Breaker Position Indication," as ACTIONS for inoperable closed position indicator channels.

If position indication is reliable (dual or open indication while torus-to-drywell differential pressure is steady at 0 psid), and indicates open, the alternate methods outlined in the TRM T3.6.1 ACTIONS can prove the indication to be in error and the vacuum breaker closed. However, in this case the vacuum breaker is assumed open until otherwise proved to satisfy the leakage test, and this confirmation must be performed within the Technical Specification 3.6.1.8, Required Action B.1, Completion Time of 2 hours.

Insert 2

~~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.~~

A Note is added to this SR which 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.

SR 3.6.1.8.2

Insert 2

Each required (i.e., required to be OPERABLE for opening) 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, since they are located in a harsh environment (the suppression chamber airspace).~~ In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the safety/relief valves.

SR 3.6.1.8.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.3 (continued)

Insert 2

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. The 24 month Frequency is based on a review of the surveillance test history and Reference 5. It is further justified because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.~~

REFERENCES

1. FSAR, Section 5.2.
2. Unit 2 FSAR, Section 6.2.1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. Technical Requirements Manual, TLCO 3.6.1.

~~5. NRC Safety Evaluation Report for Amendment 232.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1.1

The suppression pool average temperature (torus average bulk temperature) is regularly monitored to ensure that the required limits are satisfied. The average temperature is determined by using a weighted average of functional suppression pool water temperature channels. The channels in the lower half of the suppression pool are averaged and the channels in the upper half of the suppression pool are averaged. The suppression pool average temperature is the average of the upper and lower average temperatures.

For the situation in which some or all of either the upper half or the lower half temperature channels are inoperable, plant procedures contain instructions on how to determine the suppression pool average temperature using the remaining OPERABLE instruments. Depending upon the location and number of inoperable channels and the plant condition, a correction factor may have to be added to the average temperature calculated from the remaining OPERABLE temperature channels. The correction factor accounts for the inoperable channels and ensures a reasonable value for the average bulk temperature is calculated.

Insert 2

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

Frequency is

REFERENCES

1. GE Report EAS-19-0388, "Elimination of the Suppression Pool Temperature Limit for Plant Hatch Units 1 and 2," March 1988.
2. NUREG-0783.
3. FSAR, Sections 5.2 and 14.4.3.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

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

Insert 2

Verification of the suppression pool water level is to ensure that the required limits are satisfied. ~~The 24 hour Frequency of this SR was developed considering operating experience related to trending variations in suppression pool water level and water level instrument drift during the applicable MODES and to assessing the proximity to the specified LCO level limits. Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool water level condition.~~

REFERENCES

1. FSAR, Sections 5.2 and 14.4.3.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS (continued)

B.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and because alternative methods to remove heat from primary containment are available.

C.1 and C.2

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

SURVEILLANCE REQUIREMENTS

SR 3.6.2.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR suppression pool cooling mode flow path provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

Insert 2

~~The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.4.1 (continued)

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.

Insert 2

~~The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~

SR 3.6.2.4.2

Insert 2

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

REFERENCES

1. FSAR, Sections 5.2 and 14.4.3.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

B.1 and B.2 (continued)

With two CAD subsystems inoperable, one CAD subsystem must be restored to OPERABLE status within 7 days. The 7 day Completion Time is based on the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit, the amount of time available after the event for operator action to prevent exceeding this limit, and the availability of other hydrogen mitigating systems.

C.1

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

SURVEILLANCE REQUIREMENTS

Insert 2

SR 3.6.3.1.1

Verifying that there is ≥ 2000 gallons of liquid nitrogen supply in each Nitrogen Storage Tank will ensure at least 7 days of post-LOCA CAD operation. This minimum volume of liquid nitrogen allows sufficient time after an accident to replenish the nitrogen supply for long term inerting. ~~This is verified every 31 days to ensure that each subsystem is capable of performing its intended function when required. The 31 day Frequency is based on operating experience, which has shown 31 days to be an acceptable period to verify the liquid nitrogen supply and on the availability of other hydrogen mitigating systems.~~

SR 3.6.3.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in each of the CAD subsystem flow paths provides assurance that the proper flow paths exist for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1.2 (continued)

A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within 9 hours. This is acceptable because the CAD System is manually initiated. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

Insert 2

~~The 31 day Frequency is appropriate because the valves are operated under procedural control, improper valve position would only affect a single subsystem, the probability of an event requiring initiation of the system is low, and the system is a manually initiated system.~~

REFERENCES

1. Regulatory Guide 1.7, Revision 0.
2. FSAR, Section 5.2.3.4.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS (continued)

B.1

If oxygen concentration cannot be restored to within limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, power must be reduced to ≤ 15% RTP within 8 hours. The 8 hour Completion Time is reasonable, based on operating experience, to reduce reactor power from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.1

Insert 2

The primary containment (drywell and suppression chamber) must be determined to be inert 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 would lead to more frequent checking by operators in accordance with plant procedures). Also, this Frequency has been shown to be acceptable through operating experience.~~

REFERENCES

1. FSAR, Section 5.2.4.9.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS

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

case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1 and SR 3.6.4.1.2

Verifying that secondary containment equipment hatches and one access door in each access opening are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur. Verifying that all such openings are closed provides adequate assurance that exfiltration from the secondary containment will not occur. SR 3.6.4.1.1 also requires equipment hatches to be sealed. In this application, the term "sealed" has no connotation of leak tightness. Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed. An access opening contains one inner and one outer door. The intent is not to breach the secondary containment at any time when secondary containment is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times. However, all secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening. When the secondary containment configuration excludes Zone I and/or Zone II, these SRs also include verifying the hatches and doors separating the common refueling floor zone from the reactor building(s). ~~The 31 day Frequency for these SRs has been shown to be adequate, based on operating experience, and is considered adequate in view of the other indications of door and hatch status that are available to the operator.~~

Insert 2

SR 3.6.4.1.3 and SR 3.6.4.1.4

The Unit 1 and Unit 2 SGT Systems exhaust the secondary containment atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products are treated, SR 3.6.4.1.3 verifies that the appropriate SGT System(s) will rapidly establish and maintain a negative pressure in the secondary containment. This is confirmed by demonstrating that the required SGT subsystem(s) will draw down the secondary containment to ≥ 0.20 inch of vacuum water gauge in ≤ 120 seconds (13 seconds of diesel generator startup and breaker closing time is included in the 120 second drawdown time). This cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.4

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.3 and SR 3.6.4.1.4 (continued)

demonstrates that the required SGT subsystem(s) can maintain ≥ 0.20 inch of vacuum water gauge for 1 hour at a flow rate ≤ 4000 cfm for each SGT subsystem. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state conditions. Therefore, these two tests are used to ensure secondary containment boundary integrity. Since these SRs are secondary containment tests, they need not be performed with each SGT subsystem. The SGT subsystems are tested on a STAGGERED TEST BASIS, however, to ensure that in addition to the requirements of LCO 3.6.4.3, each SGT subsystem or combination of subsystems will perform this test. The number of SGT subsystems and the required combinations are dependent on the configuration of the secondary containment and are detailed in the Technical Requirements Manual (Ref. 3). The Note to SR 3.6.4.1.3 and SR 3.6.4.1.4 specifies that the number of required SGT subsystems be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. ~~The 24 month Frequency, on a STAGGERED TEST BASIS, of SRs 3.6.4.1.3 and 3.6.4.1.4 is also based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Subsection 14.4.3.
2. FSAR, Subsection 14.4.4.
3. Technical Requirements Manual, Section 8.0.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 232.~~

ACTIONS

C.1 and C.2 (continued)

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

D.1, D.2, and D.3

If any Required Action and associated Completion Time of Condition A or B are not met, the plant must be placed in a condition in which the LCO does not apply. If applicable, CORE ALTERATIONS and the movement of irradiated fuel assemblies in the secondary containment must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be immediately initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

Required Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving fuel while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations.

Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment manual isolation valve and blind flange that 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 isolation devices in secondary containment that are capable of being mispositioned are in the correct position.

Insert 2

~~Since these isolation devices are readily accessible to personnel during normal operation and verification of their position is relatively~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1 (continued)

~~easy, the 31 day Frequency was chosen to provide added assurance that the isolation devices are in the correct positions.~~

Two Notes have been added to this SR. The first Note 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 isolation devices, 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.

SR 3.6.4.2.2

Verifying that the isolation time of each power operated and each 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 was developed based upon engineering judgment and the similarity to PCIVs.~~

Insert 2

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 SR 3.3.6.2.5 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

(continued)

BASES (continued)

REFERENCES	1. FSAR, Subsection 14.3.3.
	2. FSAR, Subsection 14.3.4.
	3. Technical Requirements Manual, Section 8.0.
	4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
	~~5. NRC Safety Evaluation Report for Amendment 232.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Insert 2

Operating each required Unit 1 and Unit 2 SGT subsystem for ≥ 15 continuous minutes ensures that they 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. ~~The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.~~

SR 3.6.4.3.2

This SR verifies that the required Unit 1 and Unit 2 SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.6.4.3.3

Insert 2

This SR verifies that each required Unit 1 and Unit 2 SGT subsystem starts on receipt of an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. ~~This Surveillance can be performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 6.~~

(continued)

BASES (continued)

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. Unit 1 FSAR, Section 5.3.2.3.
3. Unit 2 FSAR, Sections 6.2.4, 15.2 and 15.3.
4. Technical Requirements Manual, Section 8.0.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~6. NRC Safety Evaluation Report for Amendment 232.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1 (continued)

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

Insert 2

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

REFERENCES

1. FSAR, Section 10.6.
2. FSAR, Subsection 14.4.3.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. General Electric, "RHR Heat Exchanger K-Value Study for Hatch Unit 1 and 2", GE-NE-0000-0037-9449-R0, April 2005.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1 (continued)

Insert 2

margin to the minimum level requirement (60.7 ft MSL), so the Surveillance is only required to be performed ~~every 14 days~~. However, if the level is ≤ 61.7 ft, the Surveillance must be performed more frequently (every 12 hours), since the conditions are closer to the minimum level limit.

SR 3.7.2.2

Verifying the correct alignment for each manual, power operated, and automatic valve in each PSW subsystem flow path provides assurance that the proper flow paths will exist for PSW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be automatically realigned to its accident position within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

This SR is modified by a Note indicating that isolation of the PSW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the PSW System. As such, when all PSW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the PSW System is still OPERABLE.

Insert 2

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

SR 3.7.2.3

This SR verifies that the automatic isolation valves of the PSW System will automatically switch to the safety or emergency position to provide cooling water exclusively to the safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR also verifies the automatic start capability (on a LOCA or LOSP signal) of one of the two PSW pumps in each subsystem.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.3 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Section 10.7.
2. FSAR, Section 5.2.
3. FSAR, Chapter 14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the DG 1B SSW System flow path provides assurance that the proper flow paths will exist for DG 1B SSW 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, and yet be considered in the correct position provided it can be automatically realigned to its accident position, within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

Insert 2

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

SR 3.7.3.2

This SR ensures that the DG 1B SSW System pump will automatically start to provide required cooling to the DG 1B when the DG 1B starts and the respective bus is energized.

Insert 2

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

REFERENCES

1. Unit 2 FSAR, Section 9.2.1.
2. FSAR, Section 5.2.
3. FSAR, Chapter 14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 232.~~

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem ~~once every 31 days~~ provides an adequate check on this system. Since the MCREC System does not have heaters, each subsystem need only be operated for ≥ 15 minutes to demonstrate the function of the subsystem. Insert 2 ~~Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.~~

SR 3.7.4.2

This SR verifies that the required MCREC testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.4.3

This SR verifies that on an actual or simulated initiation signal, each MCREC subsystem starts and operates. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 overlaps this SR to provide complete testing of the safety function. This Surveillance can be performed with the reactor at power. Insert 2 ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 9.~~

SR 3.7.4.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas (the turbine building), is periodically tested to verify proper function of the MCREC System. During the pressurization mode of operation, the MCREC System is designed to slightly pressurize the control room ≥ 0.1 inches water gauge positive pressure with respect to the turbine building to prevent unfiltered inleakage. The MCREC System is designed to maintain this positive

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.4.4 (continued)

pressure at a flow rate of ≤ 2750 cfm through the control room in the pressurization mode. This SR ensures the total flow rate meets the design analysis value of 2500 cfm ± 10% and ensures the outside air flow rate is ≤ 400 cfm. ~~The 24 month Frequency, on a STAGGERED TEST BASIS, is based on a review of the surveillance test history and Reference 9.~~

Insert 2

REFERENCES

1. Unit 2 FSAR, Section 6.4.
2. Unit 2 FSAR, Section 9.4.1.
3. FSAR, Section 5.2.
4. FSAR, Chapter 14.
5. Unit 2 FSAR, Section 6.4.1.2.2.
6. Unit 2 FSAR, Table 15.1-28.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. Technical Requirements Manual, Table T2.1-1.

~~9. NRC Safety Evaluation Report for Amendment 232.~~

BASES

ACTIONS

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

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, with three control room AC subsystems inoperable, 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, CORE ALTERATIONS and handling of irradiated fuel in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Insert 2

This SR verifies that the heat removal capability of the system is sufficient to remove the control room heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. ~~The 24 month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

REFERENCES

1. Unit 2 FSAR, Sections 6.4 and 9.4.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual, Table T2.1-1.
4. ~~NRC Safety Evaluation Report for Amendment 232.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR~~, on a 31 day Frequency,~~ requires an isotopic analysis of an offgas sample 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 (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.~~

Insert 2

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. FSAR, Section 9.4 and Appendix E.
2. 10 CFR 100.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS

B.1 (continued)

< 24% RTP. As discussed in the Applicability section, operation at < 24% 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 transient. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

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

Insert 2

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. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

SR 3.7.7.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in Technical Requirements Manual (Ref. 3). ~~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.~~

Insert 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.7.7.3 (continued) ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

REFERENCES	1. FSAR, Section 7.11. 2. FSAR, Section 14.3.2.1. 3. Technical Requirements Manual, Table T5.0-1. 4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993. ~~5. NRC Safety Evaluation Report for Amendment 232.~~

BASES (continued)

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies in the spent fuel storage pool since the potential for a release of fission products exists.

ACTIONS

A.1

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

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

SURVEILLANCE REQUIREMENTS

Insert 2

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.~~

REFERENCES

1. FSAR, Section 10.3.
2. NRC Safety Evaluation Report related to Unit 1 Amendment 172 and Unit 2 Amendment 112, August 28, 1991.
3. 10 CFR 100.
4. NUREG-0800, Section 15.7.4, Revision 1, July 1981.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.1 (continued)

Insert 2

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

This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition, and verifies that the DGs are capable of proper startup, synchronizing, and accepting a load approximately 50% of the continuous load rating. This demonstrates DG capability while minimizing the mechanical stress and wear on the engine. 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. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, this SR has been modified by a Note (Note 2) to indicate that all DG starts for this Surveillance may be preceded by an engine prelube period and followed by a warmup prior to loading.

For the purposes of this testing, the 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 DG manufacturer recommends 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 3. Once voltage and frequency requirements are demonstrated, the DG may be tied to its respective 4160 V emergency bus, as directed by SR 3.8.1.2.b.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 (continued)

When the DG is tied to its bus, the electrical grid, due to its larger size compared to the DG, will dictate DG voltage and frequency. The DG operator cannot adjust either parameter. Therefore, the voltage and frequency requirements of SR 3.8.1.2.a no longer apply while the DG is tied to its bus and need not be met to satisfy the requirements of SR 3.8.1.2.b. Other SRs, notably SR 3.8.1.9, require that voltage and frequency requirements can be met while the DG is supplying load.

SR 3.8.1.5.a requires that~~, at a 184 day Frequency,~~ the DG starts from standby conditions and achieves required voltage and frequency within 12 seconds. The 12 second start requirement supports the assumptions in the design basis LOCA analysis of FSAR, Chapter 6 (Ref. 4). The 12 second start requirement is not applicable to SR 3.8.1.2 (see Note 3), when a modified start procedure as described above is used. If a modified start is not used, the 12 second start voltage and frequency requirements of SR 3.8.1.5.a apply.

Since SR 3.8.1.5.a does require a 12 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. This procedure is the intent of Note 1.

To minimize testing of the swing DG, this SR is modified by a note (Note 4) to allow a single test (instead of two tests, one for each unit) to satisfy the requirements for both units, using the starting circuitry of one unit for one periodic test and the starting circuitry of the other unit during the next periodic test. This is allowed since the main purpose of the Surveillance, to ensure DG OPERABILITY, is still being verified on the proper frequency, the starting circuits historically have a very low failure rate, as compared to the DG itself, and that, while each starting circuit is only being tested every second test (due to the staggering of the tests), some portions of the starting circuits are common to both units. If the swing DG fails one of these Surveillance, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

Note 5 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 6 modifies the Surveillance by stating that starting transients above the upper voltage limit do not invalidate this test.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 (continued)

Note 7 modifies this Surveillance by stating that momentary load transients because of changing bus loads do not invalidate this test.

Note 8 indicates that this Surveillance is required to 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.

Insert 2

~~The normal 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.108 (Ref. 10). This Frequency provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~

SR 3.8.1.3

This volume is selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load + 10%. The actual amount required to meet the SR (500 gallons) will provide approximately 1.85 hours of DG operation at full load + 10%. Additionally, the volume of fuel in the day tanks is used in the calculation of the 7 day continuous DG run time. (See B 3.8.3.)

Insert 2

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

Periodic removal

SR 3.8.1.4

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. ~~Removal~~ of water from the fuel oil day tanks ~~once every 184 days~~ eliminates the necessary environment for bacterial survival.

This is a means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water in the day tank may come from condensation, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.4 (continued)

Insert 2

~~The Surveillance Frequency is based on engineering judgment and has shown to be acceptable through operating experience.~~ 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 3.8.1.5

This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition. This Surveillance verifies that the DGs are capable of a "fast cold" start, synchronizing, and accepting a load more closely simulating accident loads. 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.

SR 3.8.1.5 requires that~~, at a 184 day Frequency,~~ the DG starts from standby conditions and achieves required voltage and frequency within 12 seconds. The 12 second start requirement supports the assumptions in the design basis LOCA analysis of FSAR Chapter 6 (Ref. 4). Once voltage and frequency requirements are demonstrated, the DG may be tied to its respective 4160 V emergency bus, as directed by SR 3.8.1.2.b. When the DG is tied to its bus, the electrical grid, due to its much larger size compared to the DG, will dictate DG voltage and frequency. The DG operator cannot adjust either parameter. Therefore, the voltage and frequency requirements of SR 3.8.1.2.a no longer apply while the DG is tied to its bus and need not be met to satisfy the requirements of SR 3.8.1.2.b. Other SRs, notably SR 3.8.1.9, require that voltage and frequency requirements can be met while the DG is supplying load.

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.

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. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation.

Insert 2

~~The 184 day Frequency for SR 3.8.1.5 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7). This Frequency~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

~~provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~

To minimize the wear on moving parts that do not get lubricated when the engine is not running, this SR has been modified by a Note (Note 1) to indicate that all DG starts for this Surveillance may be preceded by an engine prelube period and followed by a warmup prior to loading.

Note 2 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 3 modifies this Surveillance by stating that momentary load transients because of changing bus loads do not invalidate this test.

Note 4 indicates that this Surveillance is required to 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.

To minimize testing of the swing DG, Note 5 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units, with the DG started using the starting circuitry of one unit and synchronized to the ESF bus of that unit for one periodic test and started using the starting circuitry of the other unit and synchronized to the ESF bus of that unit during the next periodic test. This is allowed since the main purpose of the Surveillance, to ensure DG OPERABILITY, is still being verified on the proper frequency, and each unit's starting circuitry and breaker control circuitry, which is only being tested every second test (due to the staggering of the tests), historically have a very low failure rate. If the swing 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 3.8.1.6

Insert 2

Transfer of each 4.16 kV ESF 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 intended to be consistent with expected fuel cycle lengths.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

contained in the Surveillance Frequency Control Program

This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1 or 2 and the Unit 2 test should not be performed with Unit 2 in MODE 1 or 2.

SR 3.8.1.7

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 DGs 1A and 1C is a core spray pump at rated flow (1275 bhp). For DG 1B, the largest single load is a residual heat removal service water pump at rated flow (1225 bhp). 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. Although Plant Hatch Unit 1 is not committed to IEEE-387-1984 (Ref. 12), this SR is consistent with the IEEE-387-1984 requirement that states the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. For all DGs, this represents 65.5 Hz, equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

Insert 2

The voltage and frequency specified are consistent with the nominal range for the DG. SR 3.8.1.7.a corresponds to the maximum frequency excursion, while SR 3.8.1.7.b is the voltage to which the DG must recover following load rejection. ~~The 24 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 10). The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by two Notes. The reason for Note 1 is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing is performed with only the DG providing power to the associated 4160 V ESF bus. The DG is not synchronized with offsite power.

To minimize testing of the swing DG, Note 2 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.8

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.8 (continued)

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, testing must be performed using a power factor ≤ 0.88. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

Insert 2

~~The 24 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 10) and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by three Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Note 2 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high), it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable.

To minimize testing of the swing DG, Note 3 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.9

This Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source and is consistent with Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(1). 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 time of 12 seconds is derived from requirements of the accident analysis for responding to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the 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, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the 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. For the purpose of this testing, the DGs shall be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

Insert 2

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(1), takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

contained in the Surveillance Frequency Control Program

offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.10

This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (12 seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability.

The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the loading logic for loading onto offsite power. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, low pressure injection systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. 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.

Insert 2

~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

~~with the expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

contained in the Surveillance Frequency Control Program

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could potentially cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1 or 2 and the Unit 2 test should not be performed with Unit 2 in MODE 1 or 2.

SR 3.8.1.11

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on a loss of voltage signal concurrent with an ECCS initiation signal and critical protective functions (engine overspeed, generator differential current, and low lubricating oil pressure) are available to 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.

Insert 2

~~The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.11 (continued)

contained in the Surveillance Frequency Control Program

service. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1 or 2 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.12

Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(3), requires demonstration ~~once per 24 months~~ that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours. The first 22 hours of this test are performed at ≥ 2775 kW and ≤ 2825 kW (which is near the continuous rating of the DG), and the last 2 hours of this test are performed at ≥ 3000 kW. This is in accordance with commitments described in FSAR Section 8.4 (Ref. 2). The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, and for gradual loading, discussed in SR 3.8.1.2, 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 using a power factor ≤ 0.88. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience. A 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.

Insert 2

~~The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(3); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.12 (continued)

This Surveillance has been modified by four Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. However, it is acceptable to perform this SR in MODES 1 and 2 provided the other two DGs are OPERABLE, since a perturbation can only affect one divisional DG. If during the performance of this Surveillance, one of the other DGs becomes inoperable, this Surveillance is to be suspended. The Surveillance may not be performed in MODES 1 and 2 during inclement weather and unstable grid conditions. Credit may be taken for unplanned events that satisfy this SR. Note 3 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high), it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable. To minimize testing of the swing DG, Note 4 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.13

Insert 2

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 12 seconds. The 12 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. ~~The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(5). The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.13 (continued)

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 near 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 swing DG, Note 3 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.14

This Surveillance is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(6), and ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in 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 load sequence timers are reset.

Insert 2

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(6), and takes into consideration plant conditions required to perform the Surveillance. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

contained in the Surveillance Frequency Control Program

~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.15

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. Although Plant Hatch Unit 1 is not committed to this standard, this SR is consistent with the provisions for automatic switchover required by IEEE-308 (Ref. 13), paragraph 6.2.6(2).

The intent in the requirements associated with SR 3.8.1.15.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads 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.

Insert 2

~~The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.15 (continued)

contained in the Surveillance Frequency Control Program

~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

SR 3.8.1.16

Under accident conditions, loads are sequentially connected to the bus by the automatic load sequence timing devices. 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 tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF buses.

Insert 2

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(2); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

contained in the Surveillance Frequency Control Program

This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.17

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 3.8.1.9, 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. 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.

Insert 2

~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length. The 24 month Frequency is based on a review of the surveillance test history and Reference 15.~~

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 1 swing bus. The comparable test specified in the Unit 2 Technical Specifications tests the applicable logic associated with the Unit 2 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 2. As the Surveillance represents separate tests, the Unit 1 Surveillance should not be performed with Unit 1 in MODE 1, 2, or 3 and the Unit 2 test should not be performed with Unit 2 in MODE 1, 2, or 3.

contained in the Surveillance Frequency Control Program

SR 3.8.1.18

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously. For the purpose of this testing,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.18 (continued)

the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations. It is permissible to place all three DGs in test simultaneously, for the performance of this Surveillance.

Insert 2

~~The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10). This SR is modified by a Note. The reason for the Note is to minimize wear on the DG during testing.~~

SR 3.8.1.19

With the exception of this Surveillance, all other Surveillances of this Specification (SR 3.8.1.1 through SR 3.8.1.18) are applied only to the Unit 1 DG and offsite circuits, and swing DG. This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 2 DG and offsite circuit are governed by the Unit 2 Technical Specifications. Performance of the applicable Unit 2 Surveillances will satisfy both any Unit 2 requirements, as well as satisfying this Unit 1 SR. Several exceptions are noted to the Unit 2 SRs: SR 3.8.1.6 is excepted since only one Unit 2 circuit is required by the Unit 1 Specification (therefore, there is not necessarily a second circuit to transfer to); SRs 3.8.1.10, 15, and 17 are excepted since they relate to the DG response to a Unit 2 ECCS initiation signal, which is not a necessary function for support of the Unit 1 requirement for an OPERABLE Unit 2 DG.

The Frequency required by the applicable Unit 2 SR also governs performance of that SR for both Units.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. FSAR, Sections 8.3 and 8.4.
3. FSAR, Chapter 5.
4. FSAR, Chapter 6.
5. FSAR, Chapter 14.
6. Regulatory Guide 1.93, December 1974.

(continued)

BASES

REFERENCES (continued)

7. Generic Letter 84-15.
8. 10 CFR 50, Appendix A, GDC 18.
9. Regulatory Guide 1.9, March 1971.
10. Regulatory Guide 1.108, August 1977.
11. Regulatory Guide 1.137, October 1979.
12. IEEE Standard 387-1984.
13. IEEE Standard 308-1980.
14. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~15. NRC Safety Evaluation Report for Amendment 232.~~

ACTIONS (continued)

E.1

With required starting air receiver pressure < 225 psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is ≥ 170 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

F.1

With a Required Action and associated Completion Time of Condition A, B, C, D, or E not met, one or more required DG fuel oil transfer subsystems inoperable for reasons other than Condition A, one or more required DG fuel oil storage tanks with fuel oil level not within limits for reasons other than Condition B, or the stored diesel lube oil or the required starting air subsystem not within limits for reasons other than addressed by Condition C or E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the Unit 1 and swing DG storage tanks to support the required DGs' operation for 7 days at the assumed load. (See B 3.8.3.)

Insert 2

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

SR 3.8.3.2

This Surveillance ensures that sufficient lubricating oil inventory (combined inventory in the DG lubricating oil sump and stored in the warehouse) is available to support at least 7 days of full load operation for each required DG. The 400 gal requirement is based on the DG manufacturer's consumption values for the run time of the DG.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.2 (continued)

Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, since the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

Insert 2

~~A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the plant staff.~~

SR 3.8.3.3

This SR verifies that the required Unit 1 and swing DG fuel oil testing is performed in a accordance with the Diesel Fuel Oil Testing Program. Tests are a means of monitoring the potential degradation related to long term storage and the potential impact to fuel filter plugging as a result of high particulate levels. Specific sampling requirements, frequencies, and additional information are discussed in detail in the Diesel Fuel Oil Testing Program.

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each required DG is available. The system design requirements provide for a minimum of five engine start cycles without recharging. A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed. The pressure specified in this SR is intended to reflect the lowest value at which the five starts can be accomplished using one air receiver.

Insert 2

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

SR 3.8.3.5

This Surveillance demonstrates that each required Unit 1 and swing DG fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. It is required to

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.3.5 (continued)

support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pumps are 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 are OPERABLE.

Insert 2

~~The design of the fuel transfer systems is such that pumps operate automatically in order to maintain an adequate volume of fuel oil in the day tanks during or following DG testing. Therefore, a 31 day Frequency is specified to correspond to the maximum interval for DG testing.~~

Periodic

SR 3.8.3.6

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. ~~Removal~~ removal of water from the required Unit 1 and swing DG fuel storage tanks once every 184 days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water in the storage tank may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Checking for and removal of accumulated water minimizes fouling and provide data regarding the watertight integrity of the fuel oil system. ~~The Surveillance Frequency is based on engineering judgment and has been shown to be acceptable through operating experience. This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance.~~

Insert 2

SR 3.8.3.7

This Surveillance demonstrates that each required Unit 1 and swing DG fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to each required DG's day tank. It is required to support continuous operation of standby power sources, since fuel from three storage tanks is needed to supply fuel for two DGs to meet the 7 day supply requirement discussed in the Background section of these Bases. This Surveillance provides assurance that the fuel oil transfer pumps are OPERABLE, the fuel oil piping system is intact,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.7 (continued)

the fuel delivery piping is not obstructed, and the controls and control systems for manual fuel transfer are OPERABLE.

Insert 2

~~Since the fuel oil transfer pumps are being tested on a 31 day Frequency in accordance with SR 3.8.3.5, the 24 month Frequency has been determined to be acceptable. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

REFERENCES

1. FSAR, Section 8.4.
2. FSAR, Chapters 5 and 6.
3. FSAR, Chapter 14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 232.~~

ACTIONS

D.1 and D.2 (continued)

to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

E.1

Condition E corresponds to a level of degradation in the DC electrical power subsystems that causes a required safety function to be lost. When more than one DC source is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

SURVEILLANCE REQUIREMENTS

The SRs are modified by a Note to indicate that SR 3.8.4.1 through SR 3.8.4.8 apply only to the Unit 1 DC sources, and that SR 3.8.4.9 applies only to the Unit 2 DC sources.

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. Voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The voltage requirement for battery terminal voltage is based on the open circuit voltage of a lead-calcium cell of nominal 1.215 specific gravity. Without regard to other battery parameters, this voltage is indicative of a battery that is capable of performing its required safety function. ~~The 7 day Frequency is consistent with manufacturer's recommendations and IEEE-450 (Ref. 8).~~

Insert 2

SR 3.8.4.2

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each inter-cell,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 (continued)

inter-rack, inter-tier, and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The connection resistance limits are established to maintain connection resistance as low as reasonably possible to minimize the overall voltage drop across the battery and the possibility of battery damage due to heating of connections.

The resistance values for each battery connection are located in the Technical Requirements Manual (Ref. 9).

Insert 2

~~The Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.~~

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

Insert 2

~~The 24 month Frequency of the Surveillance takes into consideration the desired plant conditions to perform the Surveillance. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provides an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anti-corrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR, provided visible corrosion is removed during performance of this Surveillance.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.4 and SR 3.8.4.5 (continued)

The connection resistance limits are established to maintain connection resistance as low as reasonably possible to minimize the overall voltage drop across the battery and the possibility of battery damage due to heating of connections. The resistance values for each battery connection are located in the Technical Requirements Manual (Ref. 9).

Insert 2

~~The 24 month Frequency of the Surveillances takes into consideration the desired plant conditions to perform the Surveillance. The 24 month Frequency of SRs 3.8.4.4 and 3.8.4.5 is based on a review of the surveillance test history and Reference 14.~~

SR 3.8.4.6

Battery charger capability requirements are based on the design capacity of the chargers (Ref. 4). According to Regulatory Guide 1.32 (Ref. 10), each battery charger supply is required 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.

Insert 2

~~The Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

SR 3.8.4.7

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

(continued)

SURVEILLANCE REQUIREMENTS

Insert 2

SR 3.8.4.7 (continued)

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 10) and Regulatory Guide 1.129 (Ref. 11), which state that the battery service test should be performed during refueling operations or at some other outage. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test.

The modified performance discharge test is a simulated duty cycle consisting of just two rates: the 1 minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated 1 minute discharge represent a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

A 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 discharge test.

The reason for Note 2 is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy the Surveillance. The swing DG DC battery is exempted from this restriction, since it is required by both units' LCO 3.8.4 and cannot be performed in the manner required by the Note without resulting in a dual unit shutdown.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.4.8

A battery performance discharge test is a constant current capacity test to detect any change in the capacity determined by the acceptance test. Initial conditions consistent with IEEE-450 need to be met prior to the performing of a battery performance discharge test. The test results reflect the overall effects of usage and age.

A battery modified performance discharge test is described in the Bases for SR 3.8.4.7. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.8; however, only the modified performance discharge test may be used to satisfy SR 3.8.4.8, while satisfying the requirements of SR 3.8.4.7 at the same time.

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 8) and IEEE-485 (Ref. 12). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. Although there may be ample capacity, the battery rate of deterioration is rapidly increasing.

Insert 2

~~The Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected application service life and capacity is ≤ 100% of the manufacturers rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected application service life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 8), when the battery capacity drops by more than 10% of rated capacity from its capacity on the previous performance test or is more than 10% below the manufacturer's rating. All these Frequencies are consistent with the recommendations in IEEE-450 (Ref. 8).~~

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy the Surveillance. The swing DG DC battery is exempted from this restriction, since it is required by both units' LCO 3.8.4 and cannot be performed in the manner required by the Note without resulting in a dual unit shutdown.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.4.9

With the exception of this Surveillance, all other Surveillances of this Specification (SR 3.8.4.1 through SR 3.8.4.8) are applied only to the Unit 1 DC sources. This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 2 DC sources are governed by the Unit 2 Technical Specifications. Performance of the applicable Unit 2 Surveillances will satisfy both any Unit 2 requirements, as well as satisfying this Unit 1 SR.

The Frequency required by the applicable Unit 2 SR also governs performance of that SR for both Units.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6.
3. IEEE Standard 308-1971.
4. FSAR, Section 8.5.
5. FSAR, Chapters 5 and 6.
6. FSAR, Chapter 14.
7. Regulatory Guide 1.93, December 1974.
8. IEEE Standard 450-1987.
9. Technical Requirements Manual, Section 9.0.
10. Regulatory Guide 1.32, February 1977.
11. ~~Regulatory Guide 1.129, December 1974.~~
12. IEEE Standard 485-1983.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
14. ~~NRC Safety Evaluation Report for Amendment 232.~~

Not used

ACTIONS

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

verification is repeated at 7 day intervals until the parameters are restored to Category A and B limits. This periodic verification is consistent with the normal Frequency of pilot cell surveillances.

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. Taking into consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the associated DC battery inoperable.

B.1

When any battery parameter is outside the Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potentially extreme conditions, such as not completing the Required Actions of Condition A within the required Completion Time or average electrolyte temperature of representative cells falling below the appropriate limit (65°F for station service and 40°F for DG batteries), also are cause for immediately declaring the associated DC electrical power subsystem inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 3), which recommends regular battery inspections ~~(at least one per month)~~ including voltage, specific gravity, and electrolyte level of pilot cells. ← Insert 2

Insert 2

SR 3.8.6.2

The ~~92 day~~ inspection of specific gravity, cell voltage, and level is consistent with IEEE-450 (Ref. 3). In addition, within 24 hours of a battery overcharge > 150 V, the battery must be demonstrated to meet Category B limits. This inspection is also consistent with IEEE-450 (Ref. 3), which recommends special inspections following a

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.6.2 (continued)

severe overcharge, to ensure that no significant degradation of the battery occurs as a consequence of such overcharge.

SR 3.8.6.3

Insert 2

This Surveillance verification that the average temperature of representative cells is within limits is consistent with a recommendation of IEEE-450 (Ref. 3) that states that the temperature of electrolyte in representative cells should be determined ~~on a quarterly basis.~~

Lower than normal temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range. This limit is based on IEEE-450 or the manufacturer's recommendations when provided.

Table 3.8.6-1

This table delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

Category A defines the normal parameter limit for each designated pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity approximate the condition of the entire battery.

The Category A limits specified for electrolyte level are based on manufacturer's recommendations and are consistent with the guidance in IEEE-450 (Ref. 3), with the extra 1/4 inch allowance above the high water level indication for operating margin to account for temperature and charge effects. In addition to this allowance, footnote (a) to Table 3.8.6-1 permits the electrolyte level to be above the specified maximum level during equalizing charge, provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 3) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is ≥ 2.13 V per cell. This value is based on the recommendation of IEEE-450 (Ref. 3),

(continued)

ACTIONS

D.1 (continued)

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This allowance results in establishing the "time zero" at the time LCO 3.8.7.a was initially not met, instead of at the time Condition D was entered. The 16 hour Completion Time is an acceptable limitation on this potential of failing to meet the LCO indefinitely.

E.1 and E.2

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

F.1

Condition F corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

Insert 2

This Surveillance verifies that the AC and DC electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical buses are maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. ~~The 7 day Frequency takes into account the redundant capability of the AC and DC electrical power distribution subsystems,~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1 (continued)

~~and other indications available in the control room that alert the operator to subsystem malfunctions.~~

REFERENCES

1. FSAR, Chapters 5 and 6.
2. FSAR, Chapter 14.
3. Regulatory Guide 1.93, December 1974.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

Insert 2

This Surveillance verifies that the AC and DC electrical power distribution subsystem is functioning properly, with the buses energized. The verification of proper voltage availability on the buses ensures that the required 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 electrical power distribution subsystems, as well as other indications available in the control room that alert the operator to subsystem malfunctions.~~

REFERENCES

1. FSAR, Chapters 5 and 6.
2. FSAR, Chapter 14.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

Insert 2 →

~~The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 7.6.3.
3. FSAR, Section 14.3.3.3.
4. FSAR, Section 14.3.3.4.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1 (continued)

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.

Insert 2

~~The Frequency of 12 hours is sufficient in view of other administrative controls utilized during refueling operations to ensure safe operation.~~

SR 3.9.2.2

Insert 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. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested. ~~The 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and visual and audible indications available in the control room to alert the operator to control rods not fully inserted.~~ To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Alternatively, the control rod withdrawal, and the attempted withdrawal of the second control rod, may be simulated. In either case, 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. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 7.6.3.
3. FSAR, Section 14.3.3.3.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

APPLICABILITY	During MODE 5, loading fuel into core cells with the control rods withdrawn may result in inadvertent criticality. Therefore, the control rods must be inserted before loading fuel into a core cell. All control rods must be inserted before loading fuel to ensure that a fuel loading error does not result in loading fuel into a core cell with the control rod withdrawn. In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and no fuel loading activities are possible. Therefore, this Specification is not applicable in these MODES.
ACTIONS	A.1 With all control rods not fully inserted during the applicable conditions, an inadvertent criticality could occur that is not analyzed in the FSAR. All fuel loading operations must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position.
SURVEILLANCE REQUIREMENTS Insert 2	SR 3.9.3.1 During refueling, to ensure that the reactor remains subcritical, all control rods must be fully inserted prior to and during fuel loading. Periodic checks of the control rod position ensure this condition is maintained. ~~The 12 hour Frequency takes into consideration the procedural controls on control rod movement during refueling as well as the redundant functions of the refueling interlocks.~~
REFERENCES	1. 10 CFR 50, Appendix A, GDC 26. 2. FSAR, Section 14.3.3.3. 3. FSAR, Section 14.3.3.4. 4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

LCO (continued)

rods have already completed their reactivity control function, and therefore, are not required to be OPERABLE.

APPLICABILITY

During MODE 5, withdrawn control rods must be OPERABLE to ensure that in a scram the control rods will insert and provide the required negative reactivity to maintain the reactor subcritical.

For MODES 1 and 2, control rod requirements are found in LCO 3.1.2, "Reactivity Anomalies"; LCO 3.1.3, "Control Rod OPERABILITY"; LCO 3.1.4, "Control Rod Scram Times"; and LCO 3.1.5, "Control Rod Scram Accumulators." During MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate requirements for control rod OPERABILITY during these conditions.

ACTIONS

A.1

With one or more withdrawn control rods inoperable, action must be immediately initiated to fully insert the inoperable control rod(s). Inserting the control rod(s) ensures the shutdown and scram capabilities are not adversely affected. Actions must continue until the inoperable control rod(s) is fully inserted.

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1 and SR 3.9.5.2

During MODE 5, the OPERABILITY of control rods is primarily required to ensure a withdrawn control rod will automatically insert if a signal requiring a reactor shutdown occurs. Because no explicit analysis exists for automatic shutdown during refueling, the shutdown function is satisfied if the withdrawn control rod is capable of automatic insertion and the associated CRD scram accumulator pressure is ≥ 940 psig.

Insert 2

~~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.~~

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

(continued)

BASES

LCO (continued)

radiological consequences of a postulated fuel handling accident are within acceptable limits, as provided by the guidance of Reference 3. The point from which the water level is measured is shown in Figure B 3.5.2-1.

APPLICABILITY

LCO 3.9.6 is applicable when moving fuel assemblies or handling control rods (i.e., movement with other than the normal control rod drive) within the RPV. The LCO minimizes the possibility of a fuel handling accident in containment that is beyond the assumptions of the safety analysis. If irradiated fuel is not present within the RPV, there can be no significant radioactivity release as a result of a postulated fuel handling accident. Requirements for fuel handling accidents in the spent fuel storage pool are covered by LCO 3.7.8, "Spent Fuel Storage Pool Water Level."

ACTIONS

A.1

If the water level is < 23 ft above the top of the irradiated fuel assemblies seated within the RPV, all operations involving movement of fuel assemblies and handling of control rods within the RPV shall be suspended immediately to ensure that a fuel handling accident cannot occur. The suspension of fuel movement and control rod handling shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

Verification of a minimum water level of 23 ft above the top of the irradiated fuel assemblies seated within the RPV ensures that the design basis for the postulated fuel handling accident analysis during refueling operations is met. Water at the required level limits the consequences of damaged fuel rods, which are postulated to result from a fuel handling accident in containment (Ref. 2).

Insert 2

~~The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls on valve positions, which make significant unplanned level changes unlikely.~~

(continued)

ACTIONS

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

stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.). This may be performed as an administrative check, by examining logs or other information to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, a Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

C.1 and C.2

If no RHR shutdown cooling subsystem is in operation, an alternate method of coolant circulation is required to be established within 1 hour. The Completion Time is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation.

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

SURVEILLANCE REQUIREMENTS

SR 3.9.7.1

Insert 2

This Surveillance demonstrates that the required RHR shutdown cooling 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 RHR subsystem in the control room.~~

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

Insert 2

SR 3.9.8.1

This Surveillance demonstrates that one required RHR shutdown cooling 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 RHR subsystems in the control room.~~

REFERENCES

1. 10 CFR 50, Appendix A, GDC 34.
2. Technical Requirements Manual, Section 8.0.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS

A.1, A.2, A.3.1, and A.3.2 (continued)

ALTERATIONS shall not preclude the completion of movement of a component to a safe condition. Placing the reactor mode switch in the shutdown position will ensure that all inserted control rods remain inserted and result in operating in accordance with Table 1.1-1. Alternatively, if in MODE 5, the reactor mode switch may be placed in the refuel position, which will also result in operating in accordance with Table 1.1-1. A Note is added to Required Action A.3.2 to indicate that this Required Action is not applicable in MODES 3 and 4, since only the shutdown position is allowed in these MODES. The allowed Completion Time of 1 hour for Required Action A.2, Required Action A.3.1, and Required Action A.3.2 provides sufficient time to normally insert the control rods and place the reactor mode switch in the required position, based on operating experience, and is acceptable given that all operations that could increase core reactivity have been suspended.

SURVEILLANCE REQUIREMENTS

SR 3.10.2.1 and SR 3.10.2.2

Meeting the requirements of this Special Operations LCO maintains operation consistent with or conservative to operating with the reactor mode switch in the shutdown position (or the refuel position for MODE 5). The functions of the reactor mode switch interlocks that are not in effect, due to the testing in progress, are adequately compensated for by the Special Operations LCO requirements. The administrative controls are to be periodically verified to ensure that the operational requirements continue to be met. ~~The 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.~~

Insert 2

REFERENCES

1. FSAR, Section 7.2.3.7.
2. FSAR, Section 14.3.3.3.
3. FSAR, Section 14.3.3.4.

BASES

ACTIONS

A.2.1 and A.2.2 (continued)

and restore operation in accordance with Table 1.1-1. The allowed Completion Time of 1 hour to place the reactor mode switch in the shutdown position provides sufficient time to normally insert the control rods.

SURVEILLANCE REQUIREMENTS

SR 3.10.3.1, SR 3.10.3.2, and SR 3.10.3.3

The other LCOs made applicable in this Special Operations LCO are required to have their Surveillances met to establish that this Special Operations LCO is being met. If the local array of control rods is inserted and disarmed while the scram function for the withdrawn rod is not available, periodic verification in accordance with SR 3.10.3.2 is required to preclude the possibility of criticality. SR 3.10.3.2 has been modified by a Note, which clarifies that this SR is not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements, since SR 3.10.3.2 demonstrates that the alternative LCO 3.10.3.d.2 requirements are satisfied. Also, SR 3.10.3.3 verifies that all control rods other than the control rod being withdrawn are fully inserted. ~~The 24 hour Frequency is acceptable because of the administrative controls on control rod withdrawal, the protection afforded involved, and hardwire interlocks that preclude additional control rod withdrawals.~~

Insert 2

REFERENCES

1. FSAR, Section 14.3.3.3.

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

Required Actions A.2.1 and A.2.2 are specified, based on the assumption that the control rod is being withdrawn. If the control rod is still insertable, actions must be immediately initiated to fully insert all insertable control rods and within 1 hour place the reactor mode switch in the shutdown position. Actions must continue until all such control rods are fully inserted. The allowed Completion Time of 1 hour for placing the reactor mode switch in the shutdown position provides sufficient time to normally insert the control rods.

B.1, B.2.1, and B.2.2

If one or more of the requirements of this Special Operations LCO are not met with the affected control rod not insertable, withdrawal of the control rod and removal of the associated CRD must be immediately suspended. If the CRD has been removed, such that the control rod is not insertable, the Required Actions require the most expeditious action be taken to either initiate action to restore the CRD and insert its control rod, or initiate action to restore compliance with this Special Operations LCO.

SURVEILLANCE REQUIREMENTS

SR 3.10.4.1, SR 3.10.4.2, SR 3.10.4.3, and SR 3.10.4.4

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. 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.~~

Insert 2

SR 3.10.4.2 and SR 3.10.4.4 have been modified by Notes, which clarify that these SRs are not required to be met if the alternative requirements demonstrated by SR 3.10.4.1 are satisfied.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.10.5.1, SR 3.10.5.2, SR 3.10.5.3, SR 3.10.5.4, and SR 3.10.5.5

Verification that all the control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted is required to ensure the SDM is within limits. Verification that the local five by five array of control rods, other than the control rod withdrawn for removal of the associated CRD, is inserted and disarmed, while the scram function for the withdrawn rod is not available, is required to ensure that the possibility of criticality remains precluded. Verification that a control rod withdrawal block has been inserted ensures that no other control rods can be inadvertently withdrawn under conditions when position indication instrumentation is inoperable for the withdrawn control rod. The Surveillance for LCO 3.1.1, which is made applicable by this Special Operations LCO, is required in order to establish that this Special Operations LCO is being met. Verification that no other CORE ALTERATIONS are being made is required to ensure the assumptions of the safety analysis are satisfied. While not required by this LCO, verification of the core loading may be prudent to ensure that a fuel loading error has not invalidated the assumptions of the safety analysis.

Insert 2

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.~~

REFERENCES

1. FSAR, Section 14.3.3.3.

BASES (continued)

ACTIONS

A.1, A.2, A.3.1, and A.3.2

If one or more of the requirements of this Special Operations LCO are not met, the immediate implementation of these Required Actions restores operation consistent with the normal requirements for refueling (i.e., all control rods inserted in core cells containing one or more fuel assemblies) or with the exceptions granted by this Special Operations LCO. The Completion Times for Required Action A.1, Required Action A.2, Required Action A.3.1, and Required Action A.3.2 are intended to require that these Required Actions be implemented in a very short time and carried through in an expeditious manner to either initiate action to restore the affected CRDs and insert their control rods, or initiate action to restore compliance with this Special Operations LCO.

SURVEILLANCE REQUIREMENTS

SR 3.10.6.1, SR 3.10.6.2, and SR 3.10.6.3

Insert 2

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. FSAR, Section 14.3.3.3.

SURVEILLANCE REQUIREMENTS (continued)

Insert 2

SR 3.10.8.4

Periodic verification of the administrative controls established by this LCO will ensure that the reactor is operated within the bounds of the safety analysis. ~~The 12 hour Frequency is intended to provide appropriate assurance that each operating shift is aware of and verifies compliance with these Special Operations LCO requirements.~~

SR 3.10.8.5

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

SR 3.10.8.6

CRD charging water header pressure verification is performed to ensure the motive force is available to scram the control rods in the event of a scram signal. Since the reactor is depressurized in MODE 5, there is insufficient reactor pressure to scram the control rods. Verification of charging water header pressure ensures that if a scram were required, capability for rapid control rod insertion would exist. The minimum charging water header pressure of 940 psig, which is below the expected pressure of 1100 psig, still ensures 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.~~

Insert 2

REFERENCES

1. NEDE-24011-P-A-US, "General Electric Standard Application for Reactor Fuel, Supplement for United States" (revision specified in the COLR).
2. Letter from T. Pickens (BWROG) to G. C. Lainas, NRC, "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," August 15, 1986.

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 8

TS Bases Changes for HNP Unit 2

Insert 1

In accordance with the Surveillance Frequency Control Program

Insert 2

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program

Insert 3

5.5.13 Surveillance Frequency Control Program

This program provides controls for the 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 the 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.

ACTIONS
(continued)

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, 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.~~

Insert 2

SR 3.1.3.2 and 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. These Surveillances are not required when THERMAL POWER is less than or equal to the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of the Banked Position Withdrawal Sequence (BPWS) (LCO 3.1.6) and the RWM (LCO 3.3.2.1). ~~The 7 day Frequency of SR 3.1.3.2 is based on operating experience related to the changes in CRD performance and the ease of~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.3.2 and SR 3.1.3.3 (continued)

~~performing notch testing for fully withdrawn control rods. Partially withdrawn control rods are tested at a 31 day Frequency, based on the potential power reduction required to allow the control rod movement and considering the large testing sample of SR 3.1.3.2. Furthermore, the 31 day Frequency takes into account operating experience related to changes in CRD performance.~~ At any time, if a control rod is immovable, a determination of that control rod's trippability (capable of insertion by scram, i.e., OPERABILITY) must be made and appropriate action taken.

Insert 2

These SRs are each modified by a Note that allows 7 days and 31 days, respectively, after withdrawal of the control rod and THERMAL POWER is greater than the LPSP to perform the Surveillance. This acknowledges that the control rod must first be withdrawn and THERMAL POWER must be greater than the LPSP before performance of the Surveillance, and therefore 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 notch position 06 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 SR 3.1.4.4. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," and the functional testing of SDV vent and drain valves in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," overlap this Surveillance to provide complete testing of the assumed safety function. The associated Frequencies are acceptable, considering the more frequent testing performed to demonstrate other aspects of control rod OPERABILITY and operating experience, which shows scram times do not significantly change over an operating cycle.

SR 3.1.3.5

Coupling verification is performed to ensure the control rod is connected to the CRDM and will perform its intended function when necessary. The Surveillance requires verifying a control rod does not go to the withdrawn overtravel position. The overtravel position

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1 (continued)

acceptable scram times for the transients analyzed in References 3 and 4.

Maximum scram insertion times occur at a reactor steam dome pressure of approximately 800 psig because of the competing effects of reactor steam dome pressure and stored accumulator energy. Therefore, demonstration of adequate scram times at reactor steam dome pressure ≥ 800 psig ensures that the measured scram times will be within the specified limits at higher pressures. Limits are specified as a function of reactor pressure to account for the sensitivity of the scram insertion times with pressure and to allow a range of pressures over which scram time testing can be performed. To ensure that scram time testing is performed within a reasonable time following fuel movement within the reactor pressure vessel or after a shutdown ≥ 120 days or longer, control rods are required to be tested before exceeding 40% RTP. In the event fuel movement is limited to selected core cells, it is the intent of this SR that only those CRDs associated with the core cells affected by the fuel movements are required to be scram time tested. This Frequency is acceptable considering the additional surveillances performed for control rod OPERABILITY, the frequent verification of adequate accumulator pressure, and the required testing of control rods affected by work on control rods or the CRD System.

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 7.5% of the control rods in the sample tested are determined to be "slow". With more than 7.5% of the sample declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this 7.5% criterion (i.e., 7.5% 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 200 day Frequency is based on operating experience that has shown control rod scram times do not significantly change over an operating cycle. This Frequency is also reasonable based on the additional Surveillances~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.4.2 (continued)

~~done on the CRDs at more frequent intervals in accordance with LCO 3.1.3 and LCO 3.1.5, "Control Rod Scram Accumulators."~~

Insert 2

SR 3.1.4.3

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

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

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

SR 3.1.4.4

When work that could affect the scram insertion time is performed on a control rod or CRD System, testing must be done to demonstrate each affected control rod is still within the limits of Table 3.1.4-1 with the reactor steam dome pressure ≥ 800 psig. Where work has been performed at high reactor pressure, the requirements of SR 3.1.4.3 and SR 3.1.4.4 can be satisfied with one test. However, for a control rod affected by work performed while shutdown, a zero pressure test and a high pressure test may be required. This testing ensures that,

(continued)

ACTIONS
(continued)

C.1 and C.2

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

D.1

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

SURVEILLANCE
REQUIREMENTS

SR 3.1.5.1

periodically

SR 3.1.5.1 requires that the accumulator pressure be checked ~~every 7 days~~ to ensure adequate accumulator pressure exists to provide sufficient scram force. The primary indicator of accumulator OPERABILITY is the accumulator pressure. A minimum accumulator pressure is specified, below which the capability of the accumulator to perform its intended function becomes degraded and the accumulator is considered inoperable. The minimum accumulator pressure of 940 psig is well below the expected pressure of 1100 psig (Ref. 1).

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.1.5.1 (continued) 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.~~ Insert 2
REFERENCES	1. FSAR, Section 4.2.3.2. 2. FSAR, Supplement 5A.4.3. 3. FSAR, Section 15.1. 4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

B.1 and B.2 (continued)

Control rod withdrawal should be suspended immediately to prevent the potential for further deviation from the prescribed sequence. Control rod insertion to correct control rods withdrawn beyond their allowed position is allowed since, in general, insertion of control rods has less impact on control rod worth than withdrawals have. Required Action B.1 is modified by a Note which allows the RWM to be bypassed to allow the affected control rods to be returned to their correct position. LCO 3.3.2.1 requires verification of control rod movement by a second licensed operator or other qualified member of the technical staff.

When nine or more OPERABLE control rods are not in compliance with BPWS, 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 BPWS ~~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 BPWS 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.

Insert 2

RWM

REFERENCES

1. NEDE-24011-P-A-US, "General Electric Standard Application for Reactor Fuel, Supplement for United States," (revision specified in the COLR).

2. Letter from T. A. Pickens (BWROG) to G. C. Lainas (NRC), "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," BWROG-8644, August 15, 1988.

3. NUREG-0979, Section 4.2.1.3.2, April 1983

4. NUREG-0800, Section 15.4.9, Revision 2, July 1981.

(continued)

BASES

ACTIONS

B.1 (continued)

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock," resulting in establishing the "time zero" at the time the LCO was initially not met instead of at the time Condition B was entered. The 10 day Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.

C.1

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

D.1

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

SURVEILLANCE REQUIREMENTS

SR 3.1.7.1, SR 3.1.7.2, and SR 3.1.7.3

SR 3.1.7.1 through SR 3.1.7.3 ~~are 24 hour Surveillances~~ verify~~ing~~ certain characteristics of the SLC System (e.g., the volume and temperature of the borated solution in the storage tank), thereby ensuring SLC System OPERABILITY without disturbing normal plant operation. These Surveillances ensure that the proper borated solution volume and temperature, including the temperature of the pump suction piping, are maintained (within Region A limits of Figures 3.1.7-1 and 3.1.7-2). 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

(continued)

SURVEILLANCE REQUIREMENTS

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

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.~~

Insert 2

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.~~

Insert 2

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 and power operated 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.~~

Insert 2

SR 3.1.7.5

This Surveillance requires an examination of the sodium pentaborate solution by using chemical analysis to ensure that the proper concentration of boron exists in the storage tank (within Region A limits of Figures 3.1.7-1 and 3.1.7-2). SR 3.1.7.5 must be performed anytime sodium pentaborate or water is added to the storage tank solution to determine that the boron solution concentration is within the specified limits. SR 3.1.7.5 must also be performed any time the temperature is restored to within the Region A limits of Figure 3.1.7-2,

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.7.5 (continued)

to ensure that no significant boron precipitation occurred. ~~The 31 day Frequency of this Surveillance is appropriate because of the relatively slow variation of boron concentration between surveillances.~~

Insert 2

SR 3.1.7.7

Demonstrating that each SLC System pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1232 psig ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the sodium pentaborate 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. The 24 month Frequency of SR 3.1.7.8 is based on a review of the surveillance test history and Reference 4.~~

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

Demonstrating that all heat traced piping between the sodium pentaborate 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 acceptable method for verifying that the suction piping is unblocked is to pump from the storage tank to the test 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, 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 Region A limits of Figure 3.1.7-2. ~~The 24 month Frequency of SR 3.1.7.9 is based on a review of the surveillance test history and Reference 4.~~

Insert 2

SR 3.1.7.10

Enriched sodium pentaborate solution is made by mixing granular, enriched sodium pentaborate with water. Isotopic tests on the granular sodium pentaborate to verify the actual B-10 enrichment must be performed prior to addition to the SLC tank in order to ensure that the proper B-10 atom percentage is being used.

REFERENCES

1. 10 CFR 50.62.
2. FSAR, Section 4.2.3.4.3.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.8.1 (continued)

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.~~

Insert 2

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.~~

Insert 2

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 60 seconds after receipt of a scram signal is based on the bounding leakage case evaluated in the accident analysis (Ref. 1). Similarly, after receipt of a simulated or actual scram reset signal, the opening of the SDV vent and drain valves is verified. Although not explicitly stated in the SR, the valves are required to open prior to receipt of a control rod block on high SDV level. This criterion ensures the valves can open in time to preclude a scram on SDV high level and maintain sufficient volume in the SDV to receive and contain the water discharged by the control rod drives during a scram per the requirements of the applicable safety analysis (Ref.1). The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1 and the scram time testing of control rods in LCO 3.1.3 overlap this Surveillance to provide complete testing of the assumed safety function. ~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 4.2.3.2.2.3.
2. 10 CFR 100.
3. NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping," August 1981.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

ACTIONS
(continued)

B.1

If the APLHGR cannot be restored to within its required limits within the associated Completion Time, the plant must be brought to a MODE or other specified condition in which the LCO does not apply.

To achieve this status, THERMAL POWER must be reduced to < 24% RTP within 4 hours. The allowed Completion Time is reasonable, based on operating experience, to reduce THERMAL POWER to < 24% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.2.1.1

periodically

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

Insert 2

REFERENCES

1. NEDE-24011-P-A "General Electric Standard Application for Reactor Fuel," (revision specified in the COLR).
2. (Not used)
3. FSAR, Chapter 6.
4. FSAR, Chapter 15.
5. (Not used)
6. NEDC-32749P, "Extended Power Uprate Safety Analysis Report for Edwin I. Hatch Units 1 and 2," July 1997.
7. NEDC-30474-P "Average Power Range Monitor, Rod Block Monitor and Technical Specification Improvements (ARTS) Program for E.I. Hatch Nuclear Plant, Units 1 and 2," December 1983.
8. (Not used)

(continued)

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 < 24% RTP within 4 hours. The allowed Completion Time is reasonable, based on operating experience, to reduce THERMAL POWER to < 24% RTP in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.2.1 periodically

The MCPR is required to be initially calculated within 12 hours after THERMAL POWER is ≥ 24% RTP and ~~then every 24 hours~~ thereafter. It is compared to the specified limits in the COLR to ensure that the reactor is operating within the assumptions of the safety analysis. ~~The 24 hour Frequency is based on both engineering judgment and recognition of the slowness of changes in power distribution during normal operation.~~ The 12 hour allowance after THERMAL POWER ≥ 24% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels.

Insert 2

SR 3.2.2.2

Because the transient analysis takes credit for conservatism in the scram speed performance, it must be demonstrated that the specific scram speed distribution is consistent with that used in the transient analysis. SR 3.2.2.2 determines the value of τ, which is a measure of the actual scram speed distribution compared with the assumed distribution. The MCPR operating limit is then determined based on an interpolation between the applicable limits for Option A (scram

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.2.3.1

periodically

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

Insert 2

REFERENCES

1. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel."
2. FSAR, Chapter 15 (Unit 2).
3. NUREG-0800, Section II.A.2(g), Revision 2, July 1981.
4. NEDC-32749P, "Extended Power Uprate Safety Analysis Report for Edwin I. Hatch Units 1 and 2," July 1997.
5. NEDC-30474-P, "Average Power Range Monitor, Rod Block Monitor and Technical Specification Improvements (ARTS) Program for E. I. Hatch Nuclear Plant, Units 1 and 2," December 1983.
6. NRC approval of "Amendment 26 to GE Licensing Topical Report NEDE-24011-P-A, "GESTAR II"—Implementing Improved GE Steady-State Methods (TAC No. MA6481)," November 10, 1999.
7. NEDO-24154-A, "Qualification of the One-Dimensional Core Transient Model (ODYN) for Boiling Water Reactors," August 1986, and NEDE-24154-P-A, Supplement 1, Volume 4, Revision 1, February 2000.
8. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
9. Letter from Global Nuclear Fuel, M. E. Harding to E. B. Gibson, January 22, 2004, "Plant Hatch Technical Specification Modification to include LHGR."

BASES

ACTIONS
(continued)

I.2

The alternate method to detect and suppress oscillations implemented in accordance with Required Action I.1 was evaluated based on use up to 120 days (Ref. 13). The evaluation, based on engineering judgment, concluded that the likelihood of an instability event that could not be adequately handled by the alternate method during this 120 day period is negligibly small. The 120 day period is intended to be an outside limit to allow for the case where design changes or extensive analysis may be required to understand or correct some unanticipated characteristic of the instability detection algorithms or equipment. This action is not intended to be, and was not evaluated as, a routine alternative to returning failed or inoperable equipment to OPERABLE status. Correction of routine equipment failure or inoperability is expected to normally be accomplished within the Completion Times allowed for Required Actions for Conditions A and B.

SURVILLANCE
REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each RPS instrumentation Function are located in the SRs column of Table 3.3.1.1-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains RPS 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. 9) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RPS will trip when necessary.

SR 3.3.1.1.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations

(continued)

BASES

SURVILLANCE REQUIREMENTS

SR 3.3.1.1.1 (continued)

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 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.

Insert 2

SR 3.3.1.1.2

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

Insert 2

A restriction to satisfying this SR when < 24% RTP is provided that requires the SR to be met only at ≥ 24% RTP because it is difficult to accurately maintain APRM indication of core THERMAL POWER consistent with a heat balance when < 24% RTP. At low power levels, a high degree of accuracy is unnecessary because of the large, inherent margin to thermal limits (MCPR and APLHGR). At ≥ 24% 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 24% 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 24% RTP. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.3

(Not used.)

SR 3.3.1.1.4

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. 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 Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This allows entry into MODE 2 if the ~~7 day~~ Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after entering MODE 2 from MODE 1. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

~~A Frequency of 7 days provides an acceptable level of system average unavailability over the Frequency interval and is based on reliability analysis (Ref. 9).~~

Insert 2

SR 3.3.1.1.5

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. ~~A Frequency of 7 days provides an acceptable level of system average availability over the Frequency and is based on the reliability analysis of Reference 9. (The Manual Scram Function's CHANNEL FUNCTIONAL TEST Frequency was credited in the analysis to extend many automatic scram Functions' Frequencies.)~~

Insert 2

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.6 and SR 3.3.1.1.7 (continued)

withdrawing SRMs from the fully inserted position since indication is being transitioned from the SRMs to the IRMs.

The overlap between IRMs and APRMs is of concern when reducing power into the IRM range. On power increases, the system design will prevent further increases (by initiating a rod block) if adequate overlap is not maintained. Overlap between IRMs and APRMs exists when sufficient IRMs and APRMs concurrently have onscale readings such that the transition between MODE 1 and MODE 2 can be made without either APRM downscale rod block, or IRM upscale rod block. Overlap between the SRMs and IRMs similarly exists when, prior to withdrawing an SRM from its fully inserted position, its associated IRMs have cleared their downscale rod block Allowable Values, prior to the SRM having reached its upscale rod block Allowable Value. Plant procedures should be consulted to determine the associated detectors.

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.

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

Insert 2

SR 3.3.1.1.8

LPRM gain settings are determined from the local flux profiles measured by the Traversing Incore Probe (TIP) System. This establishes the relative local flux profile for appropriate representative input to the APRM System. ~~The 1000 effective full power hours Frequency is based on ensuring the nodal power uncertainty is within the licensing basis analysis.~~

Insert 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.9 and SR 3.3.1.1.12

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. ~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.1.1.9 is based on a review of the surveillance test history, drift analysis of the associated trip units (if applicable), and Reference 22.~~

~~The 24 month Frequency of SR 3.3.1.1.12 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency of SR 3.3.1.1.12 is based on a review of the surveillance test history and Reference 20.~~

Insert 2

SR 3.3.1.1.10

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. For the APRM Functions, this test supplements the automatic self-test functions that operate continuously in the APRM and voter channels. The APRM CHANNEL FUNCTIONAL TEST covers the APRM channels (including recirculation flow processing applicable to Function 2.b only), the two-out-of-four voter channels, and the interface connections to the RPS trip systems from the voter channels. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. ~~The 184 day Frequency of SR 3.1.1.1.10 is based on the reliability analysis of References 13 and 17. (NOTE: The actual voting logic of the two-out-of-four voter channels is tested as part of SR 3.3.1.1.15.)~~

Insert 2

For Function 2.a, a Note that requires this SR to be performed within 12 hours of entering MODE 2 from MODE 1 is provided. Testing of the MODE 2 APRM Function cannot be performed in MODE 1 without utilizing jumpers or lifted leads. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2.

SR 3.3.1.1.11

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.11 (continued)

POWER is ≥ 27.6% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed during the calibration at THERMAL POWER ≥ 27.6% RTP to ensure that the calibration is valid.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 27.6% 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 (Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are enabled), this SR is met and the channel is considered OPERABLE.

~~The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 20.~~

Insert 2

SR 3.3.1.1.13

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. For MSIV - Closure, SDV Water Level - High (Float Switch), and TSV - Closure Functions, this SR also includes a physical inspection and actuation of the switches. For the APRM Simulated Thermal Power - High Function, this SR also includes calibrating the associated recirculation loop flow channel.

Note 1 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the ~~7 day~~ calorimetric calibration (SR 3.3.1.1.2) and the ~~1000 effective full power hours~~ LPRM calibration against the TIPs (SR 3.3.1.1.8). A second Note is provided that requires the IRM SRs

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.13 (continued)

to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2.

Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 20.~~

Insert 2

SR 3.3.1.1.14

(Not used.)

SR 3.3.1.1.15

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

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 20.~~

Insert 2

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM and OPRM trip conditions at the two-out-of-four voter channel inputs to check all combinations of two tripped inputs to the two-out-of-four logic in the voter channels and APRM related redundant RPS relays.

SR 3.3.1.1.16

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.16 (continued)

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 10.

RPS RESPONSE TIME for APRM two-out-of-four Voter Function 2.e includes the output relays of the voter and the associated RPS relays and contactors. (The digital portions of the APRM and two-out-of-four voter channels are excluded from RPS RESPONSE TIME testing because self-testing and calibration check the time base of the digital electronics.) Confirmation of the time base is adequate to assure required response times are met. Neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

The

Note ~~1~~ allows neutron detectors to be 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 an 24 month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on four channels per trip system, in lieu of the eight channels specified in Table 3.3.1.1-1 for the Main Steam Line Isolation Valve - Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. This 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. The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 20.~~

Insert 2

Note: SR 3.3.1.1.16 for Function 2.e confirms the response time of that function, and also confirms the response time of loop components common to APRM - Two Out of Four Voter logic and other RPS loops.

SR 3.3.1.1.17

This SR ensures that scrams initiated from OPRM Upscale Function 2.f will not be inadvertently bypassed when THERMAL POWER, as indicated by APRM Simulated Thermal Power, is ≥ 25% RTP and core flow, as indicated by recirculation drive flow, is < 60% rated core flow. This normally involves confirming the bypass

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.17 (continued)

setpoints. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. The actual Surveillance ensures that the OPRM Upscale Function is enabled (not bypassed) for the correct values of APRM Simulated Thermal Power and recirculation drive flow. Other Surveillances ensure that the APRM Simulated Thermal Power and recirculation flow properly correlate with THERMAL POWER and core flow, respectively.

If any bypass setpoint is nonconservative (i.e., the OPRM Upscale Function is bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% rated), then the affected channel is considered inoperable for the OPRM Upscale Function. Alternatively, the bypass setpoint may be adjusted to place the channel in a conservative condition (unbypass). If placed in the unbypass condition, this SR is met and the channel is considered OPERABLE.

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 20.~~ ← Insert 2

REFERENCES

1. FSAR, Section 7.2.
2. FSAR, Chapter 15.
3. FSAR, Subsection 6.3.3.
4. FSAR, Supplement 5A.
5. FSAR, Subsection 15.1.12.
6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
7. FSAR, Subsection 15.1.38.
8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.
9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.
10. Technical Requirements Manual, Table T5.0-1.

(continued)

REFERENCES (continued)

11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

12. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.

13. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

14. NEDO-31960-A, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

15. NEDO-31960-A, Supplement 1, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

16. NEDO-32465-A, "BWR Owners' Group Long-Term Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications," March 1996.

17. NEDO-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," November 1997.

18. Letter, L.A. England (BWROG) to M.J. Virgilio, "BWR Owners' Group Guidelines for Stability Interim Corrective Action," June 6, 1994.

19. NEDO-32291-A, Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements," October 1999.

20. ~~NRC Safety Evaluation Report for Amendment 174.~~

Not used

21. GE Letter NSA 02-250, "Plant Hatch IRM Technical Specifications," April 19, 2002.

22. ~~NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.1 and SR 3.3.1.2.3 (continued)

indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

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

Insert 2

SR 3.3.1.2.2

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

Insert 2

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, which ensures that the detectors are indicating count rates indicative of neutron flux levels within the core. This surveillance also requires the signal to noise ratio to be verified to be ≥ 2:1. A signal to noise ratio that meets this requirement ensures the detectors are inserted to an acceptable operating level. Therefore, to meet this portion of the surveillance, it is necessary only to verify the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.4 (continued)

detectors are inserted to the same operating level as they were when SR 3.3.1.2.5 and SR 3.3.1.2.6 were performed satisfactorily. SR 3.3.1.2.5 and SR 3.3.1.2.6 require the actual ratio (and hence, an acceptable operating level) to be determined periodically while the detectors are required to be OPERABLE. 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 (Note 1) 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 fewer 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. In addition, Note 2 states that this requirement does not have to be met during spiral unloading. If the core is being unloaded in this manner, the various core configurations encountered will not be critical.

~~The Frequency is based upon channel redundancy and other information available in the control room, and ensures that the required channels are frequently monitored while core reactivity changes are occurring. When no reactivity changes are in progress, the Frequency is relaxed from 12 hours to 24 hours.~~

Insert 2

SR 3.3.1.2.5 and SR 3.3.1.2.6

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. 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 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 has been extended from 7 days to 31 days. The 31 day Frequency is based on operating experience and on other Surveillances (such as CHANNEL CHECK) that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.~~

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

Determination 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.

The Note to the 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 24 month Frequency is based on a review of the surveillance test history and Reference 2.~~ 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.

Insert 2

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the ~~24 month~~ Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.7 (continued)

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

1. NRC Safety Evaluation Report for Amendment 125, April 30, 1993.

~~2. NRC Safety Evaluation Report for Amendment 174.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.1 (continued)

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. ~~The Frequency of 184 days is based on reliability analyses (Ref. 11).~~

Insert 2

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. The CHANNEL FUNCTIONAL TEST for the RWM is performed by attempting to withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs. This test is performed as soon as possible after the applicable conditions are entered. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn at < 10% RTP in MODE 2, and SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is < 10% RTP in MODE 1. This allows entry into MODE 2 (and if entered during a shutdown, concurrent power reduction to < 10% RTP) for SR 3.3.2.1.2 and THERMAL POWER reduction to < 10% RTP in MODE 1 for SR 3.3.2.1.3 to perform the required Surveillances if the ~~92 day on an ALTERNATE TEST BASIS~~ 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 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history and Reference 13.~~

Insert 2

SR 3.3.2.1.4

The RBM setpoints are automatically varied as a function of power. Three Allowable Values are specified in Table 3.3.2.1-1, each within a specific power range. The power at which the control rod block Allowable Values automatically change are based on the APRM signal's input to each RBM channel. Below the minimum power setpoint, the RBM is automatically bypassed. These power Allowable Values must be verified periodically to be less than or equal to the specified values. If any power range setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the power range channel can be placed in the conservative condition (i.e., enabling the proper RBM setpoint). 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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.4 (continued)

tested in SR 3.3.1.1.2 and SR 3.3.1.1.8. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 12.~~

SR 3.3.2.1.5

Insert 2

The RWM is automatically bypassed when power is above a specified value. The power level is determined from APRM power 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 24 month Frequency is based on Reference 12.~~

Insert 2

SR 3.3.2.1.6

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. 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 ~~18 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 SR.

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 12.~~

Insert 2

SR 3.3.2.1.7

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.7 (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.

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 3.3.1.1.8.

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 12.~~

Insert 2

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.

REFERENCES

1. FSAR, Section 7.6.2.2.5.
2. FSAR, Section 7.6.8.2.6.
3. NEDC-30474-P, "Average Power Range Monitor, Rod Block Monitor, and Technical Specification Improvements (ARTS) Program for Edwin I. Hatch Nuclear Plants," December 1983.
4. NEDE-24011-P-A-US, "General Electrical Standard Application for Reload Fuel," Supplement for United States, (revision specified in the COLR).
5. 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.
6. NEDO-21231, "Banked Position Withdrawal Sequence," January 1977.

(continued)

BASES

REFERENCES
(continued)

7. 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.

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

9. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.

10. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Not used

~~11. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.~~

Not used

~~12. NRC Safety Evaluation Report for Amendment 174.~~

Not used

~~13. NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

14. NEDO-33091-A, Revision 2, “Improved BPWS Control Rod Insertion Process,” July 2004.

SURVEILLANCE REQUIREMENTS (continued)

demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the feedwater pump turbines and main turbine will trip when necessary.

SR 3.3.2.2.1

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.

Due to the high turbine trip and reactor scram potential incurred when valving reactor water level differential pressure transmitters into and out of service, it is acceptable to perform the CHANNEL FUNCTIONAL TEST for this logic from the input of the alarm unit. This is consistent with the CHANNEL FUNCTIONAL TEST definition requiring the signal to be injected "as close to the sensor as practicable." Additionally, due to the physical location of the turbine trip relays and their close proximity to other sensitive equipment, accessibility is extremely limited. Verification of relay actuation and associated relay contact status by accessing the relay introduces a high potential for turbine trip and reactor scram. One contact from each turbine trip relay energizes an amber light indicating relay actuation. Therefore, it is acceptable to terminate the test at the turbine trip relay, utilizing light indication for relay status. These allowances are only acceptable if the CHANNEL CALIBRATION and the LOGIC SYSTEM FUNCTIONAL TEST overlap both the initiation and termination point of this CHANNEL FUNCTIONAL TEST such that the entire trip logic is tested.

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 5.~~

Insert 2

SR 3.3.2.2.2

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2.2 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.~~

Insert 2

SR 3.3.2.2.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater and main turbine valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation channels 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

REFERENCES

1. FSAR, Section 15.1.7.
2. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 174.~~
5. ~~NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

Not used

SURVEILLANCE REQUIREMENTS (continued)

6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The Note is based upon a NRC Safety Evaluation Report (Ref. 2) which concluded that the 6 hour testing allowance does not significantly reduce the probability of properly monitoring post accident parameters, when necessary.

SR 3.3.3.1.1

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

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

~~The 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.~~

Insert 2

SR 3.3.3.1.2

~~A CHANNEL CALIBRATION is performed every 24 months.~~ 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.

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

(continued)

BASES (continued)

REFERENCES

1. Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980.
2. NRC Safety Evaluation Report, "Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Conformance to Regulatory Guide 1.97," dated July 30, 1985.
3. NRC No.93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES

ACTIONS (continued)

B.1

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

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when an instrument channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The Note is based upon a NRC Safety Evaluation Report (Reference 1) which concluded that the 6 hour testing allowance does not significantly reduce the probability of monitoring required parameters, when necessary.

SR 3.3.3.2.1

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

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1 (continued)

~~The Frequency is based upon plant operating experience that demonstrates channel failure is rare.~~

Insert 2

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check, or in the case of the DG controls, the routine Surveillances of LCO 3.8.1 (since local control is utilized during the performance of some of the Surveillances of LCO 3.8.1). This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. ~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

SR 3.3.3.2.3

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

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.
2. Technical Requirements Manual, Table T6.0-1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES

SUREVILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.1

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history and Reference 8.~~

Insert 2

SR 3.3.4.1.2

This SR ensures that an EOC-RPT initiated from the TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 27.6% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from first stage pressure) the main turbine bypass valves must remain closed during the calibration at THERMAL POWER ≥ 27.6% RTP to ensure that the calibration is valid. If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 27.6% RTP, either due to open main turbine bypass valves or other reasons), the affected TSV - Closure and TCV Fast Closure, Trip Oil Pressure - Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition (Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are enabled), this SR is met with the channel considered OPERABLE.

~~The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation, and Reference 7.~~

Insert 2

SR 3.3.4.1.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations, consistent with the plant specific setpoint methodology. For the TSV - Closure Function, this SR also includes a physical inspection and actuation of the switches.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.3 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history, drift of the associated instrumentation (if applicable), and Reference 7.~~

Insert 2

SR 3.3.4.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers is included as a part of this test, overlapping the LOGIC SYSTEM FUNCTIONAL TEST, to provide complete testing of the associated safety function. Therefore, if a breaker is incapable of operating, the associated instrument channel(s) 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 7.~~

Insert 2

SR 3.3.4.1.5

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The EOC-RPT SYSTEM RESPONSE TIME acceptance criteria are included in Reference 5.

A Note to the Surveillance states that breaker interruption (i.e., trip) time may be assumed from the most recent performance of SR 3.3.4.1.6. This is allowed since the time to open the contacts after energization of the trip coil and the arc suppression time are short and do not appreciably change, due to the design of the breaker opening device and the fact that the breaker is not routinely cycled.

~~EOC-RPT SYSTEM RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS.~~ Response times cannot be determined at power because operation of final actuated devices is required. ~~Therefore, this Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components that cause serious response time degradation, but not channel failure, are infrequent occurrences. The 24 month Frequency, on a~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1.5 (continued)

~~STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 7.~~

Insert 2

SR 3.3.4.1.6

This SR ensures that the RPT breaker interruption time is provided to the EOC-RPT SYSTEM RESPONSE TIME test. Breaker interruption (i.e., trip) time is defined as breaker response time plus arc suppression time. Breaker response time is the time from application of voltage to the trip coil until the main contacts separate. Arc suppression time is the time from main contact separation until the complete suppression of the electrical arc across the open contacts. Breaker response shall be verified by testing and added to the manufacturer's design arc suppression time to determine breaker interruption time. The breaker arc suppression time shall be validated by the performance of periodic contact gap measurements in accordance with plant procedures. ~~The 60 month Frequency of the testing is based on the difficulty of performing the test and the reliability of the circuit breakers.~~

Insert 2

REFERENCES

1. FSAR, Subsection 7.6.10.
2. FSAR, Subsections 15.1.1, 15.1.2, and 15.1.3.
3. FSAR, Paragraph 5.5.16.1 and Subsection 7.6.10.
4. GENE-770-06-1, "Bases For Changes To Surveillance Test Intervals And Allowed Out-Of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
5. Technical Requirements Manual, Table T5.0-1.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
7. ~~NRC Safety Evaluation Report for Amendment 174.~~
8. ~~NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

BASES

ACTIONS

C.1 (continued)

The description of a Function maintaining ATWS-RPT trip capability is discussed in the Bases for Required Action B.1 above.

The 1 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period.

D.1 and D.2

With any Required Action and associated Completion Time not met, the plant must be brought to a MODE or other specified condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours (Required Action D.2). Alternately, the associated recirculation pump may be removed from service since this performs the intended function of the instrumentation (Required Action D.1). The allowed Completion Time of 6 hours is reasonable, based on operating experience, both to reach MODE 2 from full power conditions and to remove a recirculation pump from service in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

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

SR 3.3.4.2.1

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1 (continued)

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

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

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

Insert 2

SR 3.3.4.2.2

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trips units, and Reference 5.~~

Insert 2

SR 3.3.4.2.3

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.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.3 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 4.~~

Insert 2

SR 3.3.4.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the pump breakers 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

REFERENCES

1. FSAR, Section 7.6.10.7.
2. GENE-770-06-1, "Bases for Changes To Surveillance Test Intervals and Allowed Out-of-Service Times For Selected Instrumentation Technical Specifications," February 1991.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. ~~NRC Safety Evaluation Report for Amendment 174.~~
5. ~~NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS (continued)

required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours as follows: (a) for Functions 3.c and 3.f; and (b) for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains 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 will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

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

Insert 2

SR 3.3.5.1.2 and SR 3.3.5.1.3

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1.2 and SR 3.3.5.1.3 (continued)

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 8.~~

Insert 2

SR 3.3.5.1.4

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

~~The 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 7.~~

Insert 2

SR 3.3.5.1.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required initiation logic for a specific channel. The system functional testing performed in LCO 3.5.1, LCO 3.5.2, LCO 3.7.2, LCO 3.8.1, and LCO 3.8.2 overlaps this Surveillance to 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 7.~~

Insert 2

REFERENCES

1. FSAR, Section 5.2.
2. FSAR, Section 6.3.
3. FSAR, Chapter 15.
4. NEDC-31376-P, "Edwin I. Hatch Nuclear Power Plant, SAFER/GESTR-LOCA, Loss-of-Coolant Accident Analysis," December 1986.

(continued)

BASES

REFERENCES (continued)

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

6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~7. NRC Safety Evaluation Report for Amendment 174.~~

~~8. NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

ACTIONS

D.1, D.2.1, and D.2.2 (continued)

suppression pool). Alternatively, Required Action D.2.2 allows the manual alignment of the RCIC suction to the suppression pool, which also performs the intended function. If Required Action D.2.1 or D.2.2 is performed, measures should be taken to ensure that the RCIC System piping remains filled with water. If it is not desired to perform Required Actions D.2.1 and D.2.2 (e.g., as in the case where shifting the suction source could drain down the RCIC suction piping), Condition E must be entered and its Required Action taken.

E.1

With any Required Action and associated Completion Time not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

SURVEILLANCE REQUIREMENTS

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

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 2; and (b) for up to 6 hours for Functions 1, 3, and 4, provided the associated Function maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 1) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the RCIC will initiate when necessary.

SR 3.3.5.2.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a parameter on other similar channels. It is based on the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.1 (continued)

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

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

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

Insert 2

SR 3.3.5.2.2 and SR 3.3.5.2.3

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 4.~~

Insert 2

SR 3.3.5.2.4

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 range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations, consistent with the plant specific setpoint methodology.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.4 (continued)

~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.5.2.3 is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 4.~~

~~The 24 month Frequency of SR 3.3.5.2.4 is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 3.~~

Insert 2

SR 3.3.5.2.5

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

~~The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 3.~~

Insert 2

REFERENCES

1. GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.

2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~3. NRC Safety Evaluation Report for Amendment 174.~~

~~4. NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS (continued)

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 4 and 5) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the PCIVs will isolate the penetration flow path(s) when necessary.

<u>SR 3.3.6.1.1</u>

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 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.

Insert 2

<u>SR 3.3.6.1.2</u>

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.2 (continued)

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units (if applicable), and Reference 10.~~

Insert 2

SR 3.3.6.1.3, SR 3.3.6.1.4, and SR 3.3.6.1.5

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.6.1.3 is based on a review of the surveillance test history, drift analysis of the associated pressure (or vacuum) switches (if applicable), and Reference 10. The 184 day Frequency of SR 3.3.6.1.4 and the 24 month Frequency of SR 3.3.6.1.5 are based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 9.~~

Insert 2

SR 3.3.6.1.6

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. The 24 month Frequency is based on a review of the surveillance test history and Reference 9.~~

Insert 2

SR 3.3.6.1.7

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1.7 (continued)

analysis. The instrument response times must be added to the PCIV closure times to obtain the ISOLATION SYSTEM RESPONSE TIME.ISOLATION SYSTEM RESPONSE TIME acceptance criteria are included in Reference 6. This test may be performed in one measurement, or in overlapping segments, with verification that all components are tested.

A Note to the Surveillance states that channel sensors are excluded from ISOLATION SYSTEM RESPONSE TIME testing. The exclusion of the channel sensors is supported by Reference 8 which indicates that the sensors' response times are a small fraction of the total response time. Even if the sensors experienced response time degradation, they would be expected to respond in the microsecond to millisecond range until complete failure.

~~ISOLATION SYSTEM RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences. The 24 month Frequency, on a STAGGERED TEST BASIS, is also based on a review of the surveillance test history and Reference 9.~~

Insert 2

REFERENCES

1. FSAR, Section 6.3.
2. FSAR, Chapter 15.
3. FSAR, Paragraph 4.2.3.4.2.
4. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.
5. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.
6. Technical Requirements Manual, Table T5.0-1.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

(continued)

BASES

REFERENCES (continued)

8. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.

~~9. NRC Safety Evaluation Report for Amendment 174.~~

~~10. NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Refs. 5 and 6) assumption of the average time required to perform channel surveillance. That analysis demonstrated the 6 hour testing allowance does not significantly reduce the probability that the SCIVs will isolate the associated penetration flow paths and that the SGT System will initiate when necessary.

SR 3.3.6.2.1

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

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

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

Insert 2

SR 3.3.6.2.2

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units, and Reference 9.~~

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.3 and SR 3.3.6.2.4

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 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 92 day on an ALTERNATE TEST BASIS Frequency of SR 3.3.6.2.3 is based on a review of the surveillance test history and Reference 9. The 24 month Frequency of SR 3.3.6.2.4 is based on a review of the surveillance test history, drift analysis of the associated instrumentation, and Reference 8.~~

Insert 2

SR 3.3.6.2.5

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.

~~This Surveillance can be performed with the reactor at power for some of the Functions. The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

Insert 2

REFERENCES

1. FSAR, Section 6.3.
2. FSAR, Section 15.
3. FSAR, Section 15.1.40.
4. FSAR, Sections 15.1.39 and 15.1.41.
5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

(continued)

BASES

REFERENCES (continued)	6.	NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.
	7.	NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
	~~8.~~	~~NRC Safety Evaluation Report for Amendment 174.~~
	~~9.~~	~~NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillances are also modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains LLS initiation capability. LLS initiation capability is maintained provided three LLS valves are maintaining 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. 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 LLS valves will initiate when necessary.

SR 3.3.6.3.1

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 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 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 channels required by the LCO.

Insert 2

SR 3.3.6.3.2, SR 3.3.6.3.3, and SR 3.3.6.3.4

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

SURVEILLANCE REQUIREMENTS

SR 3.3.6.3.2, SR 3.3.6.3.3, and SR 3.3.6.3.4 (continued)

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

~~The 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history, drift analysis of the associated trip units (if applicable), and Reference 6.~~

Insert 2

A portion of the S/RV tailpipe pressure switch instrument channels are located inside the primary containment. The Note for SR 3.3.6.3.3, "Only required to be performed prior to entering MODE 2 during each scheduled outage > 72 hours when entry is made into primary containment," is based on the location of these instruments, ALARA considerations, and compatibility with the Completion Time of the associated Required Action (Required Action B.1).

For this Note, a scheduled outage is a refueling outage or an outage for which at least a 72 hour period exists between discovery of an off-normal condition and a corresponding change in power level. Outage duration is measured from the time the generator is removed from the grid to the time the generator is tied to the grid, i.e., "breaker-to-breaker."

SR 3.3.6.3.5

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 24 month Frequency is based on a review of the surveillance test history, drift analysis of the associated instrumentation (if applicable), and Reference 5.~~

Insert 2

SR 3.3.6.3.6

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/Relief Valves(S/RVs) and LCO 3.6.1.8, "Low-Low Set (LLS) Safety/Relief Valves (S/RVs)," for S/RVs overlaps this test to provide complete testing of the assumed safety function.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.6.3.6 (continued)

~~The Frequency of once every 24 months for SR 3.3.6.3.6 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Section 7.4.4.
2. FSAR, Section 5.5.17.
3. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~5. NRC Safety Evaluation Report for Amendment 174.~~

~~6. NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

SURVEILLANCE REQUIREMENTS (continued)

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. 6) 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 MCREC System will initiate when necessary.

SR 3.3.7.1.1

Performance of the CHANNEL CHECK ~~once every 24 hours~~ ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument 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 channel status during normal operational use of the displays associated with channels required by the LCO.

Insert 2

SR 3.3.7.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire 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 31 days is based on operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel in any 31 day interval is a rare event.~~

Insert 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 92 day on an ALTERNATE TEST BASIS Frequency is based on a review of the surveillance test history and Reference 9.~~

Insert 2

SR 3.3.7.1.4

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

~~This Surveillance can be performed with the reactor at power. The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

Insert 2

REFERENCES

1. FSAR, Section 7.3.5
2. FSAR, Chapter 6.
3. FSAR, Section 6.4.1.2.2.
4. FSAR, Chapter 15.
5. FSAR, Table 15.1-28.
6. GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation Technical Specifications," February 1991.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. ~~NRC Safety Evaluation Report for Amendment 174.~~
9. ~~NRC Safety Evaluation Report for Amendment 176, Quarterly Surveillance Extension.~~

BASES

ACTIONS

B.1 (continued)

Since the intended function is to alert personnel to a lowering voltage condition and the voltage reading is available for each bus on the control room front panels, the Required Action is verification of the voltage to be above the annunciator setpoint (nominal) hourly.

C.1

If any Required Action and associated Completion Time are not met, the associated Function does not maintain initiation capability for the associated emergency bus. Therefore, the associated DG(s) is declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable DG(s).

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LOP instrumentation Function are located in the SRs column of Table 3.3.8.1-1. The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains initiation capability (for Functions 1 and 2) and annunciation capability (for Function 3). Functions 1 and 2 maintain initiation capability provided that, for 2 of the 3 emergency buses, the following can be initiated by the Function: DG start, disconnect from the offsite power source, DG output breaker closure, load shed, and activation of the ECCS pump power permissive. 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.

SR 3.3.8.1.1

Performance of the CHANNEL CHECK ~~once every 12 hours~~ ensures that a gross failure of instrumentation or a failure of annunciation has not occurred. A CHANNEL CHECK is defined for Function 3 to be a comparison of the annunciator status to the bus voltage and an annunciator test confirming the annunciator is capable of lighting and sounding. A CHANNEL CHECK will detect gross channel failure or an annunciator failure; thus, it is key to verifying the instrumentation

(continued)

BASES

ACTIONS

SR 3.3.8.1.1 (continued)

continues to operate properly between each CHANNEL CALIBRATION.

If a channel is outside the match 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. Thus, performance of the CHANNEL CHECK ensures that undetected outright channel or annunciator failure is limited to 12 hours.~~ The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with channels required by the LCO.

Insert 2

SR 3.3.8.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire 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 31 days is 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 31 day interval is a rare event.~~

Insert 2

SR 3.3.8.1.3

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 the magnitude of equipment drift in the setpoint analysis.~~

Insert 2

SR 3.3.8.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1.4 (continued)

The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

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

Insert 2

REFERENCES

1. FSAR, Section 8.3.1.
2. FSAR, Section 5.2.
3. FSAR, Section 6.3.
4. FSAR, Chapter 15.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1 (continued)

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.

is

The ~~184 day Frequency and the~~ Note in the Surveillance ~~are~~ based on guidance provided in Generic Letter 91-09 (Ref. 2).

SR 3.3.8.2.2

Insert 2

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

~~The 184 day Frequency is based on Reference 4.~~

Insert 2

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. 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 184 day Frequency is based on Reference 4.~~

Insert 2

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 8.3.1.1.4.B.
2. NRC Generic Letter 91-09, "Modification of Surveillance Interval for the Electrical Protective Assemblies in Power Supplies for the Reactor Protection System."
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~4. NRC Safety Evaluation Report for Amendment 174.~~

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 MCPR requirements provide larger margins to the fuel cladding integrity Safety Limit such that the potential adverse effect of early boiling transition during a LOCA is reduced. A larger flow mismatch can therefore be allowed when core flow is < 70% of rated core flow. The recirculation loop jet pump flow, as used in this Surveillance, is the summation of the flows from all of the jet pumps associated with a single recirculation loop.

The mismatch is measured in terms of percent of rated core flow. If the flow mismatch exceeds the specified limits, the loop with the lower flow is considered not in operation. The 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.~~

Insert 2

SR 3.4.1.2

(Not used.)

REFERENCES

1. NEDC-32720P, "E. I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," March 1997.
2. FSAR, Section 5.5.1.4.
3. NEDO-24205, "E. I. Hatch Nuclear Plant Units 1 and 2 Single-Loop Operation," August 1979.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.2.1 (continued)

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 and differential pressure patterns are established by plotting historical data as discussed in Reference 2.

~~The 24 hour Frequency has been shown by operating experience to be timely for detecting jet pump degradation and is consistent with the Surveillance Frequency for recirculation loop OPERABILITY verification.~~

Insert 2

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 when THERMAL POWER is ≤ 25% of RTP and not until 24 hours after exceeding 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. NEDC-31376P, "E.I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," December 1986.

2. GE Service Information Letter No. 330, "Jet Pump Beam Cracks," June 9, 1990.

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

4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS

A.1 (continued)

has been identified and quantified, it may be reclassified and considered as identified LEAKAGE; however, the total LEAKAGE would remain unchanged. The total LEAKAGE must be averaged over the previous 24 hours for comparison to the limit.

B.1

An unidentified LEAKAGE increase of > 2 gpm within a 24 hour period is an indication of a potential flaw in the RCPB and must be quickly evaluated. Although the increase does not necessarily violate the absolute unidentified LEAKAGE limit, certain susceptible components must be determined not to be the source of the LEAKAGE increase within the required Completion Time.

The 4 hour Completion Time is reasonable to properly reduce the LEAKAGE increase before the reactor must be shut down without unduly jeopardizing plant safety.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B is not met or if pressure boundary LEAKAGE exists, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant safety systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

The RCS LEAKAGE is monitored by a variety of instruments designed to provide alarms when LEAKAGE is indicated and to quantify the various types of LEAKAGE. Leakage detection instrumentation is discussed in more detail in the Bases for LCO 3.4.5, "RCS Leakage Detection Instrumentation." Sump level and flow rate are typically monitored to determine actual LEAKAGE rates; however, any method may be used to quantify LEAKAGE within the guidelines of Reference 7. ~~In conjunction with alarms and other administrative~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1 (continued)

~~controls, a 12 hour Frequency for this Surveillance is appropriate for identifying LEAKAGE and for tracking required trends (Ref. 8).~~

Insert 2

~~The identified~~ portion of the total LEAKAGE is usually determined by the drywell equipment drain sump monitoring system which collects expected leakage, not indicative of a degraded RCS boundary. The system equipment and operation is identical to that of the drywell floor drain monitoring system described in the Bases for LCO 3.4.5, "RCS Leakage Detection Instrumentation." If a contributor to the unidentified LEAKAGE has been identified and quantified, it may be reclassified and considered as identified LEAKAGE.

REFERENCES

1. 10 CFR 50.2.
2. 10 CFR 50.55a(c).
3. 10 CFR 50, Appendix A, GDC 55.
4. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
5. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactors," October 1975.
6. FSAR, Section 5.2.7.5.2.
7. Regulatory Guide 1.45, May 1973.
8. ~~Generic Letter 88-01, Supplement 1, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," February 1992.~~ Not used
9. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS (continued)

D.1

With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required instrumentation (either the drywell floor drain sump monitoring system or the primary containment atmospheric monitoring channel, as applicable) is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The Note is based upon a NRC Safety Evaluation Report (Ref. 6) which concluded that the 6 hour testing allowance does not significantly reduce the probability of detecting an unidentified LEAKAGE when necessary.

SR 3.4.5.1

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

Insert 2

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument string. ~~The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.~~

Insert 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string, including the instruments located inside containment. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 30.
2. FSAR, Section 5.2.7.2.1.
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 Reactors," October 1975.
5. FSAR, Section 5.2.7.5.2.
6. NRC Safety Evaluation Report for Amendment 125, April 30, 1993.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. ~~NRC Safety Evaluation Report for Amendment 174.~~

ACTIONS

A.1 and A.2 (continued)

probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to power operation.

B.1, B.2.1, B.2.2.1, and B.2.2.2

If the DOSE EQUIVALENT I-131 cannot be restored to ≤ 0.2 μCi/gm within 48 hours, or if at any time it is > 4.0 μCi/gm, it must be determined at least once every 4 hours and all the main steam lines must be isolated within 12 hours. Isolating the main steam lines precludes the possibility of releasing radioactive material to the environment in an amount that is not well within the requirements of 10 CFR 100 during a postulated MSLB accident. Alternatively, the plant can be placed in MODE 3 within 12 hours and in MODE 4 within 36 hours. This option is provided for those instances when isolation of main steam lines is not desired (e.g., due to the decay heat loads). In MODE 4, the requirements of the LCO are no longer applicable.

The Completion Time of once every 4 hours is the time needed to take and analyze a sample. The 12 hour Completion Time is reasonable, based on operating experience, to isolate the main steam lines in an orderly manner and without challenging plant systems. Also, the allowed Completion Times for Required Actions B.2.2.1 and B.2.2.2 for placing the 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.~~

Insert 2

This SR is modified by a Note that requires this Surveillance to be performed only in MODE 1 because the level of fission products generated in other MODES is much less.

(continued)

ACTIONS

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

However, due to the potentially reduced reliability of the alternate methods of decay heat removal, it is also required to reduce the reactor coolant temperature to the point where MODE 4 is entered.

B.1, B.2, and B.3

With no RHR shutdown cooling subsystem and no recirculation pump in operation, except as permitted by LCO Note 1, reactor coolant circulation by the RHR shutdown cooling subsystem or recirculation pump must be restored without delay.

Until RHR or recirculation pump operation is re-established, an alternate method of reactor coolant circulation must be placed into service. This will provide the necessary circulation for monitoring coolant temperature. The 1 hour Completion Time is based on the coolant circulation function and is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

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

Insert 2

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

function and is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation. Furthermore, verification of the functioning of the alternate method must be reconfirmed every 12 hours thereafter. This will provide assurance of continued temperature monitoring capability.

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

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

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

Insert 2

REFERENCES

1. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS

C.1 and C.2 (continued)

be completed before approaching criticality or heating up to > 212°F. Several methods may be used, including comparison with pre-analyzed transients, new analyses, or inspection of the components. ASME Code, Section XI, Appendix E (Ref. 6), may be used to support the evaluation; however, its use is restricted to evaluation of the beltline.

Condition C is modified by a Note requiring Required Action C.2 be completed whenever the Condition is entered. The Note emphasizes the need to perform the evaluation of the effects of the excursion outside the allowable limits.

Restoration alone per Required Action C.1 is insufficient because higher than analyzed stresses may have occurred and may have affected the RCPB integrity.

SURVEILLANCE REQUIREMENTS

SR 3.4.9.1

Verification that operation is within 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 change limits are specified in hourly increments, 30 minutes permits a reasonable time for assessment and correction of minor deviations.~~

Insert 2

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

Verification of Figures 3.4.9-1 and 3.4.9-2 is required during non-nuclear heatups and cooldowns, and inservice leak and hydrostatic testing. Verification of the ≤ 100°F change in any 1 hour period is required during any heatup or cooldown.

SR 3.4.9.2

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

(continued)

BASES

APPLICABILITY (continued)

In MODES 3, 4, and 5, the limit is not applicable because the reactor is shut down. In these MODES, the reactor pressure is well below the required limit, and no anticipated events will challenge the overpressure limits.

ACTIONS

A.1

With the reactor steam dome pressure greater than the limit, prompt action should be taken to reduce pressure to below the limit and return the reactor to operation within the bounds of the analyses. The 15 minute Completion Time is reasonable considering the importance of maintaining the pressure within limits. This Completion Time also ensures that the probability of an accident occurring while pressure is greater than the limit is minimized.

B.1

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

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

Verification that reactor steam dome pressure is ≤ 1058 psig ensures that the initial conditions 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.~~

Insert 2

REFERENCES

1. FSAR, Supplement 5A.
2. FSAR, Section 15.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the 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. In addition, when HPCI is aligned to the suppression pool (instead of the CST), one acceptable method is to monitor pump suction pressure. ~~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.~~

Insert 2

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 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.~~

Insert 2

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being

SURVEILLANCE REQUIREMENTS

SR 3.5.1.2 (continued)

manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

SR 3.5.1.3

Verification ~~every 31 days~~ that ADS air supply header pressure is ≥ 90 psig ensures adequate air pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve actuation. The design pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least two valve actuations can occur with the drywell at 70% of design pressure (Ref. 12). 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 ≥ 90 psig for one actuation is provided by the ADS instrument air supply. ~~The 31 day Frequency takes into consideration administrative controls over operation of the air system and alarms for low air pressure.~~

Insert 2

SR 3.5.1.4

Verification ~~every 31 days~~ that the RHR System cross tie valve is closed and power to its operator is disconnected ensures that each LPCI subsystem remains independent and a failure of the flow path in one subsystem will not affect the flow path of the other LPCI subsystem. Acceptable methods of removing power to the operator include de-energizing breaker control power or racking out or removing the breaker. If the RHR System cross tie valve is open or power has not been removed from the valve operator, both LPCI subsystems must be considered inoperable. ~~The 31 day Frequency has been found acceptable, considering that these valves are under strict administrative controls that will ensure the valves continue to remain closed with either control or motive power removed.~~

Insert 2

SR 3.5.1.5 (Not used.)

SURVEILLANCE REQUIREMENTS
(continued)

SR 3.5.1.6

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to 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.

Insert 2

~~The specified Frequency is once per 31 days.~~ However, this SR is modified by a Note that states the Surveillance is only required to be performed prior to entering MODE 2 from MODE 3 or 4, when in MODE 4 > 48 hours. Verification during or following MODE 4 > 48 hours and prior to entering MODE 2 from MODE 3 or 4 is an exception to the normal Inservice Testing Program generic valve cycling Frequency ~~of 92 days~~, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME Code, Section XI, requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of Reference 10. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established during preoperational testing.

The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow is

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9 (continued)

tested at both the higher and lower operating ranges of the system. The pump flow rates are verified against a system head corresponding to the RPV pressure. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. The reactor steam pressure must be ≥ 920 psig to perform SR 3.5.1.8 and ≥ 150 psig to perform SR 3.5.1.9. Adequate steam flow for SR 3.5.1.8 is represented by at least two turbine bypass valves open, or ≥ 200 MWE from the main turbine-generator; and for SR 3.5.1.9 adequate steam flow is represented by at least 1.25 turbine bypass valves open, or total steam flow ≥ 1E6 lb/hour. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable. Therefore, SR 3.5.1.8 and SR 3.5.1.9 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR.

The Frequency for SR 3.5.1.7~~ and SR 3.5.1.8~~ is consistent with the Inservice Testing Program pump testing requirements. ~~The 24 month Frequency for SR 3.5.1.9 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. The 24 month Frequency of SR 3.5.1.9 is based on a review of the surveillance test history and Reference 18.~~ The Frequencies for SR 3.5.1.8 and SR 3.5.1.9 are based on operating experience, equipment reliability, and plant risk, and are controlled under the Surveillance Frequency Control Program.

SR 3.5.1.10

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.10 (continued)

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 water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TESTperformed 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 18.~~

Insert 2

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 3.5.1.11

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.12 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

~~The 24 month Frequency is based on the need to perform 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 18.~~

Insert 2

This SR is modified by a Note that excludes valve actuation. This prevents an RPV pressure blowdown.

(continued)

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.5.1.12

The pneumatic actuator of each ADS valve is stroked to verify that the pilot disc rod lifts when the actuator strokes. Pilot rod lift is determined by measurement of rod travel. The total amount of lift of the pilot rod from the valve closed position to the open position shall meet criteria established by the S/RV supplier. SRs 3.5.1.11 and 3.3.5.1.5 overlap this SR to provide testing of the S/RV relief mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 17).

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 18.~~

Insert 2

SR 3.5.1.13

This SR ensures that the ECCS RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Reference 14. A Note to the Surveillance states that the instrumentation portion of the response time may be assumed from established limits. The exclusion of the instrumentation from the response time surveillance is supported by Reference 15, which concludes that instrumentation will continue to respond in the microsecond to millisecond range prior to complete failure.

~~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. The 24 month Frequency is based on a review of the surveillance test history and Reference 18.~~

Insert 2

REFERENCES

1. FSAR, Paragraph 6.3.2.2.3.
2. FSAR, Paragraph 6.3.2.2.4.
3. FSAR, Paragraph 6.3.2.2.1.
4. FSAR, Paragraph 6.3.2.2.2.
5. FSAR, Subsection 15.1.39.
6. FSAR, Subsection 15.1.40.

(continued)

REFERENCES (continued)

7. FSAR, Subsection 15.1.33.
8. 10 CFR 50, Appendix K.
9. FSAR, Subsection 6.3.3.
10. NEDC-31376P, "E.I. Hatch Nuclear Plant Units 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Analysis," December 1986.
11. 10 CFR 50.46.
12. Memorandum from R. L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
14. Technical Requirements Manual, Table T5.0-1.
15. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.
16. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.
17. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants," Appendix I.

~~18. NRC Safety Evaluation Report for Amendment 174.~~

BASES

ACTIONS

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

controls to assure isolation capability. The administrative controls can consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.). OPERABILITY may be verified by an administrative check, or by examining logs or other information, to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 and SR 3.5.2.2

The minimum water level of 146 inches required for the suppression pool is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the CS System and LPCI subsystem pumps, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, all ECCS injection/spray subsystems are inoperable unless they are aligned to an OPERABLE CST.

When suppression pool level is < 146 inches, the CS System is considered OPERABLE only if it can take suction from the CST, and the CST water level is sufficient to provide the required NPSH for the CS pump. Therefore, a verification that either the suppression pool water level is ≥ 146 inches or that CS is aligned to take suction from the CST and the CST contains ≥ 150,000 gallons of water, equivalent to 15 ft, ensures that the CS System can supply at least 50,000 gallons of makeup water to the RPV. The CS suction is uncovered at the 100,000 gallon level. However, as noted, only one required CS subsystem may take credit for the CST option during OPDRVs. During OPDRVs, the volume in the CST may not provide adequate makeup if the RPV were completely drained. Therefore, only one CS subsystem is allowed to use the CST. 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 CST~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 and SR 3.5.2.2 (continued)

~~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 CST water level condition.~~

Insert 2

SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6

The Bases provided for SR 3.5.1.1, SR 3.5.1.7, and SR 3.5.1.10 are applicable to SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6, respectively. However, the LPCI flow rate requirement for SR 3.5.2.5 is based on a single pump, not the two pump flow rate requirement of SR 3.5.1.7.

SR 3.5.2.4

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. ~~The 31 day Frequency is appropriate because the valves are operated under procedural control and the probability of their being mispositioned during this time period is low.~~

Insert 2

In MODES 4 and 5, the RHR System may operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. Therefore, RHR valves that are required for LPCI subsystem operation may be aligned for decay heat removal. Therefore, this SR is modified by a Note that allows one LPCI subsystem of the RHR System to be considered OPERABLE for the ECCS function if all the required valves in the LPCI flow path can be manually realigned (remote or local) to allow injection into the RPV, and the system is not otherwise inoperable. This will ensure adequate core cooling if an inadvertent RPV draindown should occur.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.3.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge line of the RCIC System full of water ensures that the system will perform properly, injecting its full capacity into the Reactor Coolant System upon demand. This will also prevent a water hammer following an initiation signal. One acceptable method of ensuring the line is full when aligned to the CST is to vent at the high points and, when aligned to the suppression pool, by monitoring pump suction pressure. ~~The 31 day Frequency is based on the gradual nature of void buildup in the RCIC piping, the procedural controls governing system operation, and operating experience.~~

Insert 2

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in the RCIC flow path provides assurance that the proper flow path will exist for RCIC operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

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

Insert 2

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

isolated. The required flow rate (400 gpm) is the pump design flow rate. Analysis has demonstrated that RCIC can fulfill its design function at a system flow rate of 360 gpm (Ref. 4). The pump flow rates are verified against a system head equivalent to the RPV pressure. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be ≥ 920 psig to perform SR 3.5.3.3 and ≥ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve open, or for SR 3.5.3.3 ≥ 200 MWE from the main turbine-generator and for SR 3.5.3.4 total steam flow ≥ 1E6 lb/hour. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. ~~A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. The 24 month Frequency of SR 3.5.3.4 is based on a review of the surveillance test history and Reference 6.~~

Insert 2

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.5 (continued)

emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 6.~~

Insert 2

This SR is modified by a Note that excludes vessel injection during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 33.
2. FSAR, Section 5.5.6.
3. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.
4. GE Report AES-41-0688, "Safety Evaluation for Relaxation of RCIC Performance Requirements for Plant Hatch Units 1 and 2," July 1988.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
6. ~~NRC Safety Evaluation Report for Amendment 174.~~

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.1.2

Maintaining the pressure suppression function of primary containment requires limiting the leakage from the drywell to the suppression chamber. Thus, if an event were to occur that pressurized the drywell, the steam would be directed through the downcomers into the suppression pool. This SR measures drywell to suppression chamber differential pressure during a 10 minute period to ensure that the leakage paths that would bypass the suppression pool are within allowable limits.

Satisfactory performance of this SR can be achieved by establishing a known differential pressure between the drywell and the suppression chamber and verifying that the pressure in either the suppression chamber or the drywell does not change by more than 0.25 inch of water per minute over a 10 minute period. ~~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 view of the fact that component failures that might have affected this test are identified by other primary containment SRs. The 24 month Frequency is based on a review of the surveillance test history and Reference 9. Two consecutive test failures, however, would indicate unexpected primary containment degradation; in this event, as the Note indicates, increasing the Frequency to once every 9 months is required until the situation is remedied as evidenced by passing two consecutive tests.~~

Insert 2

REFERENCES

1. FSAR, Section 6.2.
2. FSAR, Section 15.1.39.
3. 10 CFR 50, Appendix J, Option B.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. Primary Containment Leakage Rate Testing Program.
6. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.
7. NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995.

(continued)

BASES

REFERENCES (continued)

8. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirements," 1994.

~~9. NRC Safety Evaluation Report for Amendment 174.~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.2.2

The air lock interlock mechanism is designed to prevent simultaneous opening of both doors in the air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident primary containment pressure, 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 only challenged when the primary containment air lock door is opened, this test is only required to be performed upon entering or exiting the primary containment air lock, but is not required more frequently than 184 days when primary containment is de-inerted. The 184 day Frequency is based on engineering judgment and is considered adequate in view of other administrative controls such as indications of interlock mechanism status, available to operations personnel.~~

Insert 2

REFERENCES

1. FSAR, Section 3.8.2.8.2.2.
2. FSAR, Section 6.2.
3. Primary Containment Leakage Rate Testing Program.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1 (continued)

stating that the SR is not required to be met when the 18 inch 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. The 18 inch 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.~~

Insert 2

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 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 isolation devices outside primary containment, and capable of being mispositioned, are in the correct position. ~~Since verification of valve position for isolation devices outside primary containment is relatively easy, the 31 day Frequency was chosen to provide added assurance that the isolation devices are in the correct positions.~~

Insert 2

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 during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in the proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.3

This SR verifies that each primary containment manual isolation valve and blind flange that is located inside primary containment and is

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.3 (continued)

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 these isolation devices inside primary containment, the Frequency defined as "Prior to entering MODE 2 or 3 from MODE 4 if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days" is appropriate since these isolation devices are operated under administrative controls and the probability of their misalignment is low.

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 and personnel safety reasons. Therefore, the probability of misalignment of these isolation devices, once they have been verified to be in their proper position, is low. A second Note has been included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Actuation and monitoring circuitry is provided in the main control room. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. The circuitry is such that a light illuminates upon loss of explosive charge continuity. Ensuring that the light illuminates when voltage is applied and that it is extinguished when installed in the circuit provides assurance of explosive valve continuity. 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.~~

Insert 2

SR 3.6.1.3.5

Verifying the isolation time of each power operated and each automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.5 (continued)

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 listed in the FSAR and that no degradation affecting valve closure since the performance of the last surveillance has occurred. (EFCVs are not required to be tested because they have no specified time limit). The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 100 limits. The Frequency of this SR is in accordance with the requirements of the Inservice Testing Program.

SR 3.6.1.3.7

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.1.6 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 9.~~

Insert 2

SR 3.6.1.3.8

This SR requires a demonstration that each reactor instrumentation line excess flow check valve (EFCV) (of a representative sample) is OPERABLE by verifying that the valve reduces flow to within limits on an actual or simulated instrument line break condition. (The representative sample consists of an approximately equal number of EFCVs, such that each EFCV is tested at least once every 10 years

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.8 (continued)

[nominal]. In addition, the EFCVs in the sample are representative of the various plant configurations, models, sizes, and operating environments. This ensures that any potentially common problem with a specific type of 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 24 month Frequency is based on a review of the surveillance test history and Reference 9. (The nominal 10 year interval is based on performance testing as discussed in NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation" (Ref. 8). 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.) Any EFCV that fails to check flow during its surveillance test will be documented in the Hatch corrective action program as a surveillance test failure. The failure will be evaluated and corrected and, if the valve is repaired and not replaced, it will be added to the next cycle's surveillance.~~

Insert 2

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). The 24 month Frequency is based on a review of the surveillance test history and Reference 9.~~

Insert 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.13

This SR provides assurance that the excess flow isolation dampers can close following an isolation signal. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 9.~~

Insert 2

REFERENCES

1. FSAR, Chapter 15.
2. Technical Requirements Manual, Table T7.0-1.
3. FSAR, Subsection 15.1.39.
4. FSAR, Section 6.2.
5. 10 CFR 50, Appendix J, Option B.
6. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
7. Primary Containment Leakage Rate Testing Program.
8. ~~NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation."~~
9. ~~NRC Safety Evaluation Report for Amendment 174.~~

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

SURVEILLANCE REQUIREMENTS

SR 3.6.1.4.1

Verifying that drywell pressure is within limit ensures that 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.~~

Insert 2

REFERENCES

1. FSAR, Section 6.2.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1 (continued)

For the situation in which some or all of the normal temperature channels are inoperable, plant procedures contain instructions on how to determine the volumetric average to determine an accurate representation of the actual average temperature using the remaining OPERABLE instruments. Depending upon the location and number of inoperable temperature channels and the plant condition, a correction factor may have to be added to the volumetric average temperature calculated from the remaining OPERABLE temperature channels. The correction factor accounts for the inoperable channels and ensures a reasonable value for the average volumetric temperature is calculated.

~~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.~~

Insert 2

REFERENCES

1. FSAR, Section 6.2.
2. FSAR, Section 6.2.1.4.1.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1 (continued)

mode function. Additional functional testing is performed by tests required by the ASME OM Code (Ref. 2). ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

SR 3.6.1.6.2

The LLS designated S/RVs 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 LLS function operate as designed when initiated either by an actual or simulated automatic initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.6 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

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

REFERENCES

1. FSAR, Section 5.5.17.
2. ASME, OM Code - 1995, "Code for Operation and Maintenance of Nuclear Power Plants," Appendix I.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
4. NEDC-32041P, "Safety Review for Edwin I. Hatch Nuclear Power Plant Units 1 and 2 Updated Safety/Relief Valve Performance Requirements," April 1996.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES

ACTIONS (continued)

C.1

With one line with one or more vacuum breakers inoperable for opening, the leak tight primary containment boundary is intact. The ability to mitigate an event that causes a containment depressurization is threatened, however, if both vacuum breakers in at least one vacuum breaker penetration are not OPERABLE. Therefore, the inoperable vacuum breaker must be restored to OPERABLE status within 72 hours. This is consistent with the Completion Time for Condition A and the fact that the leak tight primary containment boundary is being maintained.

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

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1

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 or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. ~~The 14 day Frequency is based on engineering judgment, is considered adequate in view of other~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1 (continued)

~~indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.~~ Insert 2

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

SR 3.6.1.7.2

Each vacuum breaker must be cycled to ensure that it opens 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 is in accordance with the requirements of the Inservice Testing 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 3.~~ Insert 2

REFERENCES

1. FSAR, Section 6.2.1.

2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~3. NRC Safety Evaluation Report for Amendment 174.~~

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.1 (continued)

Vacuum Breaker Position Indication," as ACTIONS for inoperable closed position indicator channels. In this case the vacuum breaker is assumed open until otherwise proved to satisfy the leakage test, and this confirmation must be performed within the Technical Specification 3.6.1.8, Required Action B.1 Completion Time of 2 hours.

~~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.~~ Insert 2

A Note is added to this SR which 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.

SR 3.6.1.8.2

Each required (i.e., required to be OPERABLE for opening) 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, since they are located in a harsh environment (the suppression chamber airspace).~~ In addition, this functional test is required within 12 hours after a discharge of steam to the suppression chamber from the safety/relief valves.

Insert 2

SR 3.6.1.8.3

Verification of the 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 4. It is further justified~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.8.3 (continued)

~~because of other surveillances performed at shorter Frequencies that convey the proper functioning status of each vacuum breaker.~~

Insert 2

REFERENCES

1. FSAR, Section 6.2.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual.
4. ~~NRC Safety Evaluation Report for Amendment 174.~~

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1.1

The suppression pool average temperature (torus average bulk temperature) is regularly monitored to ensure that the required limits are satisfied. The average temperature is determined by using a weighted average of functional suppression pool water temperature channels. The channels in the lower half of the suppression pool are averaged and the channels in the upper half of the suppression pool are averaged. The suppression pool average temperature is the average of the upper and lower average temperatures.

For the situation in which some or all of either the upper half or the lower half temperature channels are inoperable, plant procedures contain instructions on how to determine the suppression pool average temperature using the remaining OPERABLE instruments. Depending upon the location and number of inoperable channels and the plant condition, a correction factor may have to be added to the average temperature calculated from the remaining OPERABLE temperature channels. The correction factor accounts for the inoperable channels and ensures a reasonable value for the average bulk temperature is calculated.

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

Insert 2

Frequency is

REFERENCES

1. GE Report EAS-19-0388, "Elimination of the Suppression Pool Temperature Limit for Plant Hatch Units 1 and 2," March 1988.
2. NUREG-0783.
3. FSAR, Section 6.2.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

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 of this SR was developed considering operating experience related to trending variations in suppression pool water level and water level instrument drift during the applicable MODES and to assessing the proximity to the specified LCO level limits. 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.~~

Insert 2

REFERENCES

1. FSAR, Section 6.2.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS
(continued)

B.1

With two RHR suppression pool cooling subsystems inoperable, one subsystem must be restored to OPERABLE status within 8 hours. In this condition, there is a substantial loss of the primary containment pressure and temperature mitigation function. The 8 hour Completion Time is based on this loss of function and is considered acceptable due to the low probability of a DBA and because alternative methods to remove heat from primary containment are available.

C.1 and C.2

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

SURVEILLANCE
REQUIREMENTS

SR 3.6.2.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the RHR suppression pool cooling mode flow path provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR suppression pool cooling mode is manually initiated. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

~~The Frequency of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~ ←

Insert 2

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.4.1 (continued)

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 of 31 days is justified because the valves are operated under procedural control, improper valve position would affect only a single subsystem, the probability of an event requiring initiation of the system is low, and the subsystem is a manually initiated system. This Frequency has been shown to be acceptable based on operating experience.~~

Insert 2

SR 3.6.2.4.2

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

Insert 2

REFERENCES

1. FSAR, Section 6.2.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.1

The primary containment (drywell and suppression chamber) must be determined to be inert 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 would lead to more frequent checking by operators in accordance with plant procedures). Also, this Frequency has been shown to be acceptable through operating experience.~~

Insert 2

REFERENCES

1. Edwin I. Hatch Nuclear Plants Units 1 and 2 Plant Hatch Individual Plant Examination (IPE), December 1992.

2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ACTIONS
(continued)

B.1

With two Drywell Cooling System fans inoperable, one fan must be restored to OPERABLE status within 7 days. Seven days is a reasonable time to allow two Drywell Cooling System fans to be inoperable because the hydrogen mixing function is maintained via natural circulation and because of the low probability of the occurrence of a LOCA that would generate hydrogen in amounts capable of exceeding the flammability limit.

C.1

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

SURVEILLANCE
REQUIREMENTS

SR 3.6.3.3.1

Operating each required Drywell Cooling System fan for ≥ 15 minutes ensures that each subsystem is 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.

~~The 92 day Frequency is consistent with the Inservice Testing Program Frequencies, operating experience, the known reliability of the fan motors and controls, and the two redundant fans available.~~

Insert 2

BASES

ACTIONS

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

inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1 and SR 3.6.4.1.2

Verifying that secondary containment equipment hatches and one access door in each access opening are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur. Verifying that all such openings are closed provides adequate assurance that exfiltration from the secondary containment will not occur. SR 3.6.4.1.1 also requires equipment hatches to be sealed. In this application, the term "sealed" has no connotation of leak tightness. Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed. An access opening contains one inner and one outer door. The intent is not to breach the secondary containment at any time when secondary containment is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times. However, all secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening. When the secondary containment configuration excludes Zone I and/or Zone II, these SRs also include verifying the hatches and doors separating the common refueling floor zone from the reactor building(s). ~~The 31 day Frequency for these SRs has been shown to be adequate, based on operating experience, and is considered adequate in view of the other indications of door and hatch status that are available to the operator.~~

Insert 2

SR 3.6.4.1.3 and SR 3.6.4.1.4

The Unit 1 and Unit 2 SGT Systems exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. To ensure that all fission products are treated, SR 3.6.4.1.3 verifies that the appropriate SGT System(s) will rapidly establish and maintain a negative pressure in the secondary containment. This is confirmed by demonstrating that the required SGT subsystem(s) will draw down the secondary containment to $\geq$ 0.20 inch of vacuum water gauge in $\leq$ 120 seconds (13 seconds of diesel generator startup and breaker closing time is included in the 120 second drawdown time). This cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.4 demonstrates that the required SGT subsystem(s) can

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.3 and SR 3.6.4.1.4 (continued)

maintain ≥ 0.20 inch of vacuum water gauge for 1 hour at a flow rate ≤ 4000 cfm for each SGT subsystem. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state conditions. Therefore, these two tests are used to ensure secondary containment boundary integrity. Since these SRs are secondary containment tests, they need not be performed with each SGT subsystem. The SGT subsystems are tested on a STAGGERED TEST BASIS, however, to ensure that in addition to the requirements of LCO 3.6.4.3, each SGT subsystem or combination of subsystems will perform this test. The number of SGT subsystems and the required combinations are dependent on the configuration of the secondary containment and are detailed in the Technical Requirements Manual (Ref. 3). The Note to SR 3.6.4.1.3 and SR 3.6.4.1.4 specifies that the number of required SGT subsystems be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration. ~~The 24 month Frequency, on a STAGGERED TEST BASIS, of SRs 3.6.4.1.3 and 3.6.4.1.4 is also based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Section 15.1.39.
2. FSAR, Section 15.1.41.
3. Technical Requirements Manual, Section 8.0.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

ACTIONS

C.1, and C.2 (continued)

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

D.1, D.2, and D.3

If any Required Action and associated Completion Time of Condition A or B are not met, the plant must be placed in a condition in which the LCO does not apply. If applicable, CORE ALTERATIONS and the movement of irradiated fuel assemblies in the secondary containment must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be immediately initiated to suspend OPDRVs in order to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

Required Action D.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving fuel while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations.

Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1

This SR verifies that each secondary containment manual isolation valve and blind flange that 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 isolation devices in secondary containment that are capable of being mispositioned are in the correct position.

~~Since these isolation devices are readily accessible to personnel during normal operation and verification of their position is relatively~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.4.2.1 (continued)

~~easy, the 31 day Frequency was chosen to provide added assurance that the isolation devices are in the correct positions.~~

Insert 2

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 isolation devices, 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.

SR 3.6.4.2.2

Verifying that the isolation time of each power operated and each 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 was developed based upon engineering judgment and the similarity to PCIVs.~~

Insert 2

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 SR 3.3.6.2.5 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. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 15.1.39.
2. FSAR, Section 15.1.41.
3. Technical Requirements Manual, Section 8.0.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES

ACTIONS (continued)

F.1, F.2, and F.3

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

Required Action F.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.3.1

Operating each required Unit 1 and Unit 2 SGT subsystem for ≥ 15 continuous minutes ensures that they 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. ~~The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.~~

Insert 2

SR 3.6.4.3.2

This SR verifies that the required Unit 1 and Unit 2 SGT filter testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.3.3

This SR verifies that each required Unit 1 and Unit 2 SGT subsystem starts on receipt of an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.2.5 overlaps this SR to provide complete testing of the safety function. This Surveillance can be performed with the reactor at power. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 8.~~

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 41.
2. Unit 1 FSAR, Section 5.3.2.3.
3. Unit 2 FSAR, Section 6.2.4.
4. Unit 2 FSAR, Section 15.2.
5. Unit 2 FSAR, Section 15.3.
6. Technical Requirements Manual, Section 8.0.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1 (continued)

assurance that the proper flow paths will exist for RHRSW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be realigned to its accident position. This is acceptable because the RHRSW System is a manually initiated system. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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

Insert 2

REFERENCES

1. FSAR, Subsection 9.2.7.
2. FSAR, Subsection 7.4.5.
3. FSAR, Chapter 15.
4. FSAR, Paragraph 6.2.1.4.3.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
6. General Electric, "RHR Heat Exchanger K-Value Study for Hatch Unit 1 and 2", GE-NE-0000-0037-9449-R0, April 2005.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1 (continued)

margin to the minimum level requirement (60.7 ft MSL), so the Surveillance is only required to be performed ~~every 14 days.~~ However, if the level is ≤ 61.7 ft, the Surveillance must be performed more frequently (every 12 hours), since the conditions are closer to the minimum level limit.

Insert 2

SR 3.7.2.2

Verifying the correct alignment for each manual, power operated, and automatic valve in each PSW subsystem flow path provides assurance that the proper flow paths will exist for PSW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position, and yet considered in the correct position, provided it can be automatically realigned to its accident position within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

This SR is modified by a Note indicating that isolation of the PSW System to components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the PSW System. As such, when all PSW pumps, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the PSW System is still OPERABLE.

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

Insert 2

SR 3.7.2.3

This SR verifies that the automatic isolation valves of the PSW System will automatically switch to the safety or emergency position to provide cooling water exclusively to the safety related equipment during an accident event. This is demonstrated by the use of an actual or simulated initiation signal. This SR also verifies the automatic start capability (on a LOCA or LOSP signal) of one of the two PSW pumps in each subsystem.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.3 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Section 9.2.1.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

Verifying the correct alignment for manual, power operated, and automatic valves in the DG 1B SSW System flow path provides assurance that the proper flow paths will exist for DG 1B SSW 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, and yet be considered in the correct position provided it can be automatically realigned to its accident position, within the required time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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

Insert 2

SR 3.7.3.2

This SR ensures that the DG 1B SSW System pump will automatically start to provide required cooling to the DG 1B when the DG 1B starts and the respective bus is energized.

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Section 9.2.1.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~5. NRC Safety Evaluation Report for Amendment 174.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every 31 days provides an adequate check on this system. Since the MCREC System does not have heaters, each subsystem need only be operated for ≥ 15 minutes to demonstrate the function of the subsystem. ~~Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.~~

Insert 2

SR 3.7.4.2

This SR verifies that the required MCREC testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.4.3

This SR verifies that on an actual or simulated initiation signal, each MCREC subsystem starts and operates. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.4 overlaps this SR to provide complete testing of the safety function. This Surveillance can be performed with the reactor at power. ~~The 24 month Frequency is based on a review of the surveillance test history and Reference 9.~~

Insert 2

SR 3.7.4.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas (the turbine building), is periodically tested to verify proper function of the MCREC System. During the pressurization mode of operation, the MCREC System is designed to slightly pressurize the control room ≥ 0.1 inches water gauge positive pressure with respect to the turbine building to prevent unfiltered inleakage. The MCREC System is designed to maintain this positive

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.4.4 (continued)

pressure at a flow rate of ≤ 2750 cfm through the control room in the pressurization mode. This SR ensures the total flow rate meets the design analysis value of 2500 cfm ± 10% and ensures the outside air flow rate is ≤ 400 cfm. ~~The 24 month Frequency, on a STAGGERED TEST BASIS, is based on a review of the surveillance test history and Reference 9.~~ ← Insert 2

REFERENCES

1. FSAR, Section 6.4.
2. FSAR, Section 9.4.1.
3. FSAR, Chapter 6.
4. FSAR, Chapter 15.
5. FSAR, Section 6.4.1.2.2.
6. FSAR, Table 15.1-28.
7. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
8. Technical Requirements Manual, Table T2.1-1.
9. ~~NRC Safety Evaluation Report for Amendment 174.~~

ACTIONS

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

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, with three control room AC subsystems inoperable, 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, CORE ALTERATIONS and handling of irradiated fuel in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions 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 heat load assumed in the safety analysis. The SR consists of a combination of testing and calculation. ~~The 24 month Frequency is appropriate since significant degradation of the Control Room AC System is not expected over this time period. The 24 month Frequency is based on a review of the surveillance test history and Reference 4.~~

Insert 2

REFERENCES

1. FSAR, Sections 6.4 and 9.4.1.
2. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
3. Technical Requirements Manual, Table T2.1-1.

~~4. NRC Safety Evaluation Report for Amendment 174.~~

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR, ~~on a 31 day Frequency,~~ requires an isotopic analysis of an offgas sample 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 (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.~~ ← Insert 2

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. FSAR, Sections 11.3 and 15.1.35.
2. 10 CFR 100.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

B.1 (continued)

< 24% RTP. As discussed in the Applicability section, operation at < 24% 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 transient. The 4 hour Completion Time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

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

Insert 2

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. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

SR 3.7.7.3

This SR ensures that the TURBINE BYPASS SYSTEM RESPONSE TIME is in compliance with the assumptions of the appropriate safety analysis. The response time limits are specified in Technical Requirements Manual (Ref. 3). ~~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.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.7.3 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~ Insert 2

REFERENCES

1. FSAR, Section 7.7.4.
2. FSAR, Section 15.1.7.
3. Technical Requirements Manual, Table T5.0-1.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

BASES (continued)

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies in the spent fuel storage pool since the potential for a release of fission products exists.

ACTIONS

A.1

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

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

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

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.~~ ←

Insert 2

REFERENCES

1. FSAR, Section 9.1.2.
2. NRC Safety Evaluation Report related to Unit 1 Amendment 172 and Unit 2 Amendment 112, August 28, 1991.
3. 10 CFR 100.
4. NUREG-0800, Section 15.7.4, Revision 1, July 1981.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.1 (continued)

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.~~

Insert 2

SR 3.8.1.2

This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition, and verifies that the DGs are capable of proper startup, synchronizing, and accepting a load approximately 50% of the continuous load rating. This demonstrates DG capability while minimizing the mechanical stress and wear on the engine. 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. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, this SR has been modified by a Note, (Note 2) to indicate that all DG starts for this Surveillance may be preceded by an engine prelube period and followed by a warmup prior to loading.

For the purposes of this testing, the 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 DG manufacturer recommends 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 3. Once voltage and frequency requirements are demonstrated, the DG may be tied to its respective 4160 V emergency bus, as directed by SR 3.8.1.2.b.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 (continued)

When the DG is tied to its bus, the electrical grid, due to its larger size compared to the DG, will dictate DG voltage and frequency. The DG operator cannot adjust either parameter. Therefore, the voltage and frequency requirements of SR 3.8.1.2.a no longer apply while the DG is tied to its bus and need not be met to satisfy the requirements of SR 3.8.1.2.b. Other SRs, notably SR 3.8.1.9, require that voltage and frequency requirements can be met while the DG is supplying load.

SR 3.8.1.5.a requires that, ~~at a 184 day Frequency~~, the DG starts from standby conditions and achieves required voltage and frequency within 12 seconds. The 12 second start requirement supports the assumptions in the design basis LOCA analysis of FSAR, Chapter 6 (Ref. 4). The 12 second start requirement is not applicable to SR 3.8.1.2 (see Note 3), when a modified start procedure as described above is used. If a modified start is not used, the 12 second start voltage and frequency requirements of SR 3.8.1.5.a apply.

Since SR 3.8.1.5.a does require a 12 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. This procedure is the intent of Note 1.

To minimize testing of the swing DG, this SR is modified by a note (Note 4) to allow a single test (instead of two tests, one for each unit) to satisfy the requirements for both units, using the starting circuitry of one unit for one periodic test and the starting circuitry of the other unit during the next periodic test. This is allowed since the main purpose of the Surveillance, to ensure DG OPERABILITY, is still being verified on the proper frequency, the starting circuits historically have a very low failure rate, as compared to the DG itself, and that, while each starting circuit is only being tested every second test (due to the staggering of the tests), some portions of the starting circuits are common to both units. If the swing DG fails one of these Surveillance, the DG should be considered inoperable on both units, unless the cause of the failure can be directly related to only one unit.

Note 5 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 6 modifies the Surveillance by stating that starting transients above the upper voltage limit do not invalidate this test.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 (continued)

Note 7 modifies this Surveillance by stating that momentary load transients because of changing bus loads do not invalidate this test.

Note 8 indicates that this Surveillance is required to 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.

~~The normal 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.108 (Ref. 9). This Frequency provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~

Insert 2

SR 3.8.1.3

This volume is selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load + 10%. The actual amount required to meet the SR (500 gallons) will provide approximately 1.85 hours of DG operation at full load + 10%. Additionally, the volume of fuel in the day tanks is used in the calculation of the 7 day continuous DG run time. (See B 3.8.3.)

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

Insert 2

SR 3.8.1.4

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day tanks ~~once every 184 days~~ eliminates the necessary environment for bacterial survival.

periodically

This is a means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water in the day tank may come from condensation, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.4 (continued)

~~The Surveillance Frequency is based on engineering judgment and has shown to be acceptable through operating experience. 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.~~

Insert 2

SR 3.8.1.5

This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition. This Surveillance verifies that the DGs are capable of a "fast cold" start, synchronizing, and accepting a load more closely simulating accident loads. 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.

SR 3.8.1.5 requires that, ~~at a 184 day Frequency~~, the DG starts from standby conditions and achieves required voltage and frequency within 12 seconds. The 12 second start requirement supports the assumptions in the design basis LOCA analysis of FSAR, Chapter 6 (Ref. 4). Once voltage and frequency requirements are demonstrated, the DG may be tied to its respective 4160 V emergency bus, as directed by SR 3.8.1.2.b. When the DG is tied to its bus, the electrical grid, due to its larger size compared to the DG, will dictate DG voltage and frequency. The DG operator cannot adjust either parameter. Therefore, the voltage and frequency requirements of SR 3.8.1.2.a no longer apply while the DG is tied to its bus and need not be met to satisfy the requirements of SR 3.8.1.2.b. Other SRs, notably SR 3.8.1.9, require that voltage and frequency requirements can be met while the DG is supplying load.

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.

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. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation.

~~The 184 day Frequency for SR 3.8.1.5 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7). This Frequency~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.5 (continued)

~~provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~ Insert 2

To minimize the wear on moving parts that do not get lubricated when the engine is not running, this SR has been modified by a Note (Note 1) to indicate that all DG starts for this Surveillance may be preceded by an engine prelube period and followed by a warmup prior to loading.

Note 2 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 3 modifies this Surveillance by stating that momentary load transients because of changing bus loads do not invalidate this test.

Note 4 indicates that this Surveillance is required to 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.

To minimize testing of the swing DG, Note 5 allows a single test (instead of two tests, one for each unit) to satisfy the requirements for both units, with the DG started using the starting circuitry of one unit and synchronized to the ESF bus of that unit for one periodic test and started using the starting circuitry of the other unit and synchronized to the ESF bus of that unit during the next periodic test. This is allowed since the main purpose of the Surveillance, to ensure DG OPERABILITY, is still being verified on the proper frequency, and each unit's starting circuitry and breaker control circuitry, which is only being tested every second test (due to the staggering of the tests), historically have a very low failure rate. If the swing 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 3.8.1.6

Transfer of each 4.16 kV ESF 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 intended to be consistent with expected fuel cycle lengths.~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

~~The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~ Insert 2

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1 or 2 and the Unit 1 test should not be performed with Unit 1 in MODE 1 or 2.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.7

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 residual heat removal service water pump at rated flow (1225 bhp). 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. Although Plant Hatch Unit 2 is not committed to IEEE-387-1984, (Ref. 11), this SR is consistent with the IEEE-387-1984 requirement that states the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower. For all DGs, this represents 65.5 Hz,

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.7 (continued)

equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

The voltage and frequency specified are consistent with the nominal range for the DG. SR 3.8.1.7.a corresponds to the maximum frequency excursion, while SR 3.8.1.7.b is the voltage to which the DG must recover following load rejection. ~~The 24 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9). The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~ ← Insert 2

This SR is modified by two Notes. The reason for Note 1 is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing is performed with only the DG providing power to the associated 4160 V ESF bus. The DG is not synchronized with offsite power.

To minimize testing of the swing DG, Note 2 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.8

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.8 (continued)

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, testing must be performed using a power factor ≤ 0.88. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

~~The 24 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9) and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

This SR is modified by three Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Note 2 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high, it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable.

To minimize testing of the swing DG, Note 3 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.9

This Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source and is consistent with Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1). 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 time of 12 seconds is derived from requirements of the accident analysis for responding to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the 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, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the 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. For the purpose of this testing, the DGs shall be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations.

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.10

This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (12 seconds) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability.

The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the loading logic for loading onto offsite power. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, low pressure injection systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. 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.

~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent~~

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

~~with the expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could potentially cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1 or 2 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1 or 2 and the Unit 1 test should not be performed with Unit 1 in MODE 1 or 2.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.11

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

~~The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.11 (continued)

service. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.12

Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3), requires demonstration ~~once per 24 months~~ that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours. The first 22 hours of this test are performed at ≥ 2775 kW and ≤ 2825 kW (which is near the continuous rating of the DG), and the last 2 hours of this test are performed at ≥ 3000 kW. This is in accordance with commitments described in FSAR Section 8.3 (Ref. 2). The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, and for gradual loading, discussed in SR 3.8.1.2, 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 using a power factor ≤ 0.88. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience. A 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 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

SURVEILLANCE REQUIREMENTS

SR 3.8.1.12 (continued)

This Surveillance has been modified by four Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems. However, it is acceptable to perform this SR in MODES 1 and 2 provided the other two DGs are OPERABLE, since a perturbation can only affect one divisional DG. If during the performance of this Surveillance, one of the other DGs becomes operable, this Surveillance is to be suspended. The surveillance may not be performed in MODES 1 and 2 during inclement weather and unstable grid conditions. Credit may be taken for unplanned events that satisfy this SR. Note 3 is provided in recognition that if the offsite electrical power distribution system is lightly loaded (i.e., system voltage is high), it may not be possible to raise voltage without creating an overvoltage condition on the ESF bus. Therefore, to ensure the bus voltage, supplied ESF loads, and DG are not placed in an unsafe condition during this test, the power factor limit does not have to be met if grid voltage or ESF bus loading does not permit the power factor limit to be met when the DG is tied to the grid. When this occurs, the power factor should be maintained as close to the limit as practicable. To minimize testing of the swing DG, Note 4 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.13

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 12 seconds. The 12 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. ~~The 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5). The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.13 (continued)

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 near 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 swing DG, Note 3 allows a single test (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 (no unit specific DG components are being tested). If the swing 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 3.8.1.14

This Surveillance is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6) and ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and that the DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in 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 load sequence timers are reset.

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), and takes into consideration plant conditions required to perform the Surveillance. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~ ◄ Insert 2

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.15

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. Although Plant Hatch Unit 2 is not committed to this standard, this SR is consistent with the provisions for automatic switchover required by IEEE-308 (Ref. 12), paragraph 6.2.6(2).

The intent in the requirements associated with SR 3.8.1.15.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads 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 24 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.15 (continued)

~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.16

Under accident conditions, loads are sequentially connected to the bus by the automatic load sequence timing devices. 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 tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF buses.

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(2); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR.

This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

Contained in the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.17

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 3.8.1.9, 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. 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.

~~The Frequency of 24 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. This Surveillance tests the applicable logic associated with the Unit 2 swing bus. The comparable test specified in the Unit 1 Technical Specifications tests the applicable logic associated with the Unit 1 swing bus. Consequently, a test must be performed within the ~~specified~~ Frequency for each unit. The Note specifying the restriction for not performing the test while the unit is in MODE 1, 2, or 3 does not have applicability to Unit 1. As the Surveillance represents separate tests, the Unit 2 Surveillance should not be performed with Unit 2 in MODE 1, 2, or 3 and the Unit 1 test should not be performed with Unit 1 in MODE 1, 2, or 3.

Contained in the Surveillance Frequency Control Program

SR 3.8.1.18

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously. For the purpose of this testing,

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.1.18 (continued)

the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations. It is permissible to place all three DGs in test simultaneously, for the performance of this Surveillance.

~~The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9). This SR is modified by a Note. The reason for the Note is to minimize wear on the DG during testing.~~

Insert 2

SR 3.8.1.19

With the exception of this Surveillance, all other Surveillances of this Specification (SR 3.8.1.1 through SR 3.8.1.18) are applied only to the Unit 2 DG and offsite circuits, and swing DG. This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 1 DG and offsite circuit are governed by the Unit 1 Technical Specifications. Performance of the applicable Unit 1 Surveillances will satisfy both any Unit 1 requirements, as well as satisfying this Unit 2 SR. Several exceptions are noted to the Unit 1 SRs: SR 3.8.1.6 is excepted since only one Unit 1 circuit is required by the Unit 2 Specification (therefore, there is not necessarily a second circuit to transfer to); SRs 3.8.1.10, 15, and 17 are excepted since they relate to the DG response to a Unit 1 ECCS initiation signal, which is not a necessary function for support of the Unit 2 requirement for an OPERABLE Unit 1 DG.

The Frequency required by the applicable Unit 1 SR also governs performance of that SR for both Units.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. FSAR, Sections 8.2 and 8.3.
3. Regulatory Guide 1.9, March 1971.
4. FSAR, Chapter 6.
5. FSAR, Chapter 15.
6. Regulatory Guide 1.93, December 1974.

(continued)

BASES

REFERENCES (continued)

7. Generic Letter 84-15.
8. 10 CFR 50, Appendix A, GDC 18.
9. Regulatory Guide 1.108, August 1977.
10. Regulatory Guide 1.137, October 1979.
11. IEEE Standard 387-1984.
12. IEEE Standard 308-1980.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
14. ~~NRC Safety Evaluation Report for Amendment 174.~~

ACTIONS
(continued)

E.1

With required starting air receiver pressure < 225 psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is ≥ 170 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

F.1

With a Required Action and associated Completion Time of Condition A, B, C, D, or E not met, one or more required DG fuel oil transfer subsystems inoperable for reasons other than Condition A, one or more required DG fuel oil storage tanks with fuel oil level not within limits for reasons other than Condition B, or the stored diesel lube oil or the required starting air subsystem not within limits for reasons other than addressed by Condition C or E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the Unit 2 and swing DG storage tanks to support the required DGs' operation for 7 days at the assumed load. (See B 3.8.3.)

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

Insert 2

SR 3.8.3.2

This Surveillance ensures that sufficient lubricating oil inventory (combined inventory in the DG lubricating oil sump and stored in the warehouse) is available to support at least 7 days of full load operation for each required DG. The 400 gal requirement is based on the DG manufacturer's consumption values for the run time of the DG.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.3.2 (continued)

Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, since the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

~~A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the plant staff.~~

Insert 2

SR 3.8.3.3

This SR verifies that the required Unit 2 and swing DG fuel oil testing is performed in a accordance with the Diesel Fuel Oil Testing Program. Tests are a means of monitoring the potential degradation related to long term storage and the potential impact to fuel filter plugging as a result of high particulate levels. Specific sampling requirements, frequencies, and additional information are discussed in detail in the Diesel Fuel Oil Testing Program.

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each required DG is available. The system design requirements provide for a minimum of five engine start cycles without recharging. A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed. The pressure specified in this SR is intended to reflect the lowest value at which the five starts can be accomplished using one air receiver.

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

Insert 2

SR 3.8.3.5

This Surveillance demonstrates that each required Unit 2 and swing DG fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. It is required to

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.3.5 (continued)

support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pumps are 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 are OPERABLE.

~~The design of the fuel transfer systems is such that pumps operate automatically in order to maintain an adequate volume of fuel oil in the day tanks during or following DG testing. Therefore, a 31 day Frequency is specified to correspond to the maximum interval for DG testing.~~

Insert 2

Periodic removal

SR 3.8.3.6

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. ~~Removal~~ of water from the required Unit 2 and swing DG fuel storage tanks ~~once every 184 days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water in the storage tank may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. ~~The Surveillance Frequency is based on engineering judgment and has been shown to be acceptable through operating experience. This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance.~~

SR 3.8.3.7

Insert 2

This Surveillance demonstrates that each required Unit 2 and swing DG fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to each required DG's day tank. It is required to support continuous operation of standby power sources, since fuel from three storage tanks is needed to supply fuel for two DGs to meet the 7 day supply requirement discussed in the Background section of these Bases. This Surveillance provides assurance that the fuel oil transfer pumps are OPERABLE, the fuel oil piping system is intact,

(continued)

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SURVEILLANCE REQUIREMENTS

SR 3.8.3.7 (continued)

the fuel delivery piping is not obstructed, and the controls and control systems for manual fuel transfer are OPERABLE.

~~Since the fuel oil transfer pumps are being tested on a 31 day Frequency in accordance with SR 3.8.3.5, the 24 month Frequency has been determined to be acceptable. The 24 month Frequency is based on a review of the surveillance test history and Reference 5.~~

Insert 2

REFERENCES

1. FSAR, Section 9.5.4.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.
5. ~~NRC Safety Evaluation Report for Amendment 174.~~

ACTIONS

D.1 and D.2 (continued)

to bring the unit to MODE 4 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).

E.1

Condition E corresponds to a level of degradation in the DC electrical power subsystems that causes a required safety function to be lost. When more than one DC source is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

SURVEILLANCE REQUIREMENTS

The SRs are modified by a NOTE to indicate that SR 3.8.4.1 through SR 3.8.4.8 apply only to the Unit 2 DC sources, and that SR 3.8.4.9 applies only to the Unit 1 DC sources.

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. Voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The voltage requirement for battery terminal voltage is based on the open circuit voltage of a lead-calcium cell of nominal 1.215 specific gravity. Without regard to other battery parameters, this voltage is indicative of a battery that is capable of performing its required safety function. ~~The 7 day Frequency is consistent with manufacturer's recommendations and IEEE-450 (Ref. 8).~~

Insert 2

SR 3.8.4.2

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each inter-cell,

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 (continued)

inter-rack, inter-tier, and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The connection resistance limits are established to maintain connection resistance as low as reasonably possible to minimize the overall voltage drop across the battery and the possibility of battery damage due to heating of connections.

The resistance values for each battery connection are located in the Technical Requirements Manual (Ref. 9).

~~The Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.~~

Insert 2

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

~~The 24 month Frequency of the Surveillance takes into consideration the desired plant conditions to perform the Surveillance. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provides an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anti-corrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection.

The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.4 and SR 3.8.4.5 (continued)

of this SR, provided visible corrosion is removed during performance of this Surveillance.

The connection resistance limits are established to maintain connection resistance as low as reasonably possible to minimize the overall voltage drop across the battery and the possibility of battery damage due to heating of connections. The resistance values for each battery connection are located in the Technical Requirements Manual (Ref. 9).

~~The 24 month Frequency of the Surveillances takes into consideration the desired plant conditions to perform the Surveillance. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

SR 3.8.4.6

Battery charger capability requirements are based on the design capacity of the chargers (Ref. 4). According to Regulatory Guide 1.32 (Ref. 10), each battery charger supply is required 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.

~~The Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~

Insert 2

SR 3.8.4.7

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length corresponds to the design duty cycle requirements as specified in Reference 4.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.7 (continued)

~~The Frequency of 24 months is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 10) and Regulatory Guide 1.129 (Ref. 11), which state that the battery service test should be performed during refueling operations or at some other outage. The 24 month Frequency is based on a review of the surveillance test history and Reference 14.~~ Insert 2

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test.

The modified performance discharge test is a simulated duty cycle consisting of just two rates: the 1 minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated 1 minute discharge represent a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

A 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 discharge test.

The reason for Note 2 is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy the Surveillance. The swing DG DC battery is exempted from this restriction, since it is required by both units' LCO 3.8.4 and cannot be performed in the manner required by the Note without resulting in a dual unit shutdown.

SR 3.8.4.8

A battery performance discharge test is a constant current capacity test to detect any change in the capacity determined by the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.8 (continued)

acceptance test. Initial conditions consistent with IEEE 450 need to be met prior to the performing of a battery performance discharge test. The test results reflect the overall effects of usage and age.

A battery modified performance discharge test is described in the Bases for SR 3.8.4.7. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.8; however, only the modified performance discharge test may be used to satisfy SR 3.8.4.8, while satisfying the requirements of SR 3.8.4.7 at the same time.

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 8) and IEEE-485 (Ref. 12). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. Although there may be ample capacity, the battery rate of deterioration is rapidly increasing.

~~The Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected application service life and capacity is ≤ 100% of the manufacturers rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected application service life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 8), when the battery capacity drops by more than 10% of rated capacity from its capacity on the previous performance test or is more than 10% below the manufacturer's rating. All these Frequencies are consistent with the recommendations in IEEE-450 (Ref. 8).~~

Insert 2

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy the Surveillance. The swing DG DC battery is exempted from this restriction, since it is required by both units' LCO 3.8.4 and cannot be performed in the manner required by the Note without resulting in a dual unit shutdown.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.4.9

With the exception of this Surveillance, all other Surveillances of this Specification (SR 3.8.4.1 through SR 3.8.4.8) are applied only to the Unit 2 DC sources. This Surveillance is provided to direct that the appropriate Surveillances for the required Unit 1 DC sources are governed by the Unit 1 Technical Specifications. Performance of the applicable Unit 1 Surveillances will satisfy both any Unit 1 requirements, as well as satisfying this Unit 2 SR.

The Frequency required by the applicable Unit 1 SR also governs performance of that SR for both Units.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6.
3. IEEE Standard 308-1971.
4. FSAR, Paragraphs 8.3.2.1.1 and 8.3.2.1.2.
5. FSAR, Chapter 6.
6. FSAR, Chapter 15.
7. Regulatory Guide 1.93, December 1974.
8. IEEE Standard 450-1987.
9. Technical Requirements Manual, Section 9.0.
10. Regulatory Guide 1.32, February 1977.

~~11. Regulatory Guide 1.129, December 1974.~~ Not used

12. IEEE Standard 485-1983.
13. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

~~14. NRC Safety Evaluation Report for Amendment 174.~~

BASES

ACTIONS

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

verification is repeated at 7 day intervals until the parameters are restored to Category A and B limits. This periodic verification is consistent with the normal Frequency of pilot cell surveillances.

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. Taking into consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable for operation prior to declaring the associated DC battery inoperable.

B.1

When any battery parameter is outside the Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potentially extreme conditions, such as not completing the Required Actions of Condition A within the required Completion Time or average electrolyte temperature of representative cells falling below the appropriate limit (65°F for station service and 40°F for DG batteries), also are cause for immediately declaring the associated DC electrical power subsystem inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 3), which recommends regular battery inspections ~~(at least one per month)~~ including voltage, specific gravity, and electrolyte level of pilot cells.

Insert 2

SR 3.8.6.2

The 92 day inspection of specific gravity, cell voltage, and level is consistent with IEEE-450 (Ref. 3). In addition, within 24 hours of a battery overcharge > 150 V, the battery must be demonstrated to meet Category B limits. This inspection is also consistent with IEEE-450 (Ref. 3), which recommends special inspections following a

Insert 2

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.6.2 (continued)

severe overcharge, to ensure that no significant degradation of the battery occurs as a consequence of such overcharge.

SR 3.8.6.3

This Surveillance verification that the average temperature of representative cells is within limits is consistent with a recommendation of IEEE-450 (Ref. 3) that states that the temperature of electrolyte in representative cells should be determined ~~on a quarterly basis.~~ Insert 2

Lower than normal temperatures act to inhibit or reduce battery capacity. This SR ensures that the operating temperatures remain within an acceptable operating range. This limit is based on IEEE-450 or the manufacturer's recommendations when provided.

Table 3.8.6-1

This table delineates the limits on electrolyte level, float voltage, and specific gravity for three different categories. The meaning of each category is discussed below.

Category A defines the normal parameter limit for each designated pilot cell in each battery. The cells selected as pilot cells are those whose temperature, voltage, and electrolyte specific gravity approximate the state of charge of the entire battery.

The Category A limits specified for electrolyte level are based on manufacturer's recommendations and are consistent with the guidance in IEEE-450 (Ref. 3), with the extra 1/4 inch allowance above the high water level indication for operating margin to account for temperature and charge effects. In addition to this allowance, footnote a to Table 3.8.6-1 permits the electrolyte level to be above the specified maximum level during equalizing charge, provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 3) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is ≥ 2.13 V per cell. This value is based on the recommendation of IEEE-450 (Ref. 3),

(continued)

BASES

ACTIONS

D.1 (continued)

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This allowance results in establishing the "time zero" at the time LCO 3.8.7.a was initially not met, instead of at the time Condition D was entered. The 16 hour Completion Time is an acceptable limitation on this potential of failing to meet the LCO indefinitely.

E.1 and E.2

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

F.1

Condition F corresponds to a level of degradation in the electrical power distribution system that causes a required safety function to be lost. When more than one AC or DC electrical power distribution subsystem is lost, and this results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the AC and DC electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical buses are maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. ~~The 7 day Frequency takes into account the redundant capability of the AC and DC electrical power distribution subsystems,~~

(continued)

BASES

SURVEILLANCE REQUIREMENTS	SR 3.8.7.1 (continued) ~~and other indications available in the control room that alert the operator to subsystem malfunctions.~~ Insert 2
REFERENCES	1. FSAR, Chapter 6. 2. FSAR, Chapter 15. 3. Regulatory Guide 1.93, December 1974. 4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the AC and DC electrical power distribution subsystem is functioning properly, with the buses energized. The verification of proper voltage availability on the buses ensures that the required 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 electrical power distribution subsystems, as well as other indications available in the control room that alert the operator to subsystem malfunctions.~~ Insert 2

REFERENCES

1. FSAR, Chapter 6.
2. FSAR, Chapter 15.
3. NRC No. 93-102, "Final Policy Statement on Technical Improvements," July 23, 1993.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

~~The 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.~~

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 7.6.1.
3. FSAR, Section 15.1.13.
4. FSAR, Section 15.1.14.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1 (continued)

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.~~

Insert 2

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. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested. ~~The 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and visual and audible indications available in the control room to alert the operator to control rods not fully inserted.~~ To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Alternatively, the control rod withdrawal, and the attempted withdrawal of the second control rod, may be simulated. In either case, 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.

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 7.6.1.
3. FSAR, Section 15.1.13.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

APPLICABILITY

During MODE 5, loading fuel into core cells with control rods withdrawn may result in inadvertent criticality. Therefore, the control rods must be inserted before loading fuel into a core cell. All control rods must be inserted before loading fuel to ensure that a fuel loading error does not result in loading fuel into a core cell with the control rod withdrawn.

In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and no fuel loading activities are possible. Therefore, this Specification is not applicable in these MODES.

ACTIONS

A.1

With all control rods not fully inserted during the applicable conditions, an inadvertent criticality could occur that is not analyzed in the FSAR. All fuel loading operations must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.3.1

During refueling, to ensure that the reactor remains subcritical, all control rods must be fully inserted prior to and during fuel loading. Periodic checks of the control rod position ensure this condition is maintained.

~~The 12 hour Frequency takes into consideration the procedural controls on control rod movement during refueling as well as the redundant functions of the refueling interlocks.~~

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 15.1.13.
3. FSAR, Section 15.1.14.
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

LCO
(contiued)

rods have already completed their reactivity control function, and therefore, are not required to be OPERABLE.

APPLICABILITY

During MODE 5, withdrawn control rods must be OPERABLE to ensure that in a scram the control rods will insert and provide the required negative reactivity to maintain the reactor subcritical.

For MODES 1 and 2, control rod requirements are found in LCO 3.1.2, "Reactivity Anomalies," LCO 3.1.3, "Control Rod OPERABILITY," LCO 3.1.4, "Control Rod Scram Times," and LCO 3.1.5, "Control Rod Scram Accumulators." During MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate requirements for control rod OPERABILITY during these conditions.

ACTIONS

A.1

With one or more withdrawn control rods inoperable, action must be immediately initiated to fully insert the inoperable control rod(s). Inserting the control rod(s) ensures the shutdown and scram capabilities are not adversely affected. Actions must continue until the inoperable control rod(s) is fully inserted.

SURVEILLANCE REQUIREMENTS

SR 3.9.5.1 and SR 3.9.5.2

During MODE 5, the OPERABILITY of control rods is primarily required to ensure a withdrawn control rod will automatically insert if a signal requiring a reactor shutdown occurs. Because no explicit analysis exists for automatic shutdown during refueling, the shutdown function is satisfied if the withdrawn control rod is capable of automatic insertion and the associated CRD scram accumulator pressure is ≥ 940 psig.

~~The 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.~~ ←

Insert 2

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

(continued)

LCO (continued)

radiological consequences of a postulated fuel handling accident are within acceptable limits, as provided by the guidance of Reference 3. The point from which the water level is measured is shown in Figure B 3.5.2-1.

APPLICABILITY

LCO 3.9.6 is applicable when moving fuel assemblies or handling control rods (i.e., movement with other than the normal control rod drive) within the RPV. The LCO minimizes the possibility of a fuel handling accident in containment that is beyond the assumptions of the safety analysis. If irradiated fuel is not present within the RPV, there can be no significant radioactivity release as a result of a postulated fuel handling accident. Requirements for fuel handling accidents in the spent fuel storage pool are covered by LCO 3.7.8, "Spent Fuel Storage Pool Water Level."

ACTIONS

A.1

If the water level is < 23 ft above the top of the irradiated fuel assemblies seated within the RPV, all operations involving movement of fuel assemblies and handling of control rods within the RPV shall be suspended immediately to ensure that a fuel handling accident cannot occur. The suspension of fuel movement and control rod handling shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

Verification of a minimum water level of 23 ft above the top of the irradiated fuel assemblies seated within the RPV ensures that the design basis for the postulated fuel handling accident analysis during refueling operations is met. Water at the required level limits the consequences of damaged fuel rods, which are postulated to result from a fuel handling accident in containment (Ref. 2).

~~The Frequency of 24 hours is based on engineering judgment and is considered adequate in view of the large volume of water and the normal procedural controls on valve positions, which make significant unplanned level changes unlikely.~~

Insert 2

(continued)

BASES

ACTIONS

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

stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.). This may be performed as an administrative check, by examining logs or other information to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, a Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

C.1 and C.2

If no RHR shutdown cooling subsystem is in operation, an alternate method of coolant circulation is required to be established within 1 hour. The Completion Time is modified such that the 1 hour is applicable separately for each occurrence involving a loss of coolant circulation.

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

SURVEILLANCE REQUIREMENTS

SR 3.9.7.1

This Surveillance demonstrates that the required RHR shutdown cooling 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 RHR subsystem in the control room.~~

Insert 2

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.9.8.1

This Surveillance demonstrates that one required RHR shutdown cooling 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 RHR subsystems in the control room.~~

Insert 2

REFERENCES

1. 10 CFR 50, Appendix A, GDC 34.
2. Technical Requirements Manual, Section 8.0.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

ACTIONS

<u>A.1, A.2, A.3.1, and A.3.2</u> (continued)

component to a safe condition. Placing the reactor mode switch in the shutdown position will ensure that all inserted control rods remain inserted and result in operating in accordance with Table 1.1-1. Alternatively, if in MODE 5, the reactor mode switch may be placed in the refuel position, which will also result in operating in accordance with Table 1.1-1. A Note is added to Required Action A.3.2 to indicate that this Required Action is not applicable in MODES 3 and 4, since only the shutdown position is allowed in these MODES. The allowed Completion Time of 1 hour for Required Action A.2, Required Action A.3.1, and Required Action A.3.2 provides sufficient time to normally insert the control rods and place the reactor mode switch in the required position, based on operating experience, and is acceptable given that all operations that could increase core reactivity have been suspended.

SURVEILLANCE REQUIREMENTS

<u>SR 3.10.2.1 and SR 3.10.2.2</u>

Meeting the requirements of this Special Operations LCO maintains operation consistent with or conservative to operating with the reactor mode switch in the shutdown position (or the refuel position for MODE 5). The functions of the reactor mode switch interlocks that are not in effect, due to the testing in progress, are adequately compensated for by the Special Operations LCO requirements. The administrative controls are to be periodically verified to ensure that the operational requirements continue to be met. ~~The 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.~~

Insert 2

REFERENCES

1. FSAR, Section 7.2.2.10.5.
2. FSAR, Section 15.1.13.
3. FSAR, Section 15.1.14.

BASES

ACTIONS

A.2.1 and A.2.2 (continued)

and restore operation in accordance with Table 1.1-1. The allowed Completion Time of 1 hour to place the reactor mode switch in the shutdown position provides sufficient time to normally insert the control rods.

SURVEILLANCE REQUIREMENTS

SR 3.10.3.1, SR 3.10.3.2, and SR 3.10.3.3

The other LCOs made applicable in this Special Operations LCO are required to have their Surveillances met to establish that this Special Operations LCO is being met. If the local array of control rods is inserted and disarmed while the scram function for the withdrawn rod is not available, periodic verification in accordance with SR 3.10.3.2 is required to preclude the possibility of criticality. SR 3.10.3.2 has been modified by a Note, which clarifies that this SR is not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements, since SR 3.10.3.2 demonstrates that the alternative LCO 3.10.3.d.2 requirements are satisfied. Also, SR 3.10.3.3 verifies that all control rods other than the control rod being withdrawn are fully inserted. ~~The 24 hour Frequency is acceptable because of the administrative controls on control rod withdrawal, the protection afforded involved, and hardwire interlocks that preclude additional control rod withdrawals.~~

Insert 2

REFERENCES

1. FSAR, Section 15.1.13.

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

Required Actions A.2.1 and A.2.2 are specified, based on the assumption that the control rod is being withdrawn. If the control rod is still insertable, actions must be immediately initiated to fully insert all insertable control rods and within 1 hour place the reactor mode switch in the shutdown position. Actions must continue until all such control rods are fully inserted. The allowed Completion Time of 1 hour for placing the reactor mode switch in the shutdown position provides sufficient time to normally insert the control rods.

B.1, B.2.1, and B.2.2

If one or more of the requirements of this Special Operations LCO are not met with the affected control rod not insertable, withdrawal of the control rod and removal of the associated CRD must be immediately suspended. If the CRD has been removed, such that the control rod is not insertable, the Required Actions require the most expeditious action be taken to either initiate action to restore the CRD and insert its control rod, or initiate action to restore compliance with this Special Operations LCO.

SURVEILLANCE REQUIREMENTS

SR 3.10.4.1, SR 3.10.4.2, SR 3.10.4.3, and SR 3.10.4.4

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. 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.~~ ← Insert 2

SR 3.10.4.2 and SR 3.10.4.4 have been modified by Notes, which clarify that these SRs are not required to be met if the alternative requirements demonstrated by SR 3.10.4.1 are satisfied.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.10.5.1, SR 3.10.5.2, SR 3.10.5.3, SR 3.10.5.4, and SR 3.10.5.5

Verification that all the control rods, other than the control rod withdrawn for the removal of the associated CRD, are fully inserted is required to ensure the SDM is within limits. Verification that the local five by five array of control rods, other than the control rod withdrawn for removal of the associated CRD, is inserted and disarmed, while the scram function for the withdrawn rod is not available, is required to ensure that the possibility of criticality remains precluded. Verification that a control rod withdrawal block has been inserted ensures that no other control rods can be inadvertently withdrawn under conditions when position indication instrumentation is inoperable for the withdrawn control rod. The Surveillance for LCO 3.1.1, which is made applicable by this Special Operations LCO, is required in order to establish that this Special Operations LCO is being met. Verification that no other CORE ALTERATIONS are being made is required to ensure the assumptions of the safety analysis are satisfied. While not required by this LCO, verification of the core loading may be prudent to ensure that a fuel loading error has not invalidated the assumptions of the safety analysis.

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.~~

Insert 2

REFERENCES

1. FSAR, Section 15.1.13.

ACTIONS

A.1, A.2, A.3.1, and A.3.2

If one or more of the requirements of this Special Operations LCO are not met, the immediate implementation of these Required Actions restores operation consistent with the normal requirements for refueling (i.e., all control rods inserted in core cells containing one or more fuel assemblies) or with the exceptions granted by this Special Operations LCO. The Completion Times for Required Action A.1, Required Action A.2, Required Action A.3.1, and Required Action A.3.2 are intended to require that these Required Actions be implemented in a very short time and carried through in an expeditious manner to either initiate action to restore the affected CRDs and insert their control rods, or initiate action to restore compliance with this Special Operations LCO.

SURVEILLANCE REQUIREMENTS

SR 3.10.6.1, SR 3.10.6.2, and SR 3.10.6.3

Periodic verification of the administrative controls established by this Special Operations LCO is prudent to preclude the possibility of an inadvertent criticality. ~~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.~~

Insert 2

REFERENCES

1. FSAR, Section 15.1.13.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.10.8.4

Periodic verification of the administrative controls established by this LCO will ensure that the reactor is operated within the bounds of the safety analysis. ~~The 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.~~

Insert 2

SR 3.10.8.5

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

SR 3.10.8.6

CRD charging water header pressure verification is performed to ensure the motive force is available to scram the control rods in the event of a scram signal. Since the reactor is depressurized in MODE 5, there is insufficient reactor pressure to scram the control rods. Verification of charging water header pressure ensures that if a scram were required, capability for rapid control rod insertion would exist. The minimum charging water header pressure of 940 psig, which is below the expected pressure of 1100 psig, still ensures 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.~~

Insert 2

REFERENCES

1. NEDE-24011-P-A-US, General Electric Standard Application for Reactor Fuel, Supplement for United States (revision specified in the COLR).
2. Letter from T. Pickens (BWROG) to G.C. Lainas, NRC, "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," August 15, 1986.

Edwin I. Hatch Nuclear Plant
License Amendment Request for Adoption of TSTF-425-A, Rev. 3, Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program Using the Consolidated Line Item Improvement Process

Enclosure 9

Technical Specification Cross Reference for HNP Unit 1 and Unit 2 and TSTF 425 Mark ups

Enclosure 9

Technical Specification Cross Reference for HNP Unit 1 and Unit 2 and TSTF 425 Mark ups

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Control Rod Operability	**3.1.3**	**3.1.3**	**3.1.3**
Control rod position	3.1.3.1	3.1.3.1	3.1.3.1
Notch test – fully withdrawn control rod one notch	3.1.3.2	3.1.3.2	3.1.3.2
Notch test – partially withdrawn control rod one notch	3.1.3.3	3.1.3.3	3.1.3.3
Control Rod Scram Times	**3.1.4**	**3.1.4**	**3.1.4**
Scram time testing	3.1.4.2	3.1.4.2	3.1.4.2
Control Rod Scram Accumulators	**3.1.5**	**3.1.5**	**3.1.5**
Control rod scram accumulator pressure	3.1.5.1	3.1.5.1	3.1.5.1
Rod Pattern Control	**3.1.6**	**3.1.6**	**3.1.6**
Verify control rods comply with BPWS	3.1.6.1	3.1.6.1	3.1.6.1
SLC System	**3.1.7**	**3.1.7**	**3.1.7**
Volume of sodium pentaborate	3.1.7.1	3.1.7.1	3.1.7.1
Temperature of sodium pentaborate	3.1.7.2	3.1.7.2	3.1.7.2
Continuity of explosive charge	3.1.7.4	3.1.7.4	3.1.7.4
Concentration of boron solution	3.1.7.5	3.1.7.5	3.1.7.5
Manual/power operated valve position	3.1.7.6	3.1.7.6	3.1.7.6
Pump flow rate	3.1.7.7	3.1.7.7**	3.1.7.7**
Flow through one SLC subsystem	3.1.7.8	3.1.7.8	3.1.7.8
Heat traced piping is unblocked	3.1.7.9	3.1.7.9	3.1.7.9
SDV Vent and Drain Valve	**3.1.8**	**3.1.8**	**3.1.8**
Each SDV vent & drain valve open	3.1.8.1	3.1.8.1	3.1.8.1
Cycle each SDV vent & drain valve fully closed/open position	3.1.8.2	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	3.1.8.3
APLHGR	**3.2.1**	**3.2.1**	**3.2.1**
APLHGR less than or equal to limits	3.2.1.1	3.2.1.1	3.2.1.1
MCPR	**3.2.2**	**3.2.2**	**3.2.2**
MCPR greater than or equal to the limits	3.2.2.1	3.2.2.1	3.2.2.1
LHGR	**3.2.3**	**3.2.3**	**3.2.3**
LHGR less than or equal to limits	3.2.3.1	3.2.3.1	3.2.3.1
APRM Gain and Setpoints	**3.2.4**	**------------**	**------------**
MFLPD is within limits	3.2.4.1	------------	------------
APRM setpoints or gains are adjusted for calculated MFLPD	3.2.4.2	------------	------------
RPS Instrumentation	**3.3.1.1**	**3.3.1.1**	**3.3.1.1**
Channel Check	3.3.1.1.1	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	3.3.1.1.2
Adjust channel to conform to calibrated flow	3.3.1.1.3	------------	------------
Channel Functional Test (12 hours after entering Mode 2)	3.3.1.1.4	3.3.1.1.4	3.3.1.1.4
Channel Functional Test	3.3.1.1.5	3.3.1.1.5	3.3.1.1.5
Verify IRM and APRM	------------	3.3.1.1.7	3.3.1.1.7
Calibrate the local power range monitors.	3.3.1.1.6	3.3.1.1.8	3.3.1.1.8
Channel Functional Test	3.3.1.1.7	3.3.1.1.9	3.3.1.1.9
Calibrate the trip Units	3.3.1.1.8	------------	------------
Channel Functional test (12 hours after entering Mode 2)	------------	3.3.1.1.10	3.3.1.1.10
Channel Calibration (for Function 2.a)	3.3.1.1.9	------------	------------

Enclosure 9

Technical Specification Cross Reference for HNP Unit 1 and Unit 2 and TSTF 425 Mark ups

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Verify Turbine Stop Valve – Closure	3.3.1.1.14	3.3.1.1.11	3.3.1.1.11
Perform Channel Functional Test	3.3.1.1.10	3.3.1.1.12	3.3.1.1.12
Perform Channel Calibration (for Function 1)	3.3.1.1.11	3.3.1.1.13	3.3.1.1.13
Verify the APRM Flow Biased Simulated Thermal Power	3.3.1.1.12	------------	------------
Perform Logic System Functional Test	3.3.1.1.13	3.3.1.1.15	3.3.1.1.15
Verify the RPS Response Time is within limits	3.3.1.1.15	3.3.1.1.16	3.3.1.1.16
Verify OPRM is not bypassed	------------	3.3.1.1.17	3.3.1.1.17
SRM Instrumentation	**3.3.1.2**	**3.3.1.2**	**3.3.1.2**
Perform Channel Check	3.3.1.2.1	3.3.1.2.1	3.3.1.2.1
Verify an Operable SRM detector is located	3.3.1.2.2	3.3.1.2.2	3.3.1.2.2
Perform Channel Check	3.3.1.2.3	3.3.1.2.3	3.3.1.2.3
Verify count rate	3.3.1.2.4	3.3.1.2.4	3.3.1.2.4
Perform Channel Functional Test	3.3.1.2.5	3.3.1.2.5	3.3.1.2.5
Channel Functional Test (12 hours after IRMs on Range 2)	3.3.1.2.6	3.3.1.2.6	3.3.1.2.6
Perform Channel Calibration	3.3.1.2.7	3.3.1.2.7	3.3.1.2.7
Control Rod Block Instrumentation	**3.3.2.1**	**3.3.2.1**	**3.3.2.1**
Channel Functional Test	3.3.2.1.1	3.3.2.1.1	3.3.2.1.1
Channel Functional Test (1 hour after in Mode 2)	3.3.2.1.2	3.3.2.1.2	3.3.2.1.2
Channel Functional Test (1 hour after in Mode 1)	3.3.2.1.3	3.3.2.1.3	3.3.2.1.3
Verify the RBM	3.3.2.1.4	3.3.2.1.4	3.3.2.1.4
Verify the RWM	3.3.2.1.5	3.3.1.2.5	3.3.1.2.5
Channel Functional Test (1 hour after shutdown position)	3.3.2.1.6	3.3.2.1.6	3.3.2.1.6
Channel Calibration	3.3.2.1.7	3.3.2.1.7	3.3.2.1.7
Feedwater & Main Turbine High Water Level Trip Instrument	**3.3.2.2**	**3.3.2.2**	**3.3.2.2**
Perform Channel Check	3.3.2.2.1	------------	------------
Perform Channel Functional Test	3.3.2.2.2	3.3.2.2.1	3.3.2.2.1
Perform Channel Calibration	3.3.2.2.3	3.3.2.2.2	3.3.2.2.2
Perform Logic System Functional Test	3.3.2.2.4	3.3.2.2.3	3.3.2.2.3
PAM Instrumentation	**3.3.3.1**	**3.3.3.1**	**3.3.3.1**
Perform Channel Check	3.3.3.1.1	3.3.3.1.1	3.3.3.1.1
Perform Channel Calibration	3.3.3.1.2	3.3.3.1.2	3.3.3.1.2
Remote Shutdown System	**3.3.3.2**	**3.3.3.2**	**3.3.3.2**
Perform Channel Check	3.3.3.2.1	3.3.3.2.1	3.3.3.2.1
Verify each required control circuit and transfer switch	3.3.3.2.2	3.3.3.2.2	3.3.3.2.2
Perform Channel Calibration	3.3.3.2.3	3.3.3.2.3	3.3.3.2.3
EOC-RPT Instrumentation	**3.3.4.1**	**3.3.4.1**	**3.3.4.1**
Perform Channel Functional Test	3.3.4.1.1	3.3.4.1.1	3.3.4.1.1
Calibrate the trip units	3.3.4.1.2	------------	------------
Perform Channel Calibration	3.3.4.1.3	3.3.4.1.3	3.3.4.1.3
Perform logic System Functional Test	3.3.4.1.4	3.3.4.1.4	3.3.4.1.4
Verify TSV, TCV, Trip Oil Pressure are not bypassed	3.3.4.1.5	3.3.4.1.2	3.3.4.1.2
Verify the EOC-RPT System Response Time is within limits	3.3.4.1.6	3.3.4.1.5	3.3.4.1.5
Determine RPT breaker interruption time	3.3.4.1.7	3.3.4.1.6	3.3.4.1.6

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
ATWS-RPT Instrumentation	**3.3.4.2**	**3.3.4.2**	**3.3.4.2**
Perform channel check	3.3.4.2.1	3.3.4.2.1	3.3.4.2.1
Perform channel functional test	3.3.4.2.2	3.3.4.2.2	3.3.4.2.2
Calibrate the trip units	3.3.4.2.3	------------	------------
Perform channel calibration	3.3.4.2.4	3.3.4.2.3	3.3.4.2.3
Perform logic system functional test	3.3.4.2.5	3.3.4.2.4	3.3.4.2.4
ECCS Instrumentation	**3.3.5.1**	**3.3.5.1**	**3.3.5.1**
Perform channel check	3.3.5.1.1	3.3.5.1.1	3.3.5.1.1
Perform channel functional test	3.3.5.1.2	3.3.5.1.2	3.3.5.1.2
Calibrate the trip unit	3.3.5.1.3	------------	------------
Perform channel functional test	------------	3.3.5.1.3	3.3.5.1.3
Perform channel calibration	3.3.5.1.4	3.3.5.1.4	3.3.5.1.4
Perform channel calibration	3.3.5.1.5	------------	------------
Perform logic system functional test	3.3.5.1.6	3.3.5.1.5	3.3.5.1.5
Verify the ECCS Response time is within limits	3.3.5.1.7	------------	------------
RCIC System Instrumentation	**3.3.5.2**	**3.3.5.2**	**3.3.5.2**
Perform channel check	3.3.5.2.1	3.3.5.2.1	3.3.5.2.1
Perform channel functional test	3.3.5.2.2	3.3.5.2.2	3.3.5.2.2
Calibrate the trip units	3.3.5.2.3	------------	------------
Perform channel calibration	3.3.5.2.4	------------	------------
Perform channel functional test	------------	3.3.5.2.3	3.3.5.2.3
Perform channel calibration	3.3.5.2.5	3.3.5.2.4	3.3.5.2.4
Perform logic system functional test	3.3.5.2.6	3.3.5.2.5	3.3.5.2.5
Primary Containment Isolation Instrumentation	**3.3.6.1**	**3.3.6.1**	**3.3.6.1**
Perform channel check	3.3.6.1.1	3.3.6.1.1	3.3.6.1.1
Perform channel functional test	3.3.6.1.2	3.3.6.1.2	3.3.6.1.2
Calibrate the trip unit	3.3.6.1.3	------------	------------
Perform channel calibration	3.3.6.1.4	3.3.6.1.3	3.3.6.1.3
Perform channel functional test	3.3.6.1.5	------------	------------
Perform channel calibration	3.3.6.1.6	3.3.6.1.4	3.3.6.1.4
Perform channel calibration	------------	3.3.6.1.5	3.3.6.1.5
Perform logic system functional test	3.3.6.1.7	3.3.6.1.6	3.3.6.1.6
Verify isolation system response time is within limits	3.3.6.1.8	------------	3.3.6.1.7
Secondary Containment Isolation Instrumentation	**3.3.6.2**	**3.3.6.2**	**3.3.6.2**
Perform channel check	3.3.6.2.1	3.3.6.2.1	3.3.6.2.1
Perform channel functional test	3.3.6.2.2	3.3.6.2.2	3.3.6.2.2
Calibrate the trip unit	3.3.6.2.3	------------	------------
Perform channel calibration	3.3.6.2.4	3.3.6.2.3	3.3.6.2.3
Perform channel calibration	3.3.6.2.5	3.3.6.2.4	3.3.6.2.4
Perform logic system functional test	3.3.6.2.6	3.3.6.2.5	3.3.6.2.5
Verify the isolation system response time is within limits	3.3.6.2.7	------------	------------
LLS Instrumentation	**3.3.6.3**	**3.3.6.3**	**3.3.6.3**
Perform channel check	3.3.6.3.1	3.3.6.3.1	3.3.6.3.1
Perform channel functional test for portion (outside)	3.3.6.3.2	3.3.6.3.2	3.3.6.3.2

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Perform channel functional test for portion (inside)	3.3.6.3.3	3.3.6.3.3	3.3.6.3.3
Perform channel functional test	3.3.6.3.4	3.3.6.3.4	3.3.6.3.4
Calibrate the trip unit	3.3.6.3.5	------------	------------
Perform channel calibration	3.3.6.3.6	3.3.6.3.5	3.3.6.3.5
Perform logic system functional test	3.3.6.3.7	3.3.6.3.6	3.3.6.3.6
MCREC System Instrumentation	**3.3.7.1**	**3.3.7.1**	**3.3.7.1**
Perform channel check	3.3.7.1.1	3.3.7.1.1	3.3.7.1.1
Perform channel functional test	3.3.7.1.2	3.3.7.1.2	3.3.7.1.2
Calibrate the trip units	3.3.7.1.3	------------	------------
Perform channel calibration	3.3.7.1.4	3.3.7.1.3	3.3.7.1.3
Perform logic system functional test	3.3.7.1.5	3.3.7.1.4	3.3.7.1.4
LOP Instrumentation	**3.3.8.1**	**3.3.8.1**	**3.3.8.1**
Perform channel check	3.3.8.1.1	3.3.8.1.1	3.3.8.1.1
Perform channel functional test	3.3.8.1.2	3.3.8.1.2	3.3.8.1.2
Perform channel calibration	3.3.8.1.3	3.3.8.1.3	3.3.8.1.3
Perform logic system functional test	3.3.8.1.4	3.3.8.1.4	3.3.8.1.4
RPS Electric Power Monitoring	**3.3.8.2**	**3.3.8.2**	**3.3.8.2**
Perform channel functional test	3.3.8.2.1	3.3.8.2.1	3.3.8.2.1
Perform channel calibration	3.3.8.2.2	3.3.8.2.2	3.3.8.2.2
Perform a system functional test	3.3.8.2.3	3.3.8.2.3	3.3.8.2.3
Recirculation Loops Operating	**3.4.1**	**3.4.1**	**3.4.1**
Verify recirculation loop jet pump flow mismatch	3.4.1.1	3.4.1.1	3.4.1.1
Jet Pumps	**3.4.2**	**3.4.2**	**3.4.2**
Verify for each circulation loop	3.4.2.1	3.4.2.1	3.4.2.1
S/RVs	**3.4.3**	**3.4.3**	**3.4.3**
Verify the function safety function lift setpoints of the S/RVs	3.4.3.1	3.4.3.1**	3.4.3.1**
Verify each required S/RV opens when manually actuated	3.4.3.2	------------	------------
RCS Operational LEAKAGE	**3.4.4**	**3.4.4**	**3.4.4**
Verify RCS unidentified and total/unidentified LEKAGE	3.4.4.1	3.4.4.1	3.4.4.1
RCS PIV Leakage	**3.4.5**	**------------**	**------------**
Verify equivalent leakage of each RCS PIV	3.4.5.1	------------	------------
RCS Leakage Detection Instrumentation	**3.4.6**	**3.4.5**	**3.4.5**
Perform a channel check	3.4.6.1	3.4.5.1	3.4.5.1
Perform a channel functional test	3.4.6.2	3.4.5.2	3.4.5.2
Perform a channel calibration	3.4.6.3	3.4.5.3	3.4.5.3
RCS Specific Activity	**3.4.7**	**3.4.6**	**3.4.6**
Verify reactor coolant DOSE EQUIVALENT I-131	3.4.7.1	3.4.6.1	3.4.6.1
RHR Shutdown Cooling System – Hot Shutdown	**3.4.8**	**3.4.7**	**3.4.7**
Verify one RHR shutdown cooling subsystem	3.4.8.1	3.4.7.1	3.4.7.1
RHR Shutdown Cooling System – Cold Shutdown	**3.4.9**	**3.4.8**	**3.4.8**
Verify one RHR shutdown cooling subsystem	3.4.9.1	3.4.8.1	3.4.8.1
RCS P/T Limits	**3.4.10**	**3.4.9**	**3.4.9**
Verify RCS pressure, temperature, heatup/cooldown (PTLR)	3.4.10.1	------------	------------
Verify reactor vessel flange and head flange (PTLR)(tensioning)	3.4.10.7	------------	------------
Verify reactor vessel flange and head flange (PTLR)(30 min.)	3.4.10.8	------------	------------

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Verify reactor vessel flange and head flange (PTLR)(30 min.)	3.4.10.8	------------	------------
Verify reactor vessel flange and head flange (PTLR)(MODE 4)	3.4.10.9	------------	------------
Verify RCS pressure, temperature, heatup/cooldown (spec)	------------	3.4.9.1	3.4.9.1
Verify reactor vessel flange and head flange	------------	3.4.9.5	3.4.9.5
Verify reactor vessel flange and head flange temperatures	------------	3.4.9.6	3.4.9.6
Reactor Steam Dome Pressure	**3.4.11**	**3.4.10**	**3.4.10**
Verify reactor steam dome pressure	3.4.11.1	3.4.10.1	3.4.10.1
ECCS - Operating	**3.5.1**	**3.5.1**	**3.5.1**
Verify for each ECCS injection/spray subsystem the piping	3.5.1.1	3.5.1.1	3.5.1.1
Verify each ECCS injection/spray subsystem manual, power	3.5.1.2	3.5.1.2	3.5.1.2
Verify ADS air supply header pressure	3.5.1.3	3.5.1.3	3.5.1.3
Verify the RHR System cross tie value is closed	3.5.1.4	3.5.1.4	3.5.1.4
Verify each LPCI Inverter output voltage	3.5.1.5	------------	------------
Verify each recirculation pump discharge valve	3.5.1.6	3.5.1.6	3.5.1.6
Verify the following ECCS pumps develop specified flow rate	3.5.1.7	3.5.1.7**	3.5.1.7**
Verify reactor pressure and HPCI pump can develop flow rate	3.5.1.8	3.5.1.8	3.5.1.8
Verify reactor pressure and HPCI pump can develop flow rate	3.5.1.9	3.5.1.9	3.5.1.9
Verify each ECCS injection/spray subsystem actuates	3.5.1.10	3.5.1.10	3.5.1.10
Verify the ADS actuates on an actual or simulated signal	3.5.1.11	3.5.1.11	3.5.1.11
Verify each ADS valve relief mode actuator strokes	------------	3.5.1.12	3.5.1.12
Verify each ADS valve opens when manually actuated	3.5.1.12	------------	------------
Verify each ECCS injection/spray subsystem ECCS response	------------	------------	3.5.1.13
ECCS – Shutdown	**3.5.2**	**3.5.2**	**3.5.2**
Verify the suppression pool water level	3.5.2.1	3.5.2.1	3.5.2.1
Verify for each require core spray (CS) subsystem	3.5.2.2	3.5.2.2	3.5.2.2
Verify the piping is filled with water	3.5.2.3	3.5.2.3	3.5.2.3
Verify each required ECCS injection/spray subsystem position	3.5.2.4	3.5.2.4	3.5.2.4
Verify each required ECCS pump develops flow rate	3.5.2.5	3.5.2.5**	3.5.2.5**
Verify each required ECCS injection/spray subsystem actuates	3.5.2.6	3.5.2.6	3.5.2.6
RCIC System	**3.5.3**	**3.5.3**	**3.5.3**
Verify the RCIC System piping is filled with water	3.5.3.1	3.5.3.1	3.5.3.1
Verify each RCIC System manual, power, automatic	3.5.3.2	3.5.3.2	3.5.3.2
Verify the RCIC pump can develop a flow rate	3.5.3.3	3.5.3.3	3.5.3.3
Verify the RCIC pump can develop a flow rate	3.5.3.4	3.5.3.4	3.5.3.4
Verify the RCIC System actuates on signal	3.5.3.5	3.5.3.5	3.5.3.5
Primary Containment	**3.6.1.1**	**3.6.1.1**	**3.6.1.1**
Verify drywell to suppression chamber differential pressure	3.6.1.1.2	3.6.1.1.2	3.6.1.1.2
Primary Containment Air Lock	**3.6.1.2**	**3.6.1.2**	**3.6.1.2**
Verify only one door in the primary containment air lock	3.6.1.2.2	3.6.1.2.2	3.6.1.2.2
PCIVs	**3.6.1.3**	**3.6.1.3**	**3.6.1.3**
Verify each 18 inch primary containment purge valve is sealed	3.6.1.3.1	------------	------------
Verify each 18 inch primary containment purge valve is closed	3.6.1.3.2	3.6.1.3.1	3.6.1.3.1
Verify primary containment isolation manual valve (outside)	3.6.1.3.3	3.6.1.3.2	3.6.1.3.2
Verify continuity of TIP shear isolation valve explosive charge	3.6.1.3.5	3.6.1.3.4	3.6.1.3.4
Verify isolation time of each power operated automatic PCIV	3.6.1.3.6	3.6.1.3.5**	3.6.1.3.5**

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Perform leakage rate testing for primary containment purges	3.6.1.3.7	------------	------------
Verify the isolation time of each MSIV	3.6.1.3.8	3.6.1.3.6**	3.6.1.3.6**
Verify each automatic PCIV actuates to isolation position	3.6.1.3.9	3.6.1.3.7	3.6.1.3.7
Verify each reactor instrumentation line EFC	3.6.1.3.10	3.6.1.3.8	3.6.1.3.8
Remove and test the explosive squib	3.6.1.3.11	3.6.1.3.9	3.6.1.3.9
Verify each [ ] inch primary containment purge valve is blocked	3.6.1.3.15	------------	------------
Cycle each 18 inch excess flow isolation damper	------------	------------	3.6.1.3.13
Drywell Pressure	**3.6.1.4**	**3.6.1.4**	**3.6.1.4**
Verify drywell pressure is within limit	3.6.1.4.1	3.6.1.4.1	3.6.1.4.1
Drywell Air Temperature	**3.6.1.5**	**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	3.6.1.5.1
LLS Valves	**3.6.1.6**	**3.6.1.6**	**3.6.1.6**
Verify each LLS valve opens when manually actuated	3.6.1.6.1	3.6.1.6.1	3.6.1.6.1
Verify the LLS System actuates on a signal	3.6.1.6.2	3.6.1.6.2	3.6.1.6.2
Reactor Building-to-Suppression Chamber Vacuum Breakers	**3.6.1.7**	**3.6.1.7**	**3.6.1.7**
Verify each vacuum breaker is closed	3.6.1.7.1	3.6.1.7.1	3.6.1.7.1
Perform a functional test of each vacuum breaker	3.6.1.7.2	3.6.1.7.2**	3.6.1.7.2**
Verify the opening setpoint of each vacuum breaker	3.6.1.7.3	3.6.1.7.3	3.6.1.7.3
Suppression Chamber-to-Drywell Vacuum Breakers	**3.6.1.8**	**3.6.1.8**	**3.6.1.8**
Verify each vacuum breaker is closed	3.6.1.8.1	3.6.1.8.1	3.6.1.8.1
Perform a functional test of each required vacuum breaker	3.6.1.8.2	3.6.1.8.2	3.6.1.8.2
Verify the opening setpoint of each required vacuum breaker	3.6.1.8.3	3.6.1.8.3	3.6.1.8.3
MSIV LCS	**3.6.1.9**	**3.6.1.9**	**3.6.1.9**
Operate each MSIV LCS blower	3.6.1.9.1	------------	------------
Verify electrical continuity of each inboard MSIV LCS subsystem	3.6.1.9.2	------------	------------
Perform a system functional test of each MSIV LCS subsystem	3.6.1.9.3	------------	------------
Suppression Pool Average Temperature	**3.6.2.1**	**3.6.2.1**	**3.6.2.1**
Verify suppression pool average temperature is within limits	3.6.2.1.1	3.6.2.1.1	3.6.2.1.1
Suppression Pool Water Level	**3.6.2.2**	**3.6.2.2**	**3.6.2.2**
Verify suppression pool water level is within limits	3.6.2.2.1	3.6.2.2.1	3.6.2.2.1
RHR Suppression Pool Cooling	**3.6.2.3**	**3.6.2.3**	**3.6.2.3**
Verify each RHR suppression pool cooling subsystem	3.6.2.3.1	3.6.2.3.1	3.6.2.3.1
Verify each RHR pump develops a flow rate	3.6.2.3.2	------------	------------
RHR Suppression Pool Spray	**3.6.2.4**	**3.6.2.4**	**3.6.2.4**
Verify each RHR suppression pool spray subsystem	3.6.2.4.1	3.6.2.4.1	3.6.2.4.1
Verify each RHR pump develops a flow rate	3.6.2.4.2	------------	------------
Verify each suppression pool spray nozzle is unobstructed	------------	3.6.2.4.2	3.6.2.4.2
Drywell-to-Suppression Chamber Differential Pressure	**3.6.2.5**	**------------**	**------------**
Verify drywell-to-suppression chamber differential pressure	3.6.2.5.1	------------	------------
Drywell Cooling System Fans	**3.6.3.1**	**3.6.3.3**	**3.6.3.3**
Operate each required drywell cooling system fan	3.6.3.1.1	3.6.3.3.1	3.6.3.3.1
Verify each required drywell cooling system fan flow rate	3.6.3.1.2	------------	------------
Primary Containment Oxygen Concentration	**3.6.3.2**	**3.6.3.2**	**3.6.3.2**
Verify primary containment oxygen concentration is within limits	3.6.3.2.1	3.6.3.2.1	3.6.3.2.1

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Technical Specification Cross Reference for HNP Unit 1 and Unit 2 and TSTF 425 Mark ups

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
CAD System	**3.6.3.3**	**3.6.3.1**	------------
Verify liquid nitrogen is contained in the CAD System	3.6.3.3.1	------------	------------
Verify each CAD subsystem manual, power, and automatic	3.6.3.3.2	3.6.3.1.2	------------
Verify ≥ 2000 gal of liquid nitrogen are contained	-----------	3.6.3.1.1	------------
Secondary Containment	**3.6.4.1**	**3.6.4.1**	**3.6.4.1**
Verify secondary containment vacuum	3.6.4.1.1	------------	------------
Verify all secondary containment equipment hatches are closed	3.6.4.1.2	3.6.4.1.1	3.6.4.1.1
Verify one secondary containment access door	3.6.4.1.3	3.6.4.1.2	3.6.4.1.2
Verify secondary containment can be drawn down	3.6.4.1.4	------------	------------
Verify the secondary containment can be maintained	3.6.4.1.5	------------	------------
Verify required SGT subsystems can be drawn down	------------	3.6.4.1.3	3.6.4.1.3
Verify required SGT subsystems can be maintained	------------	3.6.4.1.4	3.6.4.1.4
SCIVs	**3.6.4.2**	**3.6.4.2**	**3.6.4.2**
Verify each secondary containment isolation manual valve	3.6.4.2.1	3.6.4.2.1	3.6.4.2.1
Verify the isolation time of each power operated, auto SCIV	3.6.4.2.2	3.6.4.2.2	3.6.4.2.2
Verify each automatic SCIV actuates to the isolation position	3.6.4.2.3	3.6.4.2.3	3.6.4.2.3
SGT System	**3.6.4.3**	**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	3.6.4.3.1
Verify each SGT subsystem actuates	3.6.4.3.3	3.6.4.3.3	3.6.4.3.3
Verify each SGT fiber cooler bypass damper can be opened	3.6.4.3.4	------------	------------
RHRSW System	**3.7.1**	**3.7.1**	**3.7.1**
Verify each RHRSW manual, power, and automatic valve	3.7.1.1	3.7.1.1	3.7.1.1
PSW System and UHS	**3.7.2**	**3.7.2**	**3.7.2**
Verify the water level of each PSW cooling tower basin	3.7.2.1	------------	------------
Verify the water level of each PSW pump well of the intake	3.7.2.2	3.7.2.1	3.7.2.1
Verify the average water temperature of UHS	3.7.2.3	------------	------------
Operate each PSW cooling tower fan	3.7.2.4	------------	------------
Verify each PSW subsystem manual, power, and automatic	3.7.2.5	3.7.2.2	3.7.2.2
Verify each PSW subsystem actuates	------------	3.7.2.3	3.7.2.3
DG 1B SSW System	**3.7.3**	**3.7.3**	**3.7.3**
Verify each DG 1B SSW System manual, power, automatic	3.7.3.1	3.7.3.1	3.7.3.1
Verify the DG 1B SSW System pump starts automatically	3.7.3.2	3.7.3.2	3.7.3.2
MCREC System	**3.7.4**	**3.7.4**	**3.7.4**
Operate each MCREC subsystem	3.7.4.1	3.7.4.1	3.7.4.1
Verify each MCREC subsystem actuates	3.7.4.3	3.7.4.3	3.7.4.3
Verify MCREC subsystem can maintain a positive pressure	3.7.4.4	3.7.4.4	3.7.4.4
Control Room AC System	**3.7.5**	**3.7.5**	**3.7.5**
Verify each control room AC subsystem can remove heat load	3.7.5.1	3.7.5.1	3.7.5.1
Main Condenser Offgas	**3.7.6**	**3.7.6**	**3.7.6**
Verify the gross gamma activity rate of the noble gasses	3.7.6.1	3.7.6.1	3.7.6.1
Main Turbine Bypass System	**3.7.7**	**3.7.7**	**3.7.7**
Verify one complete cycle of each main turbine bypass valve	3.7.7.1	3.7.7.1	3.7.7.1
Perform a system functional test	3.7.7.2	3.7.7.2	3.7.7.2
Verify the turbine bypass system response time	3.7.7.3	3.7.7.3	3.7.7.3

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Technical Specification Cross Reference for HNP Unit 1 and Unit 2 and TSTF 425 Mark ups

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Spent Fuel Storage Pool Water Level	**3.7.8**	**3.7.8**	**3.7.8**
Verify the spent fuel storage pool water level	3.7.8.1	3.7.8.1	3.7.8.1
AC Sources – Operating	**3.8.1**	**3.8.1**	**3.8.1**
Verify correct breaker alignment and indicated power availability	3.8.1.1	3.8.1.1	3.8.1.1
Verify each DG starts from standby conditions	3.8.1.2	3.8.1.2	3.8.1.2
Verify each DG is synchronized and loaded and operates	3.8.1.3	3.8.1.5	3.8.1.5
Verify each day tank contains fuel oil	3.8.1.4	3.8.1.3	3.8.1.3
Check for and remove accumulated water from each day tank	3.8.1.5	3.8.1.4	3.8.1.4
Verify the fuel oil transfer system operates to transfer fuel oil	3.8.1.6	------------	------------
Verify each DG starts from standby conditions	3.8.1.7	------------	------------
Verify automatic and manual transfer of unit power supply	3.8.1.8	3.8.1.6	3.8.1.6
Verify each DG rejects a load	3.8.1.9	3.8.1.7	3.8.1.7
Verify each DG does not trip and voltage is maintained	3.8.1.10	3.8.1.8	3.8.1.8
Verify on an actual or simulated loss of offsite power signal	3.8.1.11	3.8.1.9	3.8.1.9
Verify on actual or simulated ECCS signal each DG auto-start	3.8.1.12	3.8.1.10	3.8.1.10
Verify each DG's automatic trips are bypassed	3.8.1.13	3.8.1.11	3.8.1.11
Verify each DG operates	3.8.1.14	3.8.1.12	3.8.1.12
Verify each DG starts and achieves steady state voltage	3.8.1.15	3.8.1.13	3.8.1.13
Verify each DG synchronizes, transfers, runs to ready-to-load	3.8.1.16	3.8.1.14	3.8.1.14
Verify a DG operating in test mode an ECCS signal overrides	3.8.1.17	3.8.1.15	3.8.1.15
Verify interval between each sequences load block	3.8.1.18	3.8.1.16	3.8.1.16
Verify de-energization, load shedding, and DG auto-start	3.8.1.19	3.8.1.17	3.8.1.17
Verify DG achieves voltage and frequency	3.8.1.20	3.8.1.18	3.8.1.18
Diesel Fuel Oil, Lube Oil, and Starting Air	**3.8.3**	**3.8.3**	**3.8.3**
Verify each fuel oil storage tank contains fuel	3.8.3.1	3.8.3.1	3.8.3.1
Verify lube oil inventory	3.8.3.2	3.8.3.2	3.8.3.2
Verify each Dg air start receiver pressure	3.8.3.4	3.8.3.4	3.8.3.4
Check for and remove accumulated water from each fuel tank	3.8.3.5	3.8.3.6	3.8.3.6
Verify each Unit 2 and swing DG fuel oil transfer (automatic)	------------	3.8.3.5	3.8.3.5
Verify each Unit 2 and swing DG fuel oil transfer (manual)	------------	3.8.3.7	3.8.3.7
DC Sources – Operating	**3.8.4**	**3.8.4**	**3.8.4**
Verify battery terminal voltage	3.8.4.1	3.8.4.1	3.8.4.1
Verify each required battery charger	3.8.4.2	3.8.4.6	3.8.4.6
Verify battery capacity is adequate	3.8.4.3	3.8.4.7	3.8.4.7
Verify no visible corrosion at battery terminals and connecters	------------	3.8.4.2	3.8.4.2
Verify battery cells, cell plates, and racks show no damage	------------	3.4.8.3	3.4.8.3
Remove visible corrosion and verify anti-corrosion material	------------	3.8.4.4	3.8.4.4
Verify battery connection resistance	------------	3.8.4.5	3.8.4.5
Verify Battery capacity	------------	3.8.4.8	3.8.4.8
Battery Parameters	**3.8.6**	**------------**	**------------**
Verify each battery float current	3.8.6.1	------------	------------
Verify each battery pilot cell voltage	3.8.6.2	------------	------------
Verify each battery connected cell electrolyte level	3.8.6.3	------------	------------
Verify each battery pilot cell temperature	3.8.6.4	------------	------------

Technical Specification Section Title/Surveillance Description*	**TSTF-425**	**HNP Unit 1**	**HNP Unit 2**
Verify each battery connected cell voltage	3.8.6.5	------------	------------
Verify battery capacity	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	------------	------------
Battery Cell Parameters	**------------**	**3.8.6**	**3.8.6**
Verify battery cell parameters (Category A)	------------	3.8.6.1	3.8.6.1
Verify battery cell parameters (Category B)	------------	3.8.6.2	3.8.6.2
Verify average electrolyte temperature	------------	3.8.6.3	3.8.6.3
Distribution Systems – Operating	**3.8.9**	**3.8.7**	**3.8.7**
Verify correct breaker alignments and voltage	3.8.9.1	3.8.7.1	3.8.7.1
Distribution Systems – Shutdown	**3.8.10**	**3.8.8**	**3.8.8**
Verify correct breaker alignments and voltage	3.8.10.1	3.8.8.1	3.8.8.1
Refueling Equipment Interlocks	**3.9.1**	**3.9.1**	**3.9.1**
Perform channel functional test	3.9.1.1	3.9.1.1	3.9.1.1
Refuel Position One-Rod-Out Interlock	**3.9.2**	**3.9.2**	**3.9.2**
Verify reactor mode switch locked in refuel position	3.9.2.1	3.9.2.1	3.9.2.1
Perform channel functional test	3.9.2.2	3.9.2.2	3.9.2.2
Control Rod Position	**3.9.3**	**3.9.3**	**3.9.3**
Verify all control rods are fully inserted	3.9.3.1	3.9.3.1	3.9.3.1
Control Rod OPERABILITY – Refueling	**3.9.5**	**3.9.5**	**3.9.5**
Insert each withdrawn control rod at least one notch	3.9.5.1	3.9.5.1	3.9.5.1
Verify each withdrawn control rod scram accumulator pressure	3.9.5.2	3.9.5.2	3.9.5.2
RPV Water Level – Irradiated Fuel	**3.9.6**	**3.9.6**	**3.9.6**
Verify RPV water level	3.9.6.1	3.9.6.1	3.9.6.1
RPV Water Level – New Fuel or Control Rods	**3.9.7**	**3.9.6**	**3.9.6**
Verify RPV water level	3.9.6.1	3.9.6.1	3.9.6.1
RHR – High Water Level	**3.9.8**	**3.9.7**	**3.9.7**
Verify one RHR shutdown cooling subsystem is operating	3.9.8.1	3.9.7.1	3.9.7.1
RHR – Low Water Level	**3.9.9**	**3.9.8**	**3.9.8**
Verify one RHR shutdown cooling subsystem is operating	3.9.9.1	3.9.8.1	3.9.8.1
Reactor Mode Switch Interlock Testing	**3.10.2**	**3.10.2**	**3.10.2**
Verify all control rods are fully inserted	3.10.2.1	3.10.2.1	3.10.2.1
Verify no CORE ALTERATIONS are in progress	3.10.2.2	3.10.2.2	3.10.2.2
Single Control Rod Withdrawal – Hot Shutdown	**3.10.3**	**3.10.3**	**3.10.3**
Verify all control rods are disarmed	3.10.3.2	3.10.3.2	3.10.3.2
Verify all control rods are fully inserted	3.10.3.3	3.10.3.3	3.10.3.3
Single Control Rod Withdrawal – Cold Shutdown	**3.10.4**	**3.10.4**	**3.10.4**
Verify all control rods are disarmed	3.10.4.2	3.10.4.2	3.10.4.2
Verify all control rods are fully inserted	3.10.4.3	3.10.4.3	3.10.4.3
Verify a control rod withdrawal block is inserted	3.10.4.4	3.10.4.4	3.10.4.4
Single CRD Removal – Refueling	**3.10.5**	**3.10.5**	**3.10.5**
Verify all control rods are fully inserted	3.10.5.1	3.10.5.1	3.10.5.1

Technical Specification Section Title/Surveillance Description*	TSTF-425	HNP Unit 1	HNP Unit 2
Verify all control rods are disarmed	3.10.5.2	3.10.5.2	3.10.5.2
Verify a control rod withdrawal block is inserted	3.10.5.3	3.10.5.3	3.10.5.3
Verify no CORE ALTERATIONS are in progress	3.10.5.5	3.10.5.5	3.10.5.5
Multiple Control Rod Withdrawal – Refueling	**3.10.6**	**3.10.6**	**3.10.6**
Verify the four fuel assemblies are removed	3.10.6.1	3.10.6.1	3.10.6.1
Verify all other control rods in core cells are inserted	3.10.6.2	3.10.6.2	3.10.6.2
Verify fuel assemblies being loaded are in compliance	3.10.6.3	3.10.6.3	3.10.6.3
SDM Test – Refueling	**3.10.8**	**3.10.8**	**3.10.8**
Verify no other CORE ALTERATIONS are in progress	3.10.8.4	3.10.8.4	3.10.8.4
Verify CRD charging water header pressure	3.10.8.6	3.10.8.6	3.10.8.6
Recirculation Loops – Testing	**3.10.9**	**------------**	**------------**
Verify LCO requirements	3.10.9.1	------------	------------
Verify thermal power during physics test	3.10.9.2	------------	------------
Training Startups	**3.10.10**	**------------**	**------------**
Verify all operable IRM channels	3.10.10.1	------------	------------
Verify average reactor coolant temperature	3.10.10.2	------------	------------

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

** This HNP Surveillance Frequency is provided in the HNP Inservice Testing Porgram. This HNP Surveillance Frequency is not proposed for inclusion in the Surveillance Frequency Control Program.