W. Scott Oxenford
Columbia Generating Station
P.O. Box 968, PE08
Richland, WA 99352-0968
Ph. 509.377.4300 | F. 509.377.4150
soxenford@energy-northwest.com

February 8, 2010
GO2-10-024

10 CFR 50.90

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

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397 LICENSE AMENDMENT REQUEST TO CHANGE TECHNICAL SPECIFICATIONS RELATING TO CONTROL ROD OPERABILITY AND CONTROL ROD SCRAM ACCUMULATORS**

Reference: NUREG-1433, Revision 3, "Standard Technical Specifications General Electric Plants, BWR/4," June 2004

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Energy Northwest hereby requests an amendment to the Technical Specifications (TS) for Columbia Generating Station (Columbia) Operating License NPF-21. Energy Northwest has reviewed the proposed amendment in accordance with 10 CFR 50.92 and concludes it does not involve a significant hazards consideration.

The proposed amendment would modify TS requirements related to TS 3.1.3, "Control Rod Operability," and TS 3.1.5, "Control Rod Scram Accumulators," to be consistent with Standard Technical Specifications (STS), NUREG-1433. The proposed amendment also corrects typographical errors that were introduced with Amendment 207 to the Columbia Operating License and TS.

The enclosure provides a description and evaluation of the proposed Operating License and TS changes. Attachments to the enclosure include the Operating License and TS page markups, the retyped Operating License and TS pages, and the TS Bases page markups.

Approval of the proposed amendment is requested one year from the date of submittal. Once approved the amendment shall be implemented within 90 days.

A001
NRR

There are no new regulatory commitments made in this letter.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Washington State Official.

Should you have any questions or require additional information regarding this matter, please contact Mr. MC Humphreys, Licensing Supervisor, at (509) 377-4025.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,

W.S. Oxenford
Vice President, Nuclear Generation & Chief Nuclear Officer

Enclosure:
Description and Evaluation of the Proposed TS Changes

Attachments to the Enclosure:

1. Operating License and Technical Specification Page Markups
2. Retyped Operating License and Technical Specification Pages
3. TS Bases Page Markups

cc: Regional Administrator – NRC RIV
Project Manager – NRC NRR
NRC Senior Resident Inspector/988C
RN Sherman – BPA/1399
WA Horin – Winston & Strawn
JO Luce – EFSEC
RR Cowley – WDOH

Hammond, Georgia

From: Christianson, Kyle D.
Sent: Monday, February 08, 2010 2:35 PM
To: Hammond, Georgia
Cc: Humphreys, Michael C.
Subject: Extension Requested

Georgia,

I requested an extension to AR 190150-02 until 9/30/10. This particular AR requires that IS complete the new RTS database to our satisfaction (AR 195281). This AR is low priority on their part and they continue to extend the assignments. At this time, 9/30/10 seems to be a date that they can finish their assignment then I can re-write the procedures.

Thanks,

Kyle Christianson, Licensing Engineer
Columbia Generating Station - Energy Northwest
(509) 377-4315
kdchristianson@energy-northwest.com

Description and Evaluation of the Proposed TS Changes

Subject: License Amendment Request to Change Technical Specifications Relating to Control Rod Operability and Control Rod Scram Accumulators

---

ATTACHMENTS:

1. Operating License and Technical Specification Page Markups
2. Retyped Operating License and Technical Specification Pages
3. TS Bases Page Markups

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to revise the Operating License NPF-21 for Columbia Generating Station (Columbia).

The proposed changes revise the Technical Specifications (TS) requirements related to TS 3.1.3, "Control Rod OPERABILITY" and TS 3.1.5, "Control Rod Scram Accumulators" to adopt the simplified approach of the improved Standard Technical Specifications (STS), NUREG-1433 (Reference 1). Adoption of the STS language will allow Columbia to remove restrictions imposed by analytical methods that are no longer utilized with the implementation of TS Amendment 211 (Reference 3).

Columbia is also proposing corrections of typographical errors that were introduced with Amendment 207 to the Columbia Operating License (OL) and TS (Reference 2).

Attachment 1 of this enclosure provides the mark-up of the proposed OL and TS changes. Attachment 2 provides the re-typed OL and TS pages. Attachment 3 provides the TS Bases mark-ups for information only to add clarity and completeness to the submittal.

2.0 DETAILED DESCRIPTION

2.1 <u>TS 3.1.3 Control Rod OPERABILITY</u>

Required Action C.1 of LCO 3.1.3 states "Verify the total number of "slow" and inoperable control rods is ≤ eight." Energy Northwest is proposing to eliminate this statement and renumber subsequent Required Actions accordingly.

Prior to the adoption of the improved STS in 1997, the analytical methodology that was reflected in the Columbia TS allowed control rods that did not meet average scram times to be declared inoperable and remain withdrawn, provided no more than eight control rods were affected and separation criteria was met. Improved STS relied on analytical methods that supported redefining control rods that did not meet scram time limits to be declared "slow" instead of inoperable. When Columbia converted to the improved STS, a deviation to the STS approach was taken by adding the following statement "Verify the total number of "slow" and inoperable control rods is ≤ eight" to Control Rod OPERABILITY LCO 3.1.3 Required Action C.1, as well as the Control Rod Scram Times LCO 3.1.4 Required Action A.2. Retention of the Licensing Basis for scram times in the Control Rod OPERABILITY LCO was considered an administrative change for justification in the deviation from the STS.

The proposed deletion of Required Action C.1 of LCO 3.1.3 eliminates the above described TS statement and aligns Columbia with the corresponding STS (Reference 1) for LCO 3.1.3. LCO 3.1.4 was previously revised via Amendment 211 (Reference 3) to

reflect the change in the Licensing Basis for scram timing with the fuel vendor transition, and no longer contains the above described deviation from the STS.

The associated TS Bases markups that reflect the above described changes are included in Attachment 3 for information only.

2.2 TS 3.1.5 Control Rod Scram Accumulators

Required Action A.1 of LCO 3.1.5 states:

> ----------NOTE----------
> Only applicable if the average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are within the limits of Table 3.1.4-1 during the last scram time Surveillance.
> ---
> Declare the average scram time in all two-by-two arrays associated with the control rod with the inoperable accumulator not within the limits of Table 3.1.4-1 and declare the associated control rod "slow."

The proposed revision for Required Action A.1 of LCO 3.1.5 aligns Columbia with the STS by simplifying the characterization of scram timing results from a "grouped average" to an individual control rod/accumulator basis as follows:

> ----------NOTE----------
> Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance.
> ---
> Declare the associated control rod scram time "slow."

Columbia is also proposing to change Required Action B.2.1 of LCO 3.1.5 which currently states:

> ----------NOTE----------
> Only applicable if the average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are within the limits of Table 3.1.4-1 during the last scram time Surveillance.
> ---
> Declare the average scram time in all two-by-two arrays associated with the control rod with the inoperable accumulator not within the limits of Table 3.1.4-1 and declare the associated control rod "slow."

The proposed revision to Required Action B.2.1 of LCO 3.1.5 follows the same approach as the Required Action A.1 section discussed above as follows:

----------NOTE----------
Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance.

Declare the associated control rod scram time "slow."

The Required Action statements discussed above were Columbia specific deviations to the STS adopted in 1997 in order to retain the existent Licensing Basis with regards to scram times. The proposed changes align the Columbia TS with the STS while ensuring that the scram reactivity rate assumptions used in the Design Basis Accident (DBA) and transient analyses continue to be satisfied.

The associated TS Bases markups that reflect the above described changes are included in Attachment 3 for information only.

2.3 Correction of Typographical Errors

With the implementation of Amendment 207 to the Columbia OL the following typographical/administrative errors were introduced:

In the OL, section (33), Control Room Envelope Habitability Program (CRE), paragraph (b), the last sentence states "...or within the next 9 months if the- time period since the most recent..." Columbia is proposing to remove the superfluous hyphen symbol (changing "the-" to "the").

In Condition F of TS 3.7.3, Control Room Emergency Filtration (CREF) System, the OR statement is left justified against the Condition field left margin. Columbia is proposing to align the OR statement with the two text statements in the Condition column. Repositioning the OR statement will match the formatting recommendations of Reference 4 for Condition statements.

In TS 5.5.14, Control Room Envelope Habitability Program, the first sentence reads "A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure [the] CRE habitability is maintained such that, with an ..." The word "the" in front of CRE has been bracketed to reflect the word transposition that was introduced with Amendment 207. Columbia is proposing to replace the bracketed word "the" with the word "that." Correcting this word transposition will match the Columbia TS with the industry approved language as specified in Reference 5.

3.0 TECHNICAL EVALUATION

3.1 TS 3.1.3 Control Rod OPERABILITY

Compliance with LCO 3.1.3, along with LCO 3.1.4, "Control Rod Scram Times," and LCO 3.1.5, "Control Rod Scram Accumulators," ensures that the performance of the control rods in the event of a DBA or transient meets the assumptions used in the safety analyses. The TS Bases for LCO 3.1.3 contains the following statement:

> Although not all control rods are required to be OPERABLE to satisfy the intended reactivity control requirements, strict control over the number and distribution of inoperable control rods is required to satisfy the assumptions of the DBA and transient analyses.

The proposed changes involve the removal of a TS statement pertaining to the number of allowed inoperable or "slow" control rods. The TS controls for the allowed number of inoperable control rods continue to be specified with Condition F of LCO 3.1.3 which requires that if there are nine or more inoperable control rods that the plant be placed in MODE 3 with a Completion Time of 12 hours. The controls for distribution of inoperable control rods continue to be delineated in Required Action A.1 of LCO 3.1.3 which ensures that rod separation criteria are met. The proposed deletion of Required Action C.1 from LCO 3.1.3 does not remove any pertinent controls placed on the number or distribution of inoperable control rods.

The proposed deletion also involves TS controls that limit the number of "slow" control rods to eight. This statement is inconsistent with the current analytical bases and LCO 3.1.4.a, which limits the number and spacing of allowed "slow" control rods. LCO 3.1.4 was revised with Amendment 211 (Reference 3) and provides the necessary TS controls to ensure that the number and distribution of "slow" control rods continue to meet analytical requirements.

Deletion of Required Action C.1 of LCO 3.1.3 is considered an administrative change in that the assumptions of DBA and transient analyses continue to be protected by this and other sections of the TS.

3.2 TS 3.1.5 Control Rod Scram Accumulators

The DBA and transient analyses assume that all of the control rods scram at a specified insertion rate. OPERABILITY of each individual control rod scram accumulator, along with LCOs 3.1.3 and 3.1.4, ensures the scram reactivity assumed in the DBA and transient analyses can be met. The existence of an inoperable accumulator may invalidate prior scram time measurements for the associated control rod. The scram function of the CRD System, and therefore the OPERABILITY of the accumulators, protects the Minimum Critical Power Ratio (MCPR) Safety Limit (SL) as well as other fuel design limits to ensure that no fuel damage will occur if those limits are not exceeded.

As discussed in Section 2.2, the proposed changes to Required Actions A.1 and B.2.1 reflect the change in Columbia's analytical approach for modeling scram times from the averaged two-by-two array method to an individual control rod modeling method. This change entails a more conservative approach in that the former methodology, the averaged two-by-two array, would allow a control rod that did not meet the times specified in LCO 3.1.4 to be considered fully OPERABLE and not be declared "slow" if separation criteria for "slow" and inoperable rods were met, as well as if the average value of the scram times in the adjacent control rods continued to meet the negative reactivity insertion rate assumed in the scram time analysis. The proposed change requires declaration of a control rod not in compliance with LCO 3.1.4 times to be declared "slow," with no credit for adjacent rod speeds being allowed to offset the rod in question. The proposed change aligns Columbia TS with the STS and remains consistent with the analysis methodology implemented with Amendment 211 (Reference 3) for scram time modeling.

3.3 Correction of Typographical Errors

The proposed changes discussed in 2.3 involve editorial corrections that do not impact the intent or substance of the respective OL and TS sections.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The following table lists the regulatory requirements and plant-specific design bases related to the proposed change:

1) Regulatory Requirements

   The Control Rod Drive (CRD) System is designed to satisfy the requirements of the following 10 CFR Part 50, Appendix A, General Design Criteria (GDC):

   - GDC 26, "Reactivity Control System Redundancy and Capability," requires the control rod system be capable of reliably controlling reactivity changes to assure that under conditions of normal operation, including anticipated operational occurrences, and with appropriate margin for malfunctions, specified acceptable fuel design limits are not exceeded.

   - GDC 27, "Combined Reactivity Control Systems Capability," requires that, in combination with other systems, the reactivity control system shall have the capability of reliably controlling reactivity changes to assure that under postulated accident conditions and with appropriate margin for stuck rods the capability to cool the core is maintained.

- GDC 28, "Reactivity Limits," requires the reactivity control system be designed with appropriate limits on the potential amount and rate of reactivity increase to assure that the effects of postulated reactivity accidents do not damage the reactor coolant pressure boundary nor disturb the core and other vessel internals such that core cooling capability is impaired.

- GDC 29, "Protection Against Anticipated Operational Occurrences," requires that the reactivity control systems shall be designed to assure an extremely high probability of accomplishing their safety functions in the event of anticipated operational occurrences.

Applicable Technical Specifications:

- The regulatory basis for TS 3.1.3, "Control Rod OPERABILITY," is to ensure that the primary reactivity control system, CRD, in conjunction with the Reactor Protection System, provides the means for reliable control of reactivity changes to ensure that under conditions of normal operation, including anticipated operational occurrences, specified acceptable fuel design limits are not exceeded.

- The regulatory basis for TS 3.1.5, "Control Rod Scram Accumulators," is to ensure that this portion of the CRD system supports the scram function for control rods under varying reactor conditions. The scram accumulators are necessary to scram the control rods within the required insertion times of LCO 3.1.4, "Control Rod Scram Times."

2) Regulatory Guidance

- FSAR Section 4.3, "Nuclear Design," incorporates by reference Columbia's specific fuel cycle design and reload analyses. These analyses detail the assumptions used in modeling control rod scram times.

4.2 Precedent

The proposed changes are consistent with the improved Standard Technical Specifications (STS), NUREG-1433 (Reference 1).

4.3 Significant Hazards Consideration

The proposed amendment requests an administrative change that eliminates a statement in LCO 3.1.3 that is otherwise adequately controlled via other portions of LCO 3.1.3 and LCO 3.1.4. The proposed changes to LCO 3.1.5 reflect Columbia's intention to simplify modeling requirements for scram time analysis to be based on individual scram times vice the methodology that would allow for an individual scram time to be slower than the TS specified time if the average of adjacent two-by-two array of control

rods continue to meet the assumed scram time speeds. Columbia has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92(c) as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed changes involve an administrative change to LCO 3.1.3, "Control Rod OPERABILITY," and a simplification in the modeling methodology for scram time analysis in LCO 3.1.5, "Control Rod Scram Accumulators," that continue to ensure that control rod operability requirements for the number and distribution of operable, slow and stuck control rods satisfy scram reactivity rate assumptions used in the plant safety analysis.

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed changes do not involve any physical alteration of the plant (no new or different type of equipment is being installed) and do not involve a change in the design, normal configuration, or basic operation of the plant. The proposed changes do not introduce any new accident initiators. The proposed changes do not involve significant changes in the fundamental methods governing normal plant operation and do not require unusual or uncommon operator actions. The proposed changes provide assurance that the plant will not be operated in a mode or condition that violates the assumptions or initial conditions in the safety analyses and that the systems, structures, and components (SSCs) remain capable of performing their intended safety functions as assumed in the same analyses. Consequently, the response of the plant and the plant operator to postulated events will not be significantly different.

   Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No.

Margin of safety is related to confidence in the ability of fission product barriers to perform their intended design functions during and following an accident. The proposed changes address control rod operability and continue to ensure control rod scram time acceptance criteria is satisfied. The scram time test acceptance criteria and control rod operability restrictions are based on industry approved methodology and will continue to ensure control rod scram design functions and reactivity insertion assumptions used in the safety analyses continue to be protected.

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

Based on the above, Columbia concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

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

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed changes would change a requirement with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve: (i) a significant hazards consideration; (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set for in 10 CFR 51.22(c)(9).

Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

6.0 REFERENCES

1. NUREG-1433, Revision 3, "Standard Technical Specifications General Electric Plants, BWR/4," June 2004
2. GI2-08-104, Amendment 207 to Operating License NPF-21 for Columbia Generating Station, "...Control Room Envelope Habitability," June 30, 2008 (ADAMS Accession No. ML081770004)
3. GI2-09-065, Amendment 211 to Operating License NPF-21 for Columbia Generating Station, "...Core Operating Limits Report and Scram Time Testing (TAC No. MD9247)," May 5, 2009 (ADAMS Accession No. ML091100357)
4. NEI 01-03, Writer's Guide for the Improved Standardized Technical Specifications, November 2001
5. Technical Specification Task Force Traveler, TSTF-448, Revision 3, "Control Room Habitability"

LICENSE AMENDMENT REQUEST TO CHANGE TECHNICAL SPECIFICATIONS RELATING TO CONTROL ROD OPERABILITY AND CONTROL ROD SCRAM ACCUMULATORS
Attachment 1

Operating License and Technical Specification Page Markups

Operating License page

9b

Technical Specification pages

3.1.3-2
3.1.3-3
3.1.5-1 (and insert page)
3.1.5-2 (and insert page)
3.7.3-3
5.5-13

(b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.14.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from November 6, 2003, the date of the most recent successful tracer gas test, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.14.d, shall be within 24 months, plus the 184 days allowed by SR 3.0.2, as measured from March 23, 2006, the date of the most recent successful pressure measurement test, or within 184 days if not performed previously.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Perform SR 3.1.3.2 for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM
	AND	
	A.4 Perform SR 3.1.1.1.	72 hours
B. Two or more withdrawn control rods stuck.	B.1 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	C.1 Verify the total number of "slow" and inoperable control rods is ≤ eight.	Immediately
	AND	(continued)

3.1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ~~(continued)~~ 3.1.3-2	~~C.2~~ C.1 --------NOTE--------- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. ---------- Fully insert inoperable control rod.	3 hours
	AND ~~C.3~~ C.2 Disarm the associated CRD.	4 hours
D. ---------NOTE--------- Not applicable when THERMAL POWER > 10% RTP. ---------- Two or more inoperable control rods not in compliance with banked position withdrawal sequence (BPWS) and not separated by two or more OPERABLE control rods.	D.1 Restore compliance with BPWS.	4 hours
	OR	
	D.2 Restore control rod to OPERABLE status.	4 hours

(continued)

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Rod Scram Accumulators

LCO 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each control rod scram accumulator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ 900 psig.	A.1 --------NOTE--------- Only applicable if the average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are within the limits of Table 3.1.4-1 during the last scram time Surveillance. --- Declare the average scram time in all two-by-two arrays associated with the control rod with the inoperable accumulator not within the limits of Table 3.1.4-1 and declare the associated control rod "slow."	8 hours
	OR	(continued)

3.1.5-1 Replace with insert 1

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Rod Scram Accumulators

LCO 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each control rod scram accumulator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ [900] psig.	A.1 ----------NOTE---------- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. ---------- Declare the associated control rod scram time "slow."	3.1.5-1 Insert 1 8 hours
	OR	
	A.2 Declare the associated control rod inoperable.	8 hours
B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ [900] psig.	B.1 Restore charging water header pressure to ≥ [940] psig.	20 minutes from discovery of Condition B concurrent with charging water header pressure < [940] psig
	AND	

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Declare the associated control rod inoperable.	8 hours
B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ 900 psig.	B.1 Restore charging water header pressure to ≥ 940 psig.	20 minutes from discovery of Condition B concurrent with charging water header pressure < 940 psig
	AND	
	B.2.1 -------NOTE--------- Only applicable if the average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are within the limits of Table 3.1.4-1 during the last scram time Surveillance. ---------- Declare the average scram time in all two-by-two arrays associated with the control rod with the inoperable accumulator not within the limits of Table 3.1.4-1 and declare the associated control rod "slow."	1 hour
	OR	(continued)

3.1.5-2 Replace with insert 2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.1 ----------NOTE---------- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. ---------- Declare the associated control rod scram time "slow."	3.1.5-2 Insert 2 1 hour
	OR	
	B.2.2 Declare the associated control rod inoperable.	1 hour
C. One or more control rod scram accumulators inoperable with reactor steam dome pressure < [900] psig.	C.1 Verify all control rods associated with inoperable accumulators are fully inserted.	Immediately upon discovery of charging water header pressure < [940] psig
	AND	
	C.2 Declare the associated control rod inoperable.	1 hour
D. Required Action and associated Completion Time of Required Action B.1 or C.1 not met.	D.1 ----------NOTE---------- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. ---------- Place the reactor mode switch in the shutdown position.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREF subsystems inoperable during OPDRVs. OR One or more CREF subsystems inoperable due to inoperable CRE boundary during OPDRVs.	F.1 Initiate action to suspend OPDRVs.	Immediately

Align OR Statement with text

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREF subsystem for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.3.2	Perform required CREF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

5.5 Programs and Manuals

5.5.13 Battery Monitoring and Maintenance Program (continued)

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates; and

c. Actions to verify that the remaining cells are ≥ 2.07 V when a cell or cells have been found to be < 2.13 V.

5.5.14 Control Room Envelope Habitability Program

that

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure the CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration (CREF) System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

(continued)

LICENSE AMENDMENT REQUEST TO CHANGE TECHNICAL SPECIFICATIONS RELATING TO CONTROL ROD OPERABILITY AND CONTROL ROD SCRAM ACCUMULATORS
Attachment 2

Retyped Operating License and Technical Specification Pages

Operating License page

9b

Technical Specification pages

3.1.3-2
3.1.3-3
3.1.3-4 (pagination)
3.1.5-1
3.1.5-2
3.1.5-3 (pagination)
3.7.3-3
5.5-13

(b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.14.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from November 6, 2003, the date of the most recent successful tracer gas test, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.14.d, shall be within 24 months, plus the 184 days allowed by SR 3.0.2, as measured from March 23, 2006, the date of the most recent successful pressure measurement test, or within 184 days if not performed previously.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	Perform SR 3.1.3.2 for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM
	AND		
	A.4	Perform SR 3.1.1.1.	72 hours
B. Two or more withdrawn control rods stuck.	B.1	Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	C.1	--------NOTE--------- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. ----------	
		Fully insert inoperable control rod.	3 hours
	AND		
	C.2	Disarm the associated CRD.	4 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. ---------NOTE--------- Not applicable when THERMAL POWER > 10% RTP. ---------- Two or more inoperable control rods not in compliance with banked position withdrawal sequence (BPWS) and not separated by two or more OPERABLE control rods.	D.1 Restore compliance with BPWS. OR D.2 Restore control rod to OPERABLE status.	4 hours 4 hours
E. ---------NOTE--------- Not applicable when THERMAL POWER > 10% RTP. ---------- One or more groups with four or more inoperable control rods.	E.1 Restore the control rod to OPERABLE status.	4 hours
F. Required Action and associated Completion Time of Condition A, C, D, or E not met. OR Nine or more control rods inoperable.	F.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
SR 3.1.3.2	----------NOTE---------- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. ---------- Insert each withdrawn control rod at least one notch.	31 days
SR 3.1.3.3	Verify each control rod scram time from fully withdrawn to notch position 5 is $\leq$ 7 seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.4	Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position AND Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Rod Scram Accumulators

LCO 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each control rod scram accumulator.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ 900 psig.	A.1	---NOTE--- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. --- Declare the associated control rod scram time "slow."	8 hours
	OR		
	A.2	Declare the associated control rod inoperable.	8 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ 900 psig.	B.1	Restore charging water header pressure to ≥ 940 psig.	20 minutes from discovery of Condition B concurrent with charging water header pressure < 940 psig
	AND		
	B.2.1	--------NOTE--------- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. ----------	
		Declare the associated control rod scram time "slow."	1 hour
		OR	
	B.2.2	Declare the associated control rod inoperable.	1 hour

(continued)

ACTIONS

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREF subsystems inoperable during OPDRVs. OR One or more CREF subsystems inoperable due to inoperable CRE boundary during OPDRVs.	F.1 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREF subsystem for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.3.2	Perform required CREF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

(continued)

5.5 Programs and Manuals

5.5.13 Battery Monitoring and Maintenance Program (continued)

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates; and

c. Actions to verify that the remaining cells are ≥ 2.07 V when a cell or cells have been found to be < 2.13 V.

5.5.14 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration (CREF) System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

(continued)

LICENSE AMENDMENT REQUEST TO CHANGE TECHNICAL SPECIFICATIONS RELATING TO CONTROL ROD OPERABILITY AND CONTROL ROD SCRAM ACCUMULATORS
Attachment 3

TS Bases Page Markups

B 3.1.3-3
B 3.1.3-4 (and two insert pages)
B 3.1.3-5
B 3.1.3-6
B 3.1.3-7
B 3.1.3-8
B 3.1.3-10
B 3.1.5-2
B 3.1.5-3
B 3.1.5-5

BASES

LCO (continued)

satisfy the intended reactivity control requirements, strict control over the number and distribution of inoperable control rods is required to satisfy the assumptions of the DBA and transient analyses.

APPLICABILITY

In MODES 1 and 2, the control rods are assumed to function during a DBA or transient and are therefore required to be OPERABLE in these MODES. In 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. Control rod requirements in MODE 5 are located in LCO 3.9.5, "Control Rod OPERABILITY – Refueling."

ACTIONS

The ACTIONS Table is modified by a Note indicating that a separate Condition entry is allowed for each control rod. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable control rod. Complying with the Required Actions may allow for continued operation, and subsequent inoperable control rods are governed by subsequent Condition entry and application of associated Required Actions.

A.1, A.2, A.3, and A.4

A control rod is considered stuck if it will not insert by either CRD drive water or scram pressure. With a fully inserted control rod stuck, no actions are required as long as the control rod remains fully inserted. The Required Actions are modified by a Note that allows the RWM to be bypassed if required to allow continued operation. LCO 3.3.2.1, "Control Rod Block Instrumentation," provides additional requirements when the RWM is bypassed to ensure compliance with the CRDA analysis. With one withdrawn control rod stuck, the local scram reactivity rate assumptions may not be met if the stuck control rod separation criteria are not met. Therefore, a verification that the separation criteria are met must be performed immediately. The stuck control rod separation criteria are met if: a) the stuck control rod is separated in all directions from each "slow" control rod by any combination of two or more fully inserted control rods or OPERABLE, withdrawn control rods that are not "slow"; and b) two or

Change B3.1.3-1

REPLACE WITH INSERT 1 ATTACHED

(continued)

BASES

ACTIONS

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

Change B3.1.3-1 cont.

Replace with INSERT 1 cont'd

less inoperable or "slow" control rods are in the same group as the stuck control rod. The description of "slow" control rod is provided in LCO 3.1.4, "Control Rod Scram Times." In addition, the associated control rod drive must be disarmed within 2 hours. The allowed Completion Time of 2 hours is acceptable, considering the reactor can still be shut down, assuming no additional control rods fail to insert, and provides a reasonable amount of time to perform the Required Action in an orderly manner. The control rod must be isolated from both scram and normal insert and withdraw pressure. Isolating the control rod from scram and normal insert and withdraw pressure prevents damage to the CRDM. The control rod should be isolated from scram by isolating the hydraulic control unit from scram and normal insert and withdraw pressure, while maintaining cooling water to the CRD.

Monitoring of the insertion capability for each withdrawn control rod must also be performed within 24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM. SR 3.1.3.2 and SR 3.1.3.3 perform periodic tests of the control rod insertion capability of withdrawn control rods. Testing each withdrawn control rod ensures that a generic problem does not exist. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." The Required Action A.3 Completion Time only begins upon discovery of Condition A concurrent with THERMAL POWER greater than the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of rod pattern control (LCO 3.1.6) and the RWM (LCO 3.3.2.1). The allowed Completion Time provides a reasonable time to test the control rods, considering the potential for a need to reduce power to perform the tests.

Change B3.1.3-2

Place INSERT 2 here

ATTACHED

To allow continued operation with a withdrawn control rod stuck, an evaluation of adequate SDM is also required within 72 hours. Should a DBA or transient require a shutdown, to preserve the single failure criterion an additional control rod would have to be assumed to have failed to insert when required. Therefore, the original SDM demonstration may not

(continued)

BASES

APPLICABILITY

In MODES 1 and 2, the control rods are assumed to function during a DBA or transient and are therefore required to be OPERABLE in these MODES. In 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. Control rod requirements in MODE 5 are located in LCO 3.9.5, "Control Rod OPERABILITY - Refueling."

ACTIONS

The ACTIONS Table is modified by a Note indicating that a separate Condition entry is allowed for each control rod. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable control rod. Complying with the Required Actions may allow for continued operation, and subsequent inoperable control rods are governed by subsequent Condition entry and application of associated Required Actions.

A.1, A.2, A.3, and A.4

A control rod is considered stuck if it will not insert by either CRD drive water or scram pressure. With a fully inserted control rod stuck, no actions are required as long as the control rod remains fully inserted. The Required Actions are modified by a Note, which allows the rod worth minimizer (RWM) to be bypassed if required to allow continued operation. LCO 3.3.2.1, "Control Rod Block Instrumentation," provides additional requirements when the RWM is bypassed to ensure compliance with the CRDA analysis. With one withdrawn control rod stuck, the local scram reactivity rate assumptions may not be met if the stuck control rod separation criteria are not met. Therefore, a verification that the separation criteria are met must be performed immediately. The separation criteria are not met if: a) the stuck control rod occupies a location adjacent to two "slow" control rods, b) the stuck control rod occupies a location adjacent to one "slow" control rod, and the one "slow" control rod is also adjacent to another "slow" control rod, or c) if the stuck control rod occupies a location adjacent to one "slow" control rod when there is another pair of "slow" control rods adjacent to one another. The description of "slow" control rods is provided in LCO 3.1.4, "Control Rod Scram Times." In addition, the associated control rod drive must be disarmed in 2 hours. The allowed Completion Time of 2 hours is acceptable, considering the reactor can still be shut down, assuming no additional control rods fail to insert, and provides a reasonable time to perform the Required Action in an orderly manner. Isolating the control rod from scram prevents damage to the CRDM. The control rod can be isolated from scram and normal insert and withdraw pressure, yet still maintain cooling water to the CRD.

INSERT 1

BASES

ACTIONS (continued)

Monitoring of the insertion capability of each withdrawn control rod must also be performed within 24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM. SR 3.1.3.2 and SR 3.1.3.3 perform periodic tests of the control rod insertion capability of withdrawn control rods. Testing each withdrawn control rod ensures that a generic problem does not exist. This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." The Required Action A.2 Completion Time only begins upon discovery of Condition A concurrent with THERMAL POWER greater than the actual LPSP of the RWM since the notch insertions may not be compatible with the requirements of rod pattern control (LCO 3.1.6) and the RWM (LCO 3.3.2.1). The allowed Completion Time of 24 hours from discovery of Condition A, concurrent with THERMAL POWER greater than the LPSP of the RWM, provides a reasonable time to test the control rods, considering the potential for a need to reduce power to perform the tests.

INSERT 2

To allow continued operation with a withdrawn control rod stuck, an evaluation of adequate SDM is also required within 72 hours. Should a DBA or transient require a shutdown, to preserve the single failure criterion, an additional control rod would have to be assumed to fail to insert when required. Therefore, the original SDM demonstration may not be valid. The SDM must therefore be evaluated (by measurement or analysis) with the stuck control rod at its stuck position and the highest worth OPERABLE control rod assumed to be fully withdrawn.

The allowed Completion Time of 72 hours to verify SDM is adequate, considering that with a single control rod stuck in a withdrawn position, the remaining OPERABLE control rods are capable of providing the required scram and shutdown reactivity. Failure to reach MODE 4 is only likely if an additional control rod adjacent to the stuck control rod also fails to insert during a required scram. Even with the postulated additional single failure of an adjacent control rod to insert, sufficient reactivity control remains to reach and maintain MODE 3 conditions (Ref. 5).

BASES

ACTIONS

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

be valid. The SDM must therefore be evaluated (by measurement or analysis) with the stuck control rod at its stuck position and the highest worth OPERABLE control rod assumed to be fully withdrawn.

The allowed Completion Time of 72 hours to verify SDM is adequate, considering that with a single control rod stuck in a withdrawn position, the remaining OPERABLE control rods are capable of providing the required scram and shutdown reactivity. Failure to reach MODE 4 is only likely if an additional control rod adjacent to the stuck control rod also fails to insert during a required scram. Even with the postulated additional single failure of an adjacent control rod to insert, sufficient reactivity control remains to reach and maintain MODE 3 conditions (Ref. 8).

B.1

With two or more withdrawn control rods stuck, the plant must be brought to MODE 3 within 12 hours. The occurrence of more than one control rod stuck at a withdrawn position increases the probability that the reactor cannot be shut down if required. Insertion of all insertable control rods eliminates the possibility of an additional failure of a control rod to insert. 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.

Change B3.1.3-3

C.1 and C.2 ~~and C.3~~

With one or more control rods inoperable for reasons other than being stuck in the withdrawn position, operation may continue, provided the ~~overall scram reactivity rate is met. To ensure the overall scram reactivity rate is met, the total number of "slow" and inoperable control rods must be immediately verified to be ≤ eight. This ensures that the safety analysis assumptions are met (the safety analysis assumes a total of eight control rods are "slow," one is stuck, and another fails to scram. Therefore, ensuring the total number of "slow" and inoperable is ≤ eight is conservative since the inoperable control rods are already~~

(continued)

BASES

ACTIONS

Change B3.1.3-3 cont.

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

~~fully inserted). In addition, the~~ control rods ~~must be~~ are fully inserted within 3 hours and disarmed (electrically or hydraulically) within 4 hours. Inserting a control rod ensures the shutdown and scram capabilities are not adversely affected. The control rod is disarmed to prevent inadvertent withdrawal during subsequent operations. The control rods can be hydraulically disarmed by closing the drive water and exhaust water isolation valves. Electrically, the control rods can be disarmed by disconnecting power from all four directional control valve solenoids. Required Action C.~~2~~1 is modified by a Note that allows the RWM to be bypassed if required to allow insertion of the inoperable control rods and continued operation. LCO 3.3.2.1 provides additional requirements when the RWM is bypassed to ensure compliance with the CRDA analysis.

The allowed Completion Times are reasonable, considering the small number of allowed inoperable control rods, and provide time to insert and disarm the control rods in an orderly manner and without challenging plant systems.

D.1 and D.2

Change B3.1.3-4

Condition D is modified by a Note indicating

Out of sequence control rods may increase the potential reactivity worth of a dropped control rod during a CRDA. At ≤ 10% RTP, the generic banked position withdrawal sequence (BPWS) analysis (Ref. 8) requires inserted control rods not in compliance with BPWS to be separated by at least two OPERABLE control rods in all directions, including the diagonal. Therefore, if two or more inoperable control rods are not in compliance with BPWS and not separated by at least two OPERABLE control rods, action must be taken to restore compliance with BPWS or restore the control rods to OPERABLE status. ~~A Note has been added to the Condition to clarify~~ that the Condition is not applicable when > 10% RTP since the BPWS is not required to be followed under these conditions, as described in the Bases for LCO 3.1.6. The allowed Completion Time of 4 hours is acceptable, considering the low probability of a CRDA occurring.

(continued)

BASES

ACTIONS (continued)

E.1

In addition to the separation requirements for inoperable control rods, an assumption in the CRDA analysis for Framatome - ANP fuel is that no more than three inoperable control rods are allowed in any one BPWS group. Therefore, with one or more BPWS groups having four or more inoperable control rods, the control rods must be restored to OPERABLE status. Required Action E.1 is modified by a Note indicating that the Condition is not applicable when THERMAL POWER is > 10% RTP since the BPWS is not required to be followed under these conditions, as described in the Bases for LCO 3.1.6. The allowed Completion Time of 4 hours is acceptable, considering the low probability of a CRDA occurring.

F.1

Change B3.1.3-5

If any Required Action and associated Completion Time of Condition A, C, D, or E are not met or there are nine or more inoperable control rods ~~exist~~, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours. This ensures all insertable control rods are inserted and places the reactor in a condition that does not require the active function (i.e., scram) of the control rods. The number of control rods permitted to be inoperable when operating above 10% RTP (i.e., no CRDA considerations) could be more than the value specified, but the occurrence of a large number of inoperable control rods could be indicative of a generic problem, and investigation and resolution of the potential problem should be undertaken. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power ~~conditions~~ in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.3.1

The position of each control rod must be determined, to ensure adequate information on control rod position is available to the operator for determining control rod OPERABILITY and controlling rod patterns. Control rod

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.3.1 (continued)

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

Control rod insertion capability is demonstrated by inserting each partially or fully withdrawn control rod at least one notch and observing that the control rod moves. The control rod may then be returned to its original position. This ensures the control rod is not stuck and is free to insert on a scram signal. This Surveillance is not required when THERMAL POWER is less than or equal to the actual LPSP of the RWM since the notch insertions may not be compatible with the requirements of the Banked Position Withdrawal Sequence (BPWS) (LCO 3.1.6) and the RWM (LCO 3.3.2.1). The 31 day Frequency takes into account operating experience related to changes in CRD performance. At any time, if a control rod is immovable, a determination of that control rod's trippability (OPERABILITY) must be made and appropriate action taken.

Change B3.1.3-6

This SR is modified by a Note that allows 31 days, after withdrawal of the control rod and increasing power to above the LPSP, to perform the Surveillance. This acknowledges that the control rod must be first withdrawn and THERMAL POWER must be increased to above the LPSP before performance of the Surveillance, and therefore the Note avoids potential conflicts with SR 3.0.3 and SR 3.0.4.

(continued)

BASES (continued)

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26, GDC 27, GDC 28, and GDC 29.

2. FSAR, Section 4.3.2.5.

3. FSAR, Section 4.6.1.1.2.5.3.

4. FSAR, Section 5.2.2.2.3.

Change B3.1.3-8

5. FSAR, Section ~~15.4.1.1.~~ 15.0

6. FSAR, Section ~~15.F.4.3~~ 15.4.9.

7. 10 CFR 50.36(c)(2)(ii).

8. NEDO-21231, "Banked Position Withdrawal Sequence," Section 7.2, January 1977.

BASES (continued)

LCO

The OPERABILITY of the control rod scram accumulators is required to ensure that adequate scram insertion capability exists when needed over the entire range of reactor pressures. The OPERABILITY of the scram accumulators is based on maintaining adequate accumulator pressure.

APPLICABILITY

In MODES 1 and 2, the scram function is required for mitigation of DBAs and transients and, therefore, the scram accumulators must be OPERABLE to support the scram function. In 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 scram accumulator OPERABILITY under these conditions. Requirements for scram accumulators in MODE 5 are contained in LCO 3.9.5, "Control Rod OPERABILITY – Refueling."

ACTIONS

The ACTIONS Table is modified by a Note indicating that a separate Condition entry is allowed for each control rod scram accumulator. This is acceptable since the Required Actions for each Condition provide appropriate compensatory action for each inoperable accumulator. Complying with the Required Actions may allow for continued operation and subsequent inoperable accumulators governed by subsequent Condition entry and application of associated Required Actions.

A.1 and A.2

Change B3.1.5-1

Change B3.1.5-2

associated control scram time was

With one control rod scram accumulator inoperable and the reactor steam dome pressure ≥ 900 psig, the control rod may be declared "slow" ~~(after declaring the average scram times in all two-by-two arrays associated with the control rods with the inoperable accumulator not within the limits of Table 3.1.4-1)~~, since the control rod will still scram at the reactor operating pressure but may not satisfy the required scram times in Table 3.1.4-1. Required Action A.1 is modified by a Note, ~~which clarifies~~ indicating that declaring the control rod "slow" ~~is only applicable~~ only applies if the ~~average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are~~ associated control scram time was within the limits of Table 3.1.4-1 during the last scram time ~~Surveillance~~ test. Otherwise, the control rod may already be considered "slow"

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

and the further degradation of scram performance with an inoperable accumulator could result in excessive scram times. In this event, the associated control rod is declared inoperable (Required Action A.2) and LCO 3.1.3 ~~is~~ 13 entered. This would result in requiring the affected control rod to be fully inserted and disarmed, thereby satisfying its intended function in accordance with ACTIONS of LCO 3.1.3.

Change B3.1.5-3

The allowed Completion Time of 8 hours is ~~considered~~ reasonable, based on the large number of control rods available to provide the scram function and the ability of the affected control rod to scram only with reactor pressure at high reactor pressures.

B.1, B.2.1, and B.2.2

With two or more control rod scram accumulators inoperable and reactor steam dome pressure ≥ 900 psig, adequate pressure must be supplied to the charging water header. With inadequate charging water pressure, all of the accumulators could become inoperable, resulting in a potentially severe degradation of the scram performance. Therefore, within 20 minutes from discovery of charging water header pressure < 940 psig concurrent with Condition B, adequate charging water header pressure must be restored. The allowed Completion Time of 20 minutes is ~~considered a~~ reasonable, ~~time~~ to place a CRD pump into service to restore the charging header pressure, if required. This Completion Time ~~also recognizes~~ is based on the ability of the reactor pressure alone to fully insert all control rods.

Change B3.1.5-4

The control rod may be declared "slow" ~~(after declaring the average scram time in all two-by-two arrays associated with the control rod with the inoperable accumulator not within the limits of Table 3.1.4-1),~~ since the control rod will still scram using only reactor pressure, but may not satisfy the times in Table 3.1.4-1. Required Action B.2.1 is modified by a Note indicating that declaring the control rod "slow" ~~is~~ only ~~applicable~~ applies if the ~~average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are~~ associated control scram time is within the limits of

(continued)

BASES

ACTIONS (continued)

D.1

The reactor mode switch must be immediately placed in the shutdown position if either Required Action and associated Completion Time associated with loss of the CRD 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 Required Action is not applicable if all control rods associated with the inoperable scram accumulators are fully inserted, since the function of the control rods has been performed.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

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 1400 psig to 1500 psig (Ref. 7). Declaring the accumulator inoperable when the minimum pressure is not maintained ensures that significant degradation in scram times does not occur. The 7 day Frequency has been shown to be acceptable through operating experience and takes into account indications available in the control room.

REFERENCES

1. FSAR, Section 4.3.2.5.

2. FSAR, Section 4.6.1.1.2.5.3.

3. FSAR, Section 5.2.2.2.3.

Change B3.1.5-5

4. FSAR, Section ~~15.4.1.1~~ 15.0.

5. FSAR, Section ~~15.F.4.3~~ 15.4.9.

(continued)