NRC 2001-032

10 CFR 50.90

May 11, 2001

Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Stop P1-137
Washington, DC 20555

Ladies/Gentlemen:

DOCKETS 50-266 AND 50-301
SUPPLEMENT 12 TO APPLICATION FOR AMENDMENT TO
FACILITY OPERATING LICENSE APPENDIX A:
TECHNICAL SPECIFICATIONS IMPROVEMENT PROJECT
RESPONSE TO FOLLOWUP QUESTIONS
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

On November 15, 1999, Wisconsin Electric Power Company (WE), then licensee for the Point Beach Nuclear Plant (PBNP), submitted an application to amend Appendix A, Technical Specifications, for Facility Operating Licenses DPR-24 and DPR-27 for Point Beach Nuclear Power Plant, Units 1 and 2, respectively (reference letter NPL 99-0669). The application proposed to convert the Point Beach Current Technical Specifications (CTS) to the Point Beach Improved Technical Specifications (ITS). That application contained documentation for ITS Chapters 1.0 and 2.0 and Sections 3.0 through 3.9. Documentation for ITS Chapters 4.0 and 5.0 was enclosed with Supplement 1 to the PBNP ITS submittal dated March 15, 2000 (reference letter NPL 2000-0142).

In a meeting between NRC and plant staff on February 15, 2001, the NRC staff requested followup information regarding previous RAI responses from Nuclear Management Company, LLC (NMC) on various ITS sections. Additionally, changes to the CTS resulting from Technical Specification Change Request (TSCR) 216 regarding Individual Rod Position Indication, submitted to the NRC on February 6, 2001, necessitated corresponding changes to the proposed ITS.

Attachment 1 of this letter includes the NMC response to the staff's questions related to the staff's followup questions, along with the ITS changes necessitated by TSCR 216. In some instances, the response includes changes that are required to the original submittal, including changes to the Current Technical Specification (CTS) markups, Descriptions of Change (DOC),

A001

NUREG markups, proposed ITS and associated Bases, Justifications for Deviation (JFD), and No Significant Hazard Considerations (NSHC). These changes are discussed in the response to each question and are included in the attachment. Pages containing the changes required to the DOC, JFD, and NSHC are identified by "Rev. F".

The changes required to the CTS, NUREG, and ITS markups are identified as follows (example):

F
RAI 3.4.1-1

The revision bar identifies the section that has been revised; the F in the triangle identifies revision F; and the RAI number identifies which RAI question the revision relates to. The old pages in the original submittal should be replaced with the new pages enclosed with this letter, following the instructions of attachment 2.

Additional changes to the conversion package for the subject ITS Sections have been identified as a result of ITS reviews by NMC staff and Amendment approvals that have occurred after the original ITS submittal. These additional changes have been included (where necessary) in response to each RAI question for completeness and are clearly identified in the new pages enclosed with this letter.

NMC has determined that this supplement does not involve a significant hazards consideration, authorize a significant change in the types or total amounts of effluent release, or result in any significant increase in individual or cumulative occupational radiation exposure. Therefore, NMC concludes that the proposed supplement meets the categorical exclusion requirements of 10 CFR 51.22(c)(9) and that an environmental impact appraisal need not be prepared.

NMC is notifying the State of Wisconsin of this supplement by transmitting a copy of this letter, and its attachments, to the Public Service Commission of Wisconsin.

Other supplements to the PBNP ITS submittal, in response to previous RAIs, are listed for reference:

- Supplement 2 dated June 15, 2000 (ITS sections 2.0, 3.1, 3.2, 3.5; letter NPL 2000-0260)
- Supplement 3 dated June 19, 2000 (ITS section 3.6; letter NPL 2000-0271)
- Supplement 4 dated July 28, 2000 (ITS section 3.8; letter NPL 2000-0341)
- Supplement 5 dated August 17, 2000 (ITS sections 3.4, 3.9; letter NPL 2000-0371)
- Supplement 6 dated September 14, 2000 (ITS section 5.5; letter NPL 2000-0411)
- Supplement 7 dated October 19, 2000 (ITS sections 3.6, 3.7.4, 3.7.5; letter NPL 2000-0465)
- Supplement 8 dated December 21, 2000 (ITS section 1.0; letter NPL 2000-0549)
- Supplement 9 dated February 6, 2001 (ITS sections 3.3.1 and 5.0; letter NPL 2001-0032)
- Supplement 10 dated February 23, 2001 (ITS section 3.7; letter NRC 2001-0004)
- Supplement 11 dated March 19, 2001 (ITS sections 3.3.2-3.3.5; letter NRC 2001-0010)

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects, these statements are not based entirely on my personal knowledge, but on information furnished by cognizant NMC employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

Should you have any questions on this submittal or require additional information, please contact me.

Sincerely,

Mark Reddemann

Mark Reddemann
Site Vice President

Subscribed to and sworn before me
on this 14th day of May, 2001

Paula L. Maurer

Notary Public, State of Wisconsin

My Commission expires on October 24, 2004.

JG/jlk

Attachments

Enclosure

cc:	NRC Regional Administrator	NRC Project Manager
	NRC Resident Inspector	PSCW

bcc: (w/o enclosures)

R. G. Mende	A. J. Cayia	M. E. Reddemann
R. P. Pulec	J. Gadzala	R. A. Anderson
T. J. Webb	D. F. Johnson	R. R. Grigg
B. J. Onesti (OSRC)	J. L. Kudick (3)	D. Weaver
File		

DOCKETS 50-266 AND 50-301
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATIONS IMPROVEMENT PROJECT
FOLLOWUP STAFF QUESTIONS
POINT BEACH NUCLEAR PLANT UNITS 1 AND 2

The following information is provided in response to the Nuclear Regulatory Commission staff's followup requests for additional information on previous questions, as discussed during a meeting between NRC and plant staff on February 15, 2001.

Each question is restated on the following pages with NMC's response following.

ITS 3.3, Instrumentation

3.3.2-04 DOC A5
ITS 3.3.2, Table 3.3.2-1, All Functions except 1.d and 1.e - Applicability
CTS 15.3.5, Table 15.3.5-3, All Functions except 1.c and 1.d - Permissible Bypass Conditions, Table 15.3.5-4, All Functions - Permissible Bypass Conditions

The reviewer noted that the response to this question was inconsistent with JFD 40 for NUREG-1431 Section 3.3.2.

Response:

The response to this question in Supplement 11, stated, "AFW Actuation on Undervoltage Bus A01 and A02 *and Trip of all MFW Pumps* must be operable in MODES 1 and 2. These Functions ensure that at least one SG is provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODES 3, 4, and 5, the MFW pumps may be normally shut down, and thus neither pump trip is indicative of a condition requiring automatic AFW initiation."

The phrase, "and Trip of all MFW Pumps" was inadvertently included in this section. JFD 40 correctly identifies that the Point Beach ESFAS design does not include MFW Pump Trip as an AFW actuation signal. These signals are processed through AMSAC at power levels above 40%.

Additional Corrections Required to ITS 3.3:

1. The NRC reviewer requested clarification of the Note modifying the ITS LCO 3.3.3 Surveillance Requirements. As a result of this comment, the ITS LCO 3.3.3, Surveillance Requirements Note was revised to clearly state which ITS Table 3.3.3-1 Function each surveillance requirement applies. Revised STS and Bases markup pages and clean ITS and Bases pages are provided to reflect this change.

2. During a telephone conversation with the NRC on April 18, 2001, the reviewer requested that an adequate justification be provided for the removal of CTS Table 15.4.1-1, item 26.a, Note (15), Containment Hydrogen Monitor sample gas concentration. Consequently, ITS 3.3.3, DOC L.9, has been revised to provide an adequate justification for the deletion of CTS Table 15.4.1-1, item 26.a, Note (15).

3. During a telephone conversation with the NRC on April 16, 2001, the reviewer requested that ITS LCO 3.3.2, DOC M.8 be revised to reflect that the AFW Actuation Logic is excluded from the Master Relay Test and Slave Relay Test surveillance requirements. Consequently, ITS LCO 3.3.2, DOC M.8 has been revised to reflect that the AFW Actuation Logic is excluded from the Master Relay Test and Slave Relay Test surveillance requirements.

ITS 3.7, Plant Systems

NRC Question 3.7.2-4

TSTF 289 & STS SR 3.7.2.2 Note
DOC M3 and JFD 7
CTS 15.4.7.A and Table 15.4.1-2, item 13
ITS SR 3.7.2.2

CTS 15.4.7.A requires stroke-testing the MSIVs under low flow conditions and CTS Table 15.4.1-2, item 13 requires testing the MSIV containment isolation trip function at each refueling shutdown. ITS SR 3.7.2.1 and ITS SR 3.7.2.2 retain these CTS requirements and almost conform to the STS as revised by TSTF 289 (approved 7/16/98). However, in TSTF 289, STS SR 3.7.2.2 contains a note which says the surveillance is "Only required to be performed in MODES 1 and 2." JFD 7 does not explain this omission.

Comment: Adopt the SR note (consistent with plant design limitations) with appropriate explanatory language in the Bases (even though the STS fails to include such explanation) and discuss the SR note in DOC M3, or justify the SR note's omission in JFD 7.

Response:

The note modifying ITS SR 3.7.2.2 differs from the NUREG, as modified by approved TSTF-289, by requiring the SR to be performed in MODE 1, thus allowing entry into and operation in MODES 2 and 3 prior to performing the SR. The MSIVs for Point Beach are check valves and therefore require flow conditions in order to perform valve closure testing. As a result, the provisions of this Note are necessary in order to establish the steam flow conditions needed. A revised JFD 7 is provided for this justification.

NRC Question 3.7.4-1

Beyond-Scope Items 69 and 70

This RAI is a placeholder. The technical review branch may offer comments in addition to the following comments. All comments within the scope of beyond-scope items 69 and 70 should be answered jointly.

Response:

The following additional information is provided in response to the reviewer's question of March 20, 2001, regarding a basis for stating that the ADV block valves are capable of being manually operated. The response to the original question was provided on February 23, 2001, in Supplement 10 to the Point Beach ITS Submittal.

As discussed on JFD 9 and DOC LB.01, the ADV block valves are manually operated valves. The ADV block valves are only credited with manual isolation of a failed open ADV, and are not credited for re-establishing ADV flow (i.e., re-opening) during any analyzed event. If it is necessary to close an ADV block valve to isolate a failed open ADV, that ADV flowpath will be considered inoperable. SR 3.7.4.2 which proposes to manually exercise the ADV block valves at an 18 month frequency, with or without steam flow, is sufficient to ensure its capability to isolate a failed open ADV. As a result, no further changes are required.

A thrust evaluation was performed for the most limiting ADV block valve.

Powell gate valve; Size: 6"
Body material: ASTM WCB-216
Seat material: Steel with stellite face
Disc material: A-217 Grade CA 15 (stainless steel material)
Stem material: A-182, Grade F6 (stainless material)
Stem thread: 1.5" diameter Lead: 1/3 Pitch: 1/6
Orifice Diameter: 6"
Handwheel radius: 10.5"
Cast steel guide rails
The stem nut is contained between two anti-friction bearings.

Thrust required to Close = (OA)(DP)(FV) + (Sa)(Pup) + PF

Where: OA = orifice area = 28.28 in^2
DP = differential pressure = 1085 psi
FV = valve factor = 0.65 (bounding value); [0.35 (normally expected value)]
Sa = stem area = $(0.75)(0.75)(\pi) = 1.7671$ in^2
Pup= upstream pressure = 1085 psi
PF = packing friction = (1000)(stem diameter) = 1500 lbs

Required Closing Thrust (downward thrust on the valve stem):

19,945 lbs + 1,918 lbs + 1500 lbs = 23,363 lbs (bounding value);
[10,740 lbs + 1,918 lbs + 1500 lbs = 14,158 lbs (normally expected value)]

Required hand wheel torque:

hand wheel torque = stem thrust x stem factor

(stem factor = 0.0137)

required handwheel torque to close = (23,363)(0.0137) = **320 ft-lbs** (bounding value);
[(14,158)(0.0137) = **194 ft-lbs** (normally expected value)]

Based upon the calculated handwheel torque values, the ADV block valves are capable of being manually closed under full differential pressure conditions. Manual valve operation may require the use of a valve wrench (extension tool) to obtain the necessary mechanical advantage. There are no valve components that cannot withstand the loads necessary for closing the valve.

NRC Question 3.7.6-3

CTS 3.4.A.4
ITS 3.7.6

The reviewer requested followup information regarding the Technical Specification interaction between Auxiliary Feedwater (AFW) and the Condensate Storage Tanks (CSTs).

Response:

As stated in the proposed ITS Bases, the safety-related source of water to the AFW System is the Service Water System. The AFW pumps are protected by a safety-related low suction pressure trip in the event of a loss of suction from the CSTs. The protection of the AFW pumps allows for the pumps to be remote-manually aligned, in accordance with established procedures, to the SW System as a safety-related long term source of water for the steam generators. CST low level alarms (and low suction pressure alarms) are also provided to prevent pump damage and to alert personnel to evaluate the need for realigning the AFW suction source. Recent evaluations determined the effect of delaying AFW flow delivery by five minutes, if the CSTs were not available, to allow time for remote-manual switchover of AFW suction to Service Water. The evaluations concluded that a five minute delay on the limiting accident is acceptable because the steam generators contain enough mass inventory to maintain primary-to-secondary heat transfer throughout the feedwater starvation period. As stated in FSAR Section 10.2.2, switchover to the Service Water System can be accomplished by the operators in five minutes or less. Therefore, an AFW pump system may be considered operable per ITS LCO 3.7.5 with an inoperable CST based on the operability of its associated service water suction supply valve.

Followup NRC Question 1 regarding ITS 3.7.7, Component Cooling Water (CCW) System

The NRC reviewer requested additional background information regarding the CCW system non-essential load isolation valves.

Response:

The Unit 2 CCW system provides cooling water flow to various non-essential loads (e.g., blowdown evaporator, letdown gas stripper condensers, etc.) via piping which is not seismic Class I piping. Automatic isolation valves are provided which automatically close on a Unit 2 containment isolation signal. However, this automatic isolation capability is not credited for accident mitigation and is not required for CCW system operability. Since CCW has been reclassified from a closed system outside containment to a closed system inside containment, the containment isolation function is provided by the closed system boundary inside containment and separate containment isolation valves located immediately outside containment. The non-essential load isolation valves do not serve any containment isolation function. Therefore, to comport to the reclassification of CCW as a closed system inside containment, the initially proposed more-restrictive changes to ITS LCO 3.7.7, discussed in DOC M.1, have been eliminated. The associated Action, Surveillance Requirements, and Bases have been revised accordingly.

In letters dated November 7, December 15, and December 18, 2000, the NRC issued Safety Evaluation Reports (SERs) concluding the acceptability of removing consideration of the dynamic effects associated with the postulated rupture of the analyzed portions of the accumulator line piping, pressurizer surge line piping, and residual heat removal piping. This was based on evaluations that were completed on this piping, which demonstrated that the probability of pipe rupture is extremely low under conditions consistent with the design basis of the piping. The recommendations and criteria proposed in draft SRP 3.6.3, "Leak-Before-Break Evaluation Procedures," were used in the evaluations. These evaluations demonstrated that there is at least a factor of two between the leakage flaw size and critical flaw size; and, a factor of 10 between the calculated leak rate at the leakage flaw size and leak detection capability at PBNP. Therefore, these lines were eliminated from consideration of dynamic effects of postulated pipe ruptures in the Point Beach Nuclear Plant design basis per the allowances of GDC 4.

Prior to the staff's issuance of these SERs, the CCW system had been classified as a closed system outside of containment because sections of CCW piping lacked appropriate missile protection against the dynamic effects of postulated pipe ruptures. Under those postulated conditions, the CCW non-essential load isolation valves had been relied upon as a barrier to provide the required class break isolation and ensured that the seismic Class I component cooling system was a closed loop system under accident conditions. These valves assured that the CCW system would function as a closed system outside containment. Based on the staff's approval to eliminate consideration of dynamic effects of postulated pipe ruptures, the CCW system piping was no longer considered susceptible to missile impingement. This allowed its reclassification as a closed system inside containment. Following receipt of the staff's approval, Point Beach performed a supporting evaluation and reclassified CCW as a closed system inside containment. Since the containment function of the CC system was shifted to the closed loop inside containment, both passive and active components outside the new containment boundaries of the system no longer perform a containment function. As such, CCW is capable of performing its specified safety function without reliance on the non-essential load isolation valves. The non-essential load isolation valves are only relied upon for isolation of downstream pipe ruptures to enhance CCW system integrity. As described in Point Beach FSAR section 9.1, this function is not credited for mitigation of any analyzed accident. Manual action, including completely securing the CCW system for repairs, is the analyzed method for CCW system restoration. Consequently, the more-restrictive changes that had been initially proposed for these valves are no longer necessary.

<u>Followup NRC Question 2 regarding ITS 3.7.7, Component Cooling Water (CCW) System</u>

The NRC reviewer requested additional background information regarding the CCW pump low discharge pressure automatic start capability.

Response:

Point Beach FSAR Section 9.1 provides information on the CCW System. The FSAR description states that the system design includes an auto start capability for the standby CCW pump on low discharge pressure. The design description further states that if one pump is not operable, safe shutdown of the plant is not affected; however, the time for cooldown is extended. A detailed list of the components cooled by the CCW System is provided on FSAR page 9.1-2.

FSAR Section 9.1.3 provides the CCW System evaluation. This evaluation states that if a CCW pump fails, the standby pump provides 100% backup. The system evaluation does not discuss the low discharge pressure auto start feature of the standby pump. The only auto start discussion concerns sequencing onto the electrical bus following a loss of off-site power. If the loss of off-site power is coincident with a safety injection signal, automatic starting of the CCW pumps will be blocked on the unit with the safety injection signal. This occurs because the CCW pumps are not needed to support accident mitigation during the safety injection phase. The CCW pumps are anticipated to be operating for the recirculation phase of an accident, with the alignment accomplished by operator action. In the event of a piping break, the system evaluation credits shutting down of the CCW system to affect repairs. The pump failure analysis in FSAR Table 9.1-2 does not credit the low discharge pressure auto start for a pump failure to start.

In conclusion, the low discharge pressure auto start feature of the standby CCW pump is provided for operational continuity of CCW flow but is not required nor credited for accident mitigation.

NRC Question 3.7.8-2

DOC A6, LA1 and JFD 1
CTS 3.3.D.1.a and b
ITS 3.7.8 LCO

CTS 3.3.D.1.a and b states six SW pumps are Operable and all necessary valves, interlocks and piping required during accident conditions is also Operable. STS 3.7.8 requires SW trains to be Operable with details located in the Bases. ITS 3.7.8 requires six SW pumps, the SW ring header, and the automatic non-essential SW load isolation valves.

This comment is a placeholder for beyond-scope items 75 & 76. The reviewer also questioned whether the SW ring header isolation valves were required to be capable of being closed to fulfill accident mitigation analysis.

Response:

The isolation capability of the service water ring header is not credited in the accident mitigation analyses. Although the available isolation capability of the ring header isolation valves does enhance SW system reliability, piping failures are not considered as the single failure for system functionality during an accident. The safety-related function of the ring header isolation valves is to remain open. The Bases for this LCO and for Actions C.1 and C.2 have been revised to clarify this requirement. Additional changes were also made to the specification to correct its structure. Conditions D, E and F were clarified to specify that isolation of a flow path satisfies the Condition for an inoperable automatic isolation valve.

NRC Question 3.7.8-9

CTS 3.3.D.2.c

New isolation valves have been added to the previous single-isolation-valve nonessential load lines to ensure isolation if either Train A or B power is lost. The nonessential load lines to the Turbine Hall Deck do not close during an accident because they are isolated with only manual valves.

This comment is a placeholder for beyond-scope items 75 & 76. Also, unique plant specific differences for the SW System should be explained in-depth in the ITS Bases.

Response:

The proposed ITS Bases has been revised to clarify that only those nonessential load lines that are credited in the approved SW system analyses are required to be isolated to meet accident analysis assumptions. Additionally, JFD 1 has been revised to reflect the current Point Beach SW design status as it exists following completion of installation of redundant nonessential load isolation valves. See response to NRC Question 3.7.8-2 above.

NRC Question Regarding Note 2

ITS LCO 3.7.8

LCO 3.7.8, ACTIONS Note 2, allows separate condition entry for each inoperable SW component. However, this Note is not appropriate for each of the Conditions in LCO 3.7.8.

Response:

LCO 3.7.8, ACTIONS Note 2, "Separate Condition entry is allowed for each inoperable SW component," has been deleted and separate Notes have been provided for Conditions A, C, D and F. The Notes modifying each of the above Conditions have been specifically worded to address the inoperable component of concern. Revised STS markup and clean ITS pages are provided.

ITS 3.8, Electrical Power Systems

NRC Question 3.8.1-3

CTS 15.3.7.A.1.i
DOC A.6

The CTS requires that the 4160v and the 480v safeguards buses be energized from their normal supply. The proposed ITS, as reflected in Insert 3.8.1-1, only addresses safeguards buses to the 4160v level. What is the justification for deleting the CTS requirement regarding the 480v safeguards buses.

Response:

The combination of ITS LCO 3.8.1 and LCO 3.8.9 address the offsite power supply requirements to the 4160 V and 480 V safeguards buses. However, upon further evaluation, ITS LCO 3.8.1 has been revised to require one standby emergency power source to be capable of supplying each 4160 V/**480 V** Class 1E safeguards bus. This change is necessitated by the allowance to cross-tie the opposite unit's 480 V Class 1E safeguards buses (B03 and B04) under the provisions provided in LCO 3.8.9, whereby the standby emergency power source for the 480 V Class 1E safeguards bus being supplied by the tie breaker would be considered inoperable.

These changes are reflected in revisions to the following supporting documentation for ITS LCO 3.8.1; CTS markup pages, STS and Bases markup pages, clean ITS and Bases pages, DOCs A.6 and L.5, JFDs 1, 4, 9, 12 and 14, and NSHC L.5. Additional changes to ITS LCO 3.8.9

supporting documentation include; CTS markup pages, STS and Bases markup pages, clean ITS and Bases pages, DOC A.5, and JFD 2.

NRC Question 3.8.2-1

CTS Markup
Insert 3.8.2-1

CTS does not have a specific shutdown TS. Therefore, if a system/component is required to be OPERABLE in Modes 5 and 6, by the CTS definition of OPERABILITY, its associated offsite and onsite power sources must also be OPERABLE. If more than one train of system/components are required to be OPERABLE, then multiple trains of offsite and onsite power must also be OPERABLE. The proposed ITS only requires one offsite and one onsite power source, regardless of the number of systems/components required to be OPERABLE. The ITS appears to be less restrictive than the CTS, and this change has not been adequately justified.

Response:

In MODES 5 and 6, ITS LCO 3.8.2 requires the following AC electrical power sources to be OPERABLE: one circuit between the offsite transmission network and the 480 V Class 1E safeguards bus(es) B03 and B04, required by LCO 3.8.10; and one standby emergency power source capable of supplying one of the associated unit's 480 V Class 1E safeguards bus(es) B03 or B04, required by LCO 3.8.10. Additionally, LCO 3.8.10 requires the necessary portion of AC, DC, and AC vital instrument bus electrical power distribution subsystems to be OPERABLE to support equipment required to be OPERABLE.

Therefore, to support multiple trains of systems/components, LCO 3.8.10 will require the necessary portions of the electrical power distribution subsystems be OPERABLE to support the required systems/equipment. Additionally, LCO 3.8.2 will require the necessary offsite and standby emergency power sources be OPERABLE to support the required portions of the electrical power distribution subsystems. Therefore, the requirements of ITS LCO 3.8.2 and LCO 3.8.10 are consistent with the CTS definition of OPERABILITY and the associated electrical power requirements for required equipment.

NRC Question 3.8.2-2

CTS Markup
Insert 3.8.2-1

The requirements for offsite power in this LCO are expressed in terms of the 480V safeguards buses B03 and B04. In LCO 3.8.1, the offsite power requirements are expressed in terms of the 4.16KV buses. Why is there a difference? In the staff's view, the requirements should be the same. The licensee is requested to provide a discussion on why the difference is considered appropriate, or modify the submittal so LCO 3.8.1 and LCO 3.8.2 have similar requirements. The staff is particularly interested in why the 480V safeguards buses are not addressed in LCO 3.8.1.

Response:

LCO 3.8.2 applies in Modes 5 and 6. Requirements for bus operability are governed by the need to supply power to supported equipment necessary in Modes 5 and 6. Other than serving as a source of power to the 480 V buses, the 4160 V buses do not directly support any other systems/components required to be operable in Modes 5 and 6. Thus it is appropriate in LCO 3.8.2 to define OPERABILITY in relation to the 480 V buses. Thus, the affects of the operability are appropriately handled by the interface between LCO 3.8.2 and 3.8.10.

NRC Question 3.8.3-1

NUREG Markup
Insert 3.8.3-1

LCO 3.8.3 is proposed to be changed for the ITS. The staff does not understand the rationale for the change. ITS SR 3.8.3.3 requires verifying the air start bottle bank pressure is greater than 165 psi. If the pressure is not at or above this limit, the system and associated diesel are inoperable. Given that a pressure limit is involved, why not use the NUREG format and state the LCO and applicable Condition in terms of this limit instead of the proposed "inoperable starting air system."

Response:

NUREG LCO 3.8.3 provides for action based on two pressure levels. The first, higher pressure, is that limit, which if not met, the starting air system cannot meet its design basis for the number of diesel starts. The lower limit, is that level at which the air start system is still capable of one start attempt.

Although the PBNP DG Starting Air System is designed with sufficient capacity to allow for five starting attempts, in order for the standby emergency power source to accomplish its safety functions, it must be started within 10 seconds, therefore the standby emergency power source must start on its first attempt. Furthermore, the standby emergency power source reliability program does not consider five starts in its criteria for determining a successful start. Therefore, the five start criteria is not relied upon for establishing standby emergency power source reliability or for meeting compliance with the Station Blackout Rule, and does not represent a design basis requirement for the standby emergency power source starting air system.

Although the minimum starting air pressure varies between standby emergency power sources, the most limiting air start bottle bank pressure of ≥ 165 psig is used as the acceptance criteria for meeting the surveillance requirement, and thereby verifying the operability of the system.

Additional Corrections Required to the proposed ITS:

The following additional corrections to the conversion package have been identified as a result of ITS reviews by plant staff.

1. The change from the CTS terms "low power operation" and "power operation" to ITS MODES 1 and 2 is not adequately described in the ITS conversion. As a result of this comment, Section 1.0, DOCs L.5 and M.3 have been revised to provide a better description of these changes.

2. Per Errata # 182 (PAM Instrumentation), a portion of the STS Bases that had been proposed for inclusion in the ITS Bases is not fully applicable to the Point Beach design of core exit thermocouples. Therefore, this wording is being removed from the proposed ITS Bases. Existing JFD 8 supports this change. A revised STS Bases markup and clean ITS Bases page is provided.

3. Per Errata #184, the Allowable Values for ITS 3.3.1, Table 3.3.1-1, Reactor Trip System Interlocks, are inconsistent with the requirements of CTS 15.2.3.2. As a result of this comment, the Allowable Values associated with ITS LCO 3.3.1, Table 3.3.1-1, Functions 17.a, 17.b.(1), 17.b.(2), 17.c, 17.d, and 17.e have been revised to be consistent with CTS 15.2.3.2. Revised STS markup pages and clean ITS pages are provided to reflect this change.

4. ITS 3.3 contains several instrument setpoints that are based on vendor "nominal values" rather than a setpoint methodology. These instruments are not relied upon nor credited for accident mitigation. Based on the format for these type of instruments in the recently approved Indian Point 3 ITS, the nominal values are being placed in the ITS Bases. Revised STS and Bases markup pages, clean ITS and Bases pages, and revisions to ITS 3.3.1, JFD 70 and ITS 3.3.2, JFD 69, and ITS 3.3.7, JFD 12 have been provided to reflect these changes.

5. Per Errata #172, the scope of ITS LCO 3.4.7, Note 4, did not allow the removal of all RHR loops from operation for the performance of required leakage and flow testing of RCS PIVs. As a result of this comment, ITS LCO 3.4.7, Note 4, was revised to allow all RHR loops to be removed from operation during the performance of required leakage or flow testing on RCS PIVs when at least one RCS loop is in operation. Revised CTS markup pages, STS and Bases markup pages, clean ITS and Bases pages, and revisions to DOC L.3, JFD 8, and NSHC L.3 have been provided to reflect this change.

6. Per Errata #65 (monthly verification of valve position), the ITS submittal categorized the change from the CTS requirement of "ensure system operability", to the ITS SR phrase, "in the flowpath", as administrative. Subsequent evaluation concluded that it is more appropriate to categorize this change as less restrictive. Therefore, the "A" DOCs associated with this change are being recategorized as "L" DOCs and corresponding NSHCs are provided. Revised CTS markup pages are also provided. This change affects the following ITS Sections: 3.5.2, 3.5.3, 3.6.6, and 3.6.7.

7. Per Errata #174, the information contained in ITS 3.7.8 Bases concerning acceptable SW lineups was incomplete. As a result of this comment, the information concerning acceptable SW lineups has been removed. Revised STS Bases markup pages, and clean ITS Bases pages have been provided to reflect this change.

8. Per Errata #183, the design ratings at which SR 3.8.4.6 requires the battery chargers to be tested are inconsistent with the requirements of RG 1.32. As a result of this comment, the requirements of SR 3.8.4.6 were revised to be consistent with the design capacity of the battery chargers and the requirements of RG 1.32. Additionally, because the Point Beach 125 VDC safety related battery chargers are not all of the same design and ratings, the design ratings provided in SR 3.8.4.6 are the most limiting for each type of battery charger. Revised STS and Bases markup pages, clean ITS and Bases pages, and a revised JFD 7 have been provided to reflect this change.

9. Per Errata #94, LCO 3.8.1, DOC LA.1 is miscategorized and should be re-written as an "L" DOC to reflect the deletion of the requirement for two 345 KV transmission lines from CTS. As a result of this comment, DOC LA.1 has been re-written as DOC L.12, with accompanying NSHC.

10. As a result of reviews by the plant staff, it was identified that the requirements of CTS 15.3.7.B.1.d and 15.3.7.B.1.e were not accurately conveyed in ITS 3.8.9, Notes 1 and 2. Therefore, the requirement for the required redundant shared features "powered from" the unit in MODE 1, 2, 3 or 4 to be OPERABLE, as well as, the requirement for all AC electrical power sources required by LCO 3.8.1 for the required redundant shared features "powered from" the unit in MODE 1, 2, 3, or 4 to be OPERABLE, have been changed to a requirement for the required redundant shared features "for" the unit in MODE 1, 2, 3 or 4 to be OPERABLE, as well as, the requirement for all AC electrical power sources required by LCO 3.8.1 for the

required redundant shared features "for" the unit in MODE 1, 2, 3, or 4 to be OPERABLE. These changes make the ITS Notes consistent with the CTS requirements. Revised STS and Bases markup pages and clean ITS and Bases pages are provided to reflect these changes.

11. Per Errata #27, ITS LCO 3.8.3, DOC M.2 was omitted from the ITS submittal. As a result of this comment, ITS LCO 3.8.3, DOC M.2, has been included in this supplement for completeness of the ITS submittal.

12. During development of the Safety Evaluation for the ITS Conversion Technical Specification Amendment, the NRC identified portions of the ITS submittal which were missing from the submittal package. Therefore, for completeness, the following documents have been included in this supplement: LCO 3.5.2, DOC L.4; LCO 3.5.3, DOC L.4; LCO 3.6.6, DOC L.6; LCO 3.6.7, DOC L.6; LCO 3.7.5, DOC L.7 and associated NSHC; and STS markup page 3.3-7, Rev. D.

13. Per Errata #141, the Required Actions of ITS LCO 3.9.2, Condition C are different than the required actions of CTS 15.3.8.9, and are not justified by DOC M.7. Consequently, DOC M.7 has been revised and DOC L.3 has been provided to justify the change in the required actions of CTS 15.3.8.9.

14. Per Errata #152, ITS LCO 3.9.2 Bases incorrectly refers to ACTIONS C.1 and C.2, when there is actually only one Required Action associated with Condition C. Consequently, the STS Bases markup and clean ITS Bases pages have been revised to reflect this fact.

15. Per Errata #89, ITS Section 2.0, DOC LA.1 (for CTS 15.6.7.C) and LB.2 (for CTS 15.6.7.D) have been miscategorized and should be re-written as less restrictive changes. Consequently, ITS Section 2.0, DOC L.2 has been provided to justify the deletion of the requirements identified in CTS 15.6.7.C and 15.6.7.D.

16. Per Errata #158, SR 3.6.3.1 and associated Bases state each purge supply and exhaust valve shall be verified to be closed with the control switch locked "in the closed position," every 31 days. However, the purge supply and exhaust valve control switches are spring return to an intermediate position and this requirement cannot be met as written. The current method of controlling the position of each purge supply and exhaust valve is by locking the cover over each control switch. Therefore, SR 3.6.3.1 and the associated Bases are being modified by deleting the phrase "in the closed position." This change will allow the current method of controlling the position of each purge supply and exhaust valve to be used after the valve has been closed.

17. Per Errata #66, ITS LCO 3.0.6 incorrectly references Specification 5.5.15, "Safety Function Determination Program (SFDP)". Per ITS 5.05, JFD 05, several ITS program requirements were renumbered. The Safety Function Determination Program was renumbered from Specification 5.5.15 to 5.5.14. References in ITS LCO 3.0.6 were not

updated to reflect this renumbering. Revised STS and Bases markup pages, clean ITS and Bases pages, and an updated JFD 05 for ITS LCO 3.0.6 have been provided to reflect this change.

18. During License Operator Requalification training, the operators identified inconsistencies in the wordings of ITS LCO 3.4.15.a and ITS LCO 3.4.15 Condition A. Per JFD 01, Point Beach does not use a containment sump discharge flow monitor. Point Beach utilizes a containment sump level alarm to monitor changes in RCS leakage. This issue was documented in Errata #147. Conditions A and D have been revised to reflect the actual plant configuration. Revised STS and Bases markup pages, clean ITS and Bases pages, and an updated JFD 05 for ITS LCO 3.4.15 have been provided to reflect this change.

19. Per Errata #31, NOTE 2 of ITS LCO 3.5.2 is no longer applicable with the approval of TSCR 219 and the LTOP enable temperature of 270°F. Revised STS and Bases markup pages and clean ITS and Bases pages have been revised to reflect this change.

20. ITS LCO 3.7.8, Condition F has been revised to stipulate that it only applies to "motor operated" SW valves on the outlet of the containment accident fan cooler unit, consistent with the CTS. Additionally, the Bases have been revised to define an isolated flowpath, consistent with the CTS (Required Action F.2). Revised STS and Bases markup pages, clean ITS and Bases pages, and a revised JFD 3 have been provided to reflect these changes.

21. ITS 3.3.1 Bases have been revised to reflect that Condition K does not apply to the Underfrequency Bus A01 and A02 trip function (the Required Actions of Condition E should be taken for an inoperable channel of Underfrequency Bus A01 and A02.) This requirement was correctly identified in ITS Table 3.3.1-1. Revised STS Bases markup and clean ITS Bases pages have been provided.

22. ITS 3.3.1 Bases has been corrected to reflect that only 1 hour is allowed to place an inoperable channel in the tripped condition for Conditions K, L and O. This requirement was correctly indicated in the STS, ITS and STS Bases markup. Revised clean ITS Bases pages have been provided.

The following changes to the proposed ITS were necessitated by Custom Technical Specification Change Request (TSCR) 216, Individual Rod Position Indication Operability, submitted to the NRC on November 20, 2000, and modified February 6, 2001. The following changes serve only to incorporate the approved Amendments into the proposed ITS.

TSCR 216 is expected to be implemented in May 2001. The amendment changes the control rod position indication requirements in CTS 15.3.10. As a result, the ITS conversion package will be appropriately modified to reflect this change. The CTS markup pages associated with STS LCOs 1.0, 3.1.1, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.2.1, 3.2.2, 3.2.3, and 3.2.4 were revised accordingly. These new markups are an administrative incorporation of the new Amendments into the proposed ITS. Additionally, the STS markup pages, JFDs, clean ITS pages, and the associated Bases pages for corresponding ITS LCOs 3.1.4, 3.1.5, 3.1.6, and 3.1.7 were revised accordingly. A listing of the changed pages appears in the page change instruction sheet.

Change to Appendix B (Nonradiological Technical Specifications):

To support the conversion from CTS to ITS, an administrative reference change to Appendix B to Facility Operating Licenses DPR-24 and DPR-27 is proposed. Appendix B, Section16.5, Reporting Requirements (page 16.1-3), refers to CTS section 15.7.8.4.A, Annual Monitoring Report. This reference is being changed to reflect the corresponding ITS section 5.6.2, Annual Monitoring Report.

Additional License Conditions:

To support the conversion from CTS to ITS, the following additional conditions are proposed to Point Beach Facility Operating Licenses DPR 24 and DPR 27 (Appendix C):

1. The licensee is authorized to relocate certain Technical Specification requirements previously included in Appendix A to licensee controlled documents, as described in Table R, Relocated Specifications and Removal of Details Matrix, attached to the NRC Staff's safety evaluation dated _______________, 2001. These requirements shall be relocated to the appropriate documents no later than December 31, 2001.

2. The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment ___ shall be as follows:

   For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment.

   For SRs that existed prior to this amendment, whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment.

For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.

For SRs that existed prior to this amendment, whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.

A modification is proposed in the additional condition implemented via Amendments 174 (Unit 1) and 178 (Unit 2) to Point Beach Facility Operating Licenses DPR 24 and DPR 27 (Appendix C). This modification will revise the existing reference to CTS 15.3.0.B to the corresponding ITS reference (LCO 3.0.3):

The following two conditions in Section 3 of Point Beach Facility Operating Licenses DPR 24 and DPR 27 are proposed for deletion:

C. Report

NMC shall make certain reports in accordance with the requirements of the Technical Specifications.

D. Records

NMC shall keep facility operating records in accordance with the requirements of the Technical Specifications.

These two conditions are no longer necessary because they are duplicative of regulations regarding reporting and record keeping. They are also duplicative of License Condition 3.B, Technical Specifications, which requires that NMC operate the facility in accordance with Technical Specifications. Finally, many of the Technical Specification requirements that these two conditions refer to are being relocated out of the Improved Technical Specifications to licensee controlled documents as specified in the conversion submittal and supplements thereto. Therefore, deletion of these two license conditions will have no impact on the reporting and record keeping requirements for Point Beach.

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

VOLUME 1	
SECTION 1.0	
DISCARD	**INSERT**
na	Facility Operating License DPR-24 pages 3 and 5
na	Facility Operating License DPR-24 pages 3 and 4
na	16.5 Reporting Requirements (Appendix B to Facility Operating Licenses DPR-24 and DPR-27) page 16.1-3
na	Appendix C, Additional Conditions, Operating License DPR-24 page C-1
na	Appendix C, Additional Conditions, Operating License DPR-27 page C-1
DOC pages 10 and 13 of 13	DOC pages 10 and 13 of 13
CTS markup pages 4, 5, and 8 of 19	CTS markup pages 4, 5, and 8 of 19
NSHC page 6 of 11	NSHC page 6 of 11
SECTION 2.0	
DISCARD	**INSERT**
DOC pages 1 through 5 of 5	DOC pages 1 through 6 of 6
CTS markup page 6 of 8	CTS markup page 6 of 8
NSHC pages 1 through 5 of 5	NSHC pages 1 through 6 of 6
SECTION 3.0	
DISCARD	**INSERT**
ISTS markup page 3.0-3	ISTS markup page 3.0-3
ISTS Bases markup page B 3.0-8	ISTS Bases markup page B 3.0-8
ITS pages 3.0-1 through 3.0-3	ITS pages 3.0-1 through 3.0-3
ITS Bases pages B 3.0-1 through B 3.0-14	ITS Bases pages B 3.0-1 through B 3.0-14

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

VOLUME 2	
SECTION 3.1.1	
DISCARD	**INSERT**
CTS markup page 1 of 6	CTS markup page1 of 6
SECTION 3.1.5	
DISCARD	**INSERT**
DOC pages 1 through 13 of 13	DOC pages 1 through 11 of 11
CTS markup pages 1, 2, 3, and 13 of 13	CTS markup pages 1, 2, 3, and 13 of 13
JFD pages 1 through 4 of 4	JFD pages 1 through 4 of 4
ISTS markup page 3.1-8	ISTS markup page 3.1-8
ISTS Insert 3.1.5-01 (one page)	ISTS Insert 3.1.5-01 (one page)
ISTS Bases markup page B 3.1.5-5	ISTS Bases markup page B 3.1.5-5
ISTS Bases Inserts B 3.1.5-1 through B 3.1.5-4	ISTS Bases Inserts B 3.1.5-1 through B 3.1.5-4
ITS page 3.1.4-1 through 3.1.4-4	ITS page 3.1.4-1 through 3.1.4-4
ITS Bases pages B 3.1.4-2 through B 3.1.4-9	ITS Bases pages B 3.1.4-2 through B 3.1.4-9
SECTION 3.1.6	
DISCARD	**INSERT**
DOC page 3 of 7	DOC page 3 of 7
CTS markup pages 1 and 2 of 9	CTS markup pages 1 and 2 of 9
JFD pages 1 and 2 of 2	JFD pages 1 and 2 of 2
ISTS markup page 3.1-12	ISTS markup page 3.1-12
ISTS Bases markup page B 3.1.6-4	ISTS Bases markup page B 3.1.6-4
ISTS Bases 3.1.6 Insert (one page)	ISTS Bases 3.1.6 Insert (one page)
ITS page 3.1.5-1	ITS page 3.1.5-1
ITS Bases pages B 3.1.5-3 through B 3.1.5-5	ITS Bases pages B 3.1.5-3 through B 3.1.5-5

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

SECTION 3.1.7	
DISCARD	**INSERT**
CTS markup pages 1 and 2 of 11	CTS markup pages 1 and 2 of 11
JFD pages 1 through 3 of 3	JFD pages 1 through 3 of 3
ISTS markup page 3.1-14	ISTS markup page 3.1-14
ISTS Bases markup page B 3.1.7-4	ISTS Bases markup page B 3.1.7-4
ISTS Bases Insert B 3.1.7-05 (one page)	ISTS Bases Insert B 3.1.7-05 (one page)
ITS page 3.1.6-1	ITS page 3.1.6-1
ITS Bases pages B 3.1.6-1 through B 3.1.6-7	ITS Bases pages B 3.1.6-1 through B 3.1.6-7
SECTION 3.1.8	
DISCARD	**INSERT**
CTS markup pages 1 through 8 of 8	CTS markup pages 1 through 9 of 9
JFD pages 1 through 8 of 8	JFD pages 1 through 7of 7
ISTS markup page 3.1-18	ISTS markup page 3.1-18
ISTS markup 3.1.8 Insert 3.1.8-01 (one page)	ISTS markup 3.1.8 Insert 3.1.8-01 (one page)
ISTS Bases markup page B 3.1.8-5	ISTS Bases markup page B 3.1.8-5
ITS Bases 3.1.8 Inserts (two pages)	ITS Bases 3.1.8 Inserts (three pages)
ITS pages 3.1.7-1 and 3.1.7-2	ITS pages 3.1.7-1 and 3.1.7-2
ITS Bases pages B 3.1.7-3 through B 3.1.7-5	ITS Bases pages B 3.1.7-3 through B 3.1.7-6
SECTION 3.2.1	
DISCARD	**INSERT**
CTS markup pages 1 through 13 of 13	CTS markup pages 1 through 12 of 12
SECTION 3.2.2	
DISCARD	**INSERT**
CTS markup pages 1 through 12 of 12	CTS markup pages 1 through 13 of 13

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

SECTION 3.2.3	
DISCARD	**INSERT**
CTS markup pages 1 through 5 of 5	CTS markup pages 1 through 6 of 6
SECTION 3.2.4	
DISCARD	**INSERT**
CTS markup pages 1, 4 and 5	CTS markup pages 1, 4 and 5
VOLUME 3	
SECTION 3.3.1	
DISCARD	**INSERT**
DOC page 39 of 41	DOC page 39 of 41
CTS markup page 26 of 30	CTS markup page 26 of 30
JFD page 25 of 27	JFD page 25 of 27
ISTS markup pages 3.3-18 through 3.3-20, including Insert 17.b (one page)	ISTS markup pages 3.3-18 through 3.3-20, including Insert 17.b (one page)
ISTS Bases markup pages B 3.3.1-26, B 3.3.1-27, and B 3.3.1-45	ISTS Bases markup pages B 3.3.1-26, B 3.3.1-27, and B 3.3.1-45
ITS page 3.3.1-15 through 3.3.1-17	ITS page 3.3.1-15 through 3.3.1-17
ITS Bases pages B 3.3.1-19 through 24, B 3.3.1-32, and B 3.3.1-33	ITS Bases pages B 3.3.1-19 through 24, B 3.3.1-32, and B 3.3.1-33
VOLUME 4	
SECTION 3.3.2	
DISCARD	**INSERT**
DOC pages 15, 17, and 18 of 18	DOC pages 15, 17, and 18 of 18
CTS markup page 7 of 23	CTS markup page 7 of 23
JFD page 24 of 25	JFD page 24 of 25
ISTS markup page 3.3-37	ISTS markup page 3.3-37
ISTS Bases markup page 92	ISTS Bases markup page 92

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

SECTION 3.3.2 (continued)	
DISCARD	**INSERT**
ITS page 3.3.2-7	ITS page 3.3.2-7
ITS Bases pages B 3.3.2-17 and B 3.3.2-18	ITS Bases pages B 3.3.2-17 and B 3.3.2-18
SECTION 3.3.3	
DISCARD	**INSERT**
DOC pages 10 and 11 of 18	DOC pages 10 and 11 of 18
ISTS markup page 3.3-42	ISTS markup page 3.3-42
ISTS Bases markup pages B 3.3.3-131 and B 3.3.3-136	ISTS Bases markup pages B 3.3.3-131 and B 3.3.3-136
ITS page 3.3.3-3	ITS page 3.3.3-3
ITS Bases pages B 3.3.3-9 and B 3.3.3-12	ITS Bases pages B 3.3.3-9 and B 3.3.3-12
SECTION 3.3.7	
DISCARD	**INSERT**
CTS markup page 6 of 6	CTS markup page 6 of 6
JFD pages 5 and 6 of 6	JFD pages 5 and 6 of 6
ISTS markup page 3.3-59	ISTS markup page 3.3-59
ISTS Bases markup Insert B 3.3.5-3	ISTS Bases markup Insert B 3.3.5-3
ITS page 3.3.5-3	ITS page 3.3.5-3
ITS Bases pages B 3.3.5-1 through B 3.3.5-4	ITS Bases pages B 3.3.5-1 through B 3.3.5-4
VOLUME 5	
SECTION 3.4.7	
DISCARD	**INSERT**
DOC page 3 of 6	DOC page 3 of 6
CTS markup page 4 of 5	CTS markup page 4 of 5
JFD page 2 of 2	JFD page 2 of 2
ISTS markup page 3.4-14	ISTS markup page 3.4-14

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

SECTION 3.4.7 (continued)	
DISCARD	**INSERT**
ISTS Bases markup page B 3.4.7-3	ISTS Bases markup page B 3.4.7-3
NSHC page 4 of 6	NSHC page 4 of 6
ITS page 3.4.7-1	ITS page 3.4.7-1
ITS Bases page B 3.4.7-3	ITS Bases page B 3.4.7-3
SECTION 3.4.15	
DISCARD	**INSERT**
ISTS markup pages 3.4-1 and 3.4-3	ISTS markup pages 3.4-1 and 3.4-3
ISTS Bases markup pages B 3.4.15-3 and B 3.4.15-6	ISTS Bases markup pages B 3.4.15-3 and B 3.4.15-6
ITS page 3.4.15-1 and 3.4.15-2	ITS page 3.4.15-1 and 3.4.15-2
ITS Bases pages B 3.4.15-1 through B 3.4.15-5	ITS Bases pages B 3.4.15-1 through B 3.4.15-5
VOLUME 6	
SECTION 3.5.2	
DISCARD	**INSERT**
DOC pages 1 through 13 of 13	DOC pages 1 through 12 of 12
CTS markup page 20 of 22	CTS markup page 20 of 22
JFD pages 1 through 7 of 7	JFD pages 1 through 6 of 6
ISTS markup page 3.5-4	ISTS markup page 3.5-4
ISTS Bases markup page B 3.5.2-6	ISTS Bases markup page B 3.5.2-6
ISTS Bases markup Insert page 1	ISTS Bases markup Insert page 1
NSHC pages 1 through 7 of 7	NSHC pages 1 through 8 of 8
ITS pages 3.5.2-1 and 3.5.2-2	ITS pages 3.5.2-1 and 3.5.2-2
ITS Bases pages B 3.5.2-1 through B 3.5.2-9	ITS Bases pages B 3.5.2-1 through B 3.5.2-7

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

SECTION 3.5.3	
DISCARD	**INSERT**
DOC pages 1 through 9 of 9	DOC pages 1 through 8 of 8
CTS markup page 11 of 12	CTS markup page 11 of 12
NSHC pages 1 through 6 of 6	NSHC pages 1 through 7 of 7
VOLUME 7	
SECTION 3.6.3	
DISCARD	**INSERT**
DOC page 4 of 7	DOC page 4 of 7
ISTS markup page 3.6-12	ISTS markup page 3.6-12
ISTS Bases markup page B 3.6.3-11	ISTS Bases markup page B 3.6.3-11
ISTS Bases markup Insert B 3.6.3-4 (page 2)	ISTS Bases markup Insert B 3.6.3-4 (page 2)
ITS page 3.6.3-4	ITS page 3.6.3-4
ITS Base page B 3.6.3-7	ITS Base page B 3.6.3-7
SECTION 3.6.6	
DISCARD	**INSERT**
DOC pages 1 through 8 of 8	DOC pages 1 through 9 of 9
CTS markup page 7 of 8	CTS markup page 7 of 8
NSHC pages 1 through 8 of 8	NSHC pages 1 through 9 of 9
SECTION 3.6.7	
DISCARD	**INSERT**
DOC pages 6 and 7 of 7	DOC pages 6 and 7 of 7
CTS markup page 7 of 8	CTS markup page 7 of 8
NSHC pages 1 through 9 of 9	NSHC pages 1 through 10 of 10

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

VOLUME 8	
SECTION 3.7.1	
DISCARD	**INSERT**
ISTS markup page 3.7-1	ISTS markup page 3.7-1
ITS page 3.7.1-1	ITS page 3.7.1-1
SECTION 3.7.2	
DISCARD	**INSERT**
JFD pages 1 through 5 of 5	JFD pages 1 through 6 of 6
SECTION 3.7.5	
DISCARD	**INSERT**
DOC pages 1 through 12 of 12	DOC pages 1 through 13 of 13
NSHC pages 1 through 8 of 8	NSHC pages 1 through 10 of 10
SECTION 3.7.8	
DISCARD	**INSERT**
DOC pages 4 through 8 of 9	DOC pages 4 through 8 of 9
CTS markup pages 2, 3, 8, 9, 10, and 11 of 12	CTS markup pages 2, 3, 8, 9, 10, and 11 of 12
JFD pages 1 through 5 of 6	JFD pages 1 through 5 of 6
ISTS markup page 3.7-19	ISTS markup page 3.7-19
ISTS markup Inserts (two pages)	ISTS markup Inserts (three pages)
ISTS Bases markup page B3.7.8-3	ISTS Bases markup page B3.7.8-3
ISTS Bases markup Inserts (nine pages)	ISTS Bases markup Inserts (eight pages)
ITS pages 3.7.8-1 through 3.7.8-4	ITS pages 3.7.8-1 through 3.7.8-4
ITS Bases pages B 3.7.8-1 through B 3.7.8-9	ITS Bases pages B 3.7.8-1 through B 3.7.8-9

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

VOLUME 9	
SECTION 3.8.1	
DISCARD	**INSERT**
DOC pages 3, 4, 12, and 17 through 20 of 22	DOC pages 3, 4, 12, and 17 through 20 of 22
CTS markup pages 17 and 19 of 23	CTS markup pages 17 and 19 of 23
JFD pages 1, 2, 4, 7, 9, and 10 of 20	JFD pages 1, 2, 4, 7, 9, and 10 of 20
ISTS markup page 3.8-4	ISTS markup page 3.8-4
ISTS markup Insert 3.8.1-1 (one page)	ISTS markup Insert 3.8.1-1 (one page)
ISTS Bases markup Inserts B 3.8.1-2, B 3.8.1-6, and B 3.8.1.11 (three pages)	ISTS Bases markup Inserts B 3.8.1-2, B 3.8.1-6, and B 3.8.1.11 (three pages)
NSHC pages 1 through 14 of 14	NSHC pages 1 through 15 of 15
ITS pages 3.8.1-1 and 3.8.1-4	ITS pages 3.8.1-1 and 3.8.1-4
ITS Bases pages B 3.8.1-6, B 3.8.1-14 through B 3.8.1-16, and B 3.8.1-21	ITS Bases pages B 3.8.1-6, B 3.8.1-14 through B 3.8.1-16, and B 3.8.1-21
SECTION 3.8.3	
DISCARD	**INSERT**
DOC page 4 of 4	DOC page 4 of 4
SECTION 3.8.4	
DISCARD	**INSERT**
JFD pages 1 through 5 of 5	JFD pages 1 through 4 of 4
ISTS markup page 3.8-26	ISTS markup page 3.8-26
ISTS Bases markup page B 3.8.4-7	ISTS Bases markup page B 3.8.4-7
ISTS Bases markup Insert B 3.8.4-5 (one page)	ISTS Bases markup Insert B 3.8.4-5 (one page)
ITS page 3.8.4-2	ITS page 3.8.4-2
ITS Bases pages B 3.8.4-1 through B 3.4.8-10	ITS Bases pages B 3.8.4-1 through B 3.4.8-8

ATTACHMENT 2
DISCARD AND INSERTION INSTRUCTIONS

SECTION 3.8.9	
DISCARD	**INSERT**
DOC pages 3 through 5 of 7	DOC pages 3 through 5 of 7
CTS markup page 15 of 16	CTS markup page 15 of 16
JFD page 2 of 4	JFD page 2 of 4
ISTS markup Insert 3.8.9-1 (one page)	ISTS markup Insert 3.8.9-1 (one page)
ISTS Bases markup Insert B 3.8.9-3 (two pages)	ISTS Bases markup Insert B 3.8.9-3 (two pages)
ITS page 3.8.9-1	ITS page 3.8.9-1
ITS Bases pages B 3.8.9-4 through B 3.4.9-7	ITS Bases pages B 3.8.9-4 through B 3.4.9-7
VOLUME 10	
SECTION 3.9.3	
DISCARD	**INSERT**
DOC pages 1 through 4 of 4	DOC pages 1 through 5 of 5
CTS markup page 2 of 5	CTS markup page 2 of 5
ISTS Bases markup Insert B3.9.2-4 (one page)	ISTS Bases markup Insert B3.9.2-4 (one page)
NSHC pages 1 through 4 of 4	NSHC pages 1 through 5 of 5
ITS Bases pages B 3.9.2-1 through B 3.9.2-4	ITS Bases pages B 3.9.2-1 through B 3.9.2-4

ENCLOSURE

A. Maximum Power Levels

NMC is authorized to operate the facility at reactor core power levels not in excess of 1518.5 megawatts thermal.

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 201, are hereby incorporated in the license. NMC shall operate the facility in accordance with Technical Specifications.

C. Deleted

D. Deleted

E. Spent Fuel Pool Modification

The licensee* is authorized to modify the spent fuel storage pool to increase its storage capacity from 351 to 1502 assemblies as described in licensee's application dated March 21, 1978, as supplemented and amended. In the event that the on-site verification check for poison material in the poison assemblies discloses any missing boron plates, the NRC shall be notified and an on-site test on every poison assembly shall be performed.

F. NMC shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FFR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Point Beach Nuclear Plant Modified Amended Security Plan," with revisions submitted through March 23, 1988; "Point Beach Nuclear Plant Modified Amended Security Force Training and Qualification Plan," with revisions submitted through August 6, 1982; and "Point Beach Nuclear Plant Modified Amended Security Contingency Plan," with revisions submitted through March 6, 1981. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

* Reference to the licensee in License Conditions 3.E, 3.G and 3.J refers to Wisconsin Electric Power Company and is maintained for historical purposes.

K. Additional Conditions

The Additional Conditions contained in Appendix C, as revised through Amendment No. 201, are hereby incorporated into this license. NMC shall operate the facility in accordance with the Additional Conditions.

4. The issuance of this amended license is without prejudice to subsequent licensing action which may be taken by the Commission with regard to the ongoing rulemaking hearing on the Interim Acceptance Criteria for Emergency Core Cooling Systems (Docket No. RM 50-1).

5. This amended license is effective as of the date of issuance, and shall expire at midnight on October 5, 2010.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed By

A. Giambuso, Deputy Director
for Reactor Projects
Directorate of Licensing

Attachments:
1. Appendix A -Technical Specifications
2. Appendix B - Environmental Technical Specifications
3. Appendix C - Additional Conditions

Date of Issuance: October 5, 1970

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 206, are hereby incorporated in the license. NMC shall operate the facility in accordance with Technical Specifications.

C. Deleted

D. Deleted

E. Spent Fuel Pool Modification

The licensee* is authorized to modify the spent fuel storage pool to increase its storage capacity from 351 to 1502 assemblies as described in licensee's application dated March 21, 1978, as supplemented and amended. In the event that the on-site verification check for poison material in the poison assemblies discloses any missing boron plates, the NRC shall be notified and an on-site test on every poison assembly shall be performed.

F. Physical Protection

NMC shall fully implement and maintain in effect all provisions of the Commission-approved physical security guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Point Beach Nuclear Plant Modified Amended Security Plan," with revisions submitted through March 23, 1988; "Point Beach Nuclear Plant Modified Amended Security Force Training and Qualification Plan," with revisions submitted through August 6, 1982; and "Point Beach Nuclear Plant Modified Amended Security Contingency Plan," with revisions submitted through March 6, 1981. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

* Reference to the licensee in License Conditions 3.E and 3.G refers to Wisconsin Electric Power Company and is maintained for historical purposes.

G. Safety Injection Logic

The licensee is authorized to modify the safety injection actuation logic and actuation power supplies and related changes as described in licensee's application for amendment dated April 27, 1979, as supplemented May 7, 1979. In the interim period until the power supply modification has been completed, should any DC powered safety injection actuation channel be in a failed condition for greater than one hour, the unit shall thereafter be shutdown using normal procedures and placed in a block-permissive condition for safety injection actuation.

H. NMC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility and as approved in the SER dated August 2, 1979 (and Supplements dated October 21, 1980, January 22, 1981, and July 27, 1988) and the safety evaluation issued January 8, 1997, for Technical Specification Amendment No. 174, subject to the following provision:

> NMC may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

I. Secondary Water Chemistry Monitoring Program

NMC shall implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
2. Identification of the procedures used to quantify parameters that are critical to control points;
3. Identification of process sampling points
4. Procedure for the recording and management of data;
5. Procedures defining corrective actions for off control point chemistry condition; and
6. A procedure for identifying the authority responsible for the interpretation of the data, and the sequence and timing of administrative events required to initiate corrective action.

J. Additional Conditions

The Additional Conditions contained in Appendix C, as revised through Amendment No. 206, are hereby incorporated into this license. NMC shall operate the facility in accordance with the Additional Conditions.

16.5 Reporting Requirements

Specification

1. As part of the Annual Monitoring Report, described in Section 5.6.2 of Appendix A, the following shall be reported:

   a. All scheduled and unscheduled chemical discharge to the condenser cooling water.
   b. A description of circulating water system operation for each unit which includes ambient temperature, intake temperature, discharge temperature, and circulating water system flow.

APPENDIX C
ADDITIONAL CONDITIONS
OPERATING LICENSE DPR-24

Nuclear Management Company, LLC shall comply with the following conditions and the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
174	This amendment is authorized contingent on compliance with commitments provided by the licensee to operate Point Beach Nuclear Plant in accordance with its service water system analyses and approved procedures. Specifically, each unit will utilize only one component cooling water heat exchanger until such time as analyses are completed and the service water system reconfigured as necessary to allow operation of one or both units with two heat exchangers in service. If two component cooling water heat exchangers are required in one or both units for maintaining acceptable component cooling water temperature prior to completion of necessary analyses to allow operation in the required configuration, the service water system will be considered in an unanalyzed condition, declared inoperable, and action taken as specified by TS LCO 3.0.3 except for short periods of time as necessary to effect procedurally controlled changes in system lineups and unit operating conditions.	Immediately
201	The licensee is authorized to relocate certain Technical Specification requirements previously included in Appendix A to licensee controlled documents, as described in Table R, Relocated Specifications and Removal of Details Matrix, attached to the NRC Staff's safety evaluation dated _______________, 2001. These requirements shall be relocated to the appropriate documents no later than December 31, 2001.	Immediately
201	The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment 201 shall be as follows: For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment. For SRs that existed prior to this amendment, whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment. For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment. For SRs that existed prior to this amendment, whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.	Immediately

APPENDIX C
ADDITIONAL CONDITIONS
OPERATING LICENSE DPR-27

Nuclear Management Company, LLC shall comply with the following conditions and the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
178	This amendment is authorized contingent on compliance with commitments provided by the licensee to operate Point Beach Nuclear Plant in accordance with its service water system analyses and approved procedures. Specifically, each unit will utilize only one component cooling water heat exchanger until such time as analyses are completed and the service water system reconfigured as necessary to allow operation of one or both units with two heat exchangers in service. If two component cooling water heat exchangers are required in one or both units for maintaining acceptable component cooling water temperature prior to completion of necessary analyses to allow operation in the required configuration, the service water system will be considered in an unanalyzed condition, declared inoperable, and action taken as specified by TS LCO 3.0.3 except for short periods of time as necessary to effect procedurally controlled changes in system lineups and unit operating conditions.	Immediately
206	The licensee is authorized to relocate certain Technical Specification requirements previously included in Appendix A to licensee controlled documents, as described in Table R, Relocated Specifications and Removal of Details Matrix, attached to the NRC Staff's safety evaluation dated _______________, 2001. These requirements shall be relocated to the appropriate documents no later than December 31, 2001.	Immediately
206	The schedule for performing Surveillance Requirements (SRs) that are new or revised in Amendment 206 shall be as follows: For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment. For SRs that existed prior to this amendment, whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment. For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment. For SRs that existed prior to this amendment, whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.	Immediately

DOC Number	DOC Text	
L.05 Rev. F	The CTS definition of Power Operation requires the reactor to be critical and the power range instrumentation indicating greater than 2% rated power. The CTS definition of Power Operation has been moved to ITS Table 1.1-1 as MODE 1 and footnote (a). The ITS will define MODE 1 as; Keff greater than or equal to 0.99 with Rated thermal power greater than 5%, excluding decay heat. For the reactor to be critical and producing greater than 5% power, Keff must be greater than 0.99 (during reactor operation, Keff varies slightly around the average Keff of 1.0. The addition of a Keff requirement to the definition does not technically change the CTS definition. Any changes that are not administrative as a result of changing this definition are addressed in the Description of Change specific to the affected requirement. The CTS defines Power Operation based on neutron flux indication, whereas the ITS defines MODE 1 as a percent of rated thermal power excluding decay heat. Industry accepted practice for determining power level excluding decay heat is through use of indicated neutron flux (power range detectors). Neutron flux indication excludes decay heat. Accordingly, this change is administrative. Revision of defined power level for power operation to be greater than 5% of rated thermal power versus 2% is less restrictive. The purpose of establishing this limit is to define a transition point between power operation and low power operation (Mode 1 and Mode 2). Raising the transition point from 2% to 5% has negligible impact on reactor operation and is consistent with NUREG-1431. See DOC M.03.	
	CTS:	**ITS:**
	15.01.H	1.01 T1.01-01 MODE 1 1.01 T1.01-01 NOTE A
L.06 Rev. D	The CTS provides a definition of Protective Instrumentation Logic, which has been proposed for deletion from the Technical Specifications. This definition provides explanation of what a Protective Logic Channel consists of, but is not used in the context of a defined term within the CTS. This information does not establish any regulatory requirement, but rather provides a description of plant equipment/design which are not required to provide adequate protection of public health and safety.	
	CTS:	**ITS:**
	15.01.E.01	DELETED
L.07 Rev. D	The CTS provides a definition of Logic Channel, which has been proposed for deletion from the Technical Specifications. This definition provides explanation of what a Logic Channel consists of, but is not used in the context of a defined term within the CTS. This information does not establish any regulatory requirement, but rather provides a description of plant equipment/design which are not required to provide adequate protection of public health and safety.	
	CTS:	**ITS:**
	15.01.E.02	DELETED

DOC Number	DOC Text
M.02 Rev. A	The CTS does not contain a definition of Mode 4; however, the CTS does provide LCO Applicabilities and Actions based on unit conditions such as RCS temperature or "whenever the unit is not in cold shutdown". Mode 4 is being added to the ITS. The addition of Mode 4 to the ITS is being made to establish the use of a consistent exclusive set of Conditions/Modes so there will be no ambiguity regarding which Mode or Condition the unit is in. The CTS when specifying Action Statement shutdowns requires the unit to be placed into Hot Shutdown (ITS Mode 3) and Cold Shutdown (ITS Mode 5) within specified time limits (e.g. Hot Shutdown within 7 hours and Cold Shutdown within 37 hours). The CTS does not contain an equivalent Mode or Condition to Mode 4, which when applied to a Technical Specification required shutdown could allow the unit to remain in Mode 3 for an unspecified period of time, provided that the unit still achieves Mode 5 in less than or equal to 37 hours. Accordingly, while being proposed to establish consistently applied operational Conditions, the addition of Mode 4 represents a more restrictive change. **CTS:** NEW **ITS:** 1.01 T1.01-01 MODE 4
M.03 Rev. F	The CTS definition of Low Power Operation requires the reactor to be critical and the power range instrumentation indicating less than or equal to 2% rated power. The definition of Low Power Operation has been moved to ITS Table 1.1-1 as MODE 2. The ITS will define Low Power Operation as Keff greater than or equal to 0.99 with Rated thermal power less than or equal to 5%, excluding decay heat. For the reactor to be critical, Keff is greater than or equal to 0.99; (during reactor operation, Keff varies slightly around the average Keff of 1.0), accordingly, defining MODE 2 based on Keff in place of reactor critical is administrative. Therefore, defining Low Power Operation based on Keff is administrative. The CTS defines Low Power Operation based on neutron flux indication, whereas the ITS defines Low Power Operation as a percent of rated thermal power excluding decay heat. Industry accepted practice for determining power level excluding decay heat is through use of indicated neutron flux (power range detectors). Neutron flux indication excludes decay heat. Accordingly, this change is administrative. Revision of defined power level for low power operation to be less than or equal to 5% of rated thermal power versus 2% is more restrictive. The purpose of establishing this limit is to define a transition point between power operation and low power operation (Mode 1 and Mode 2). Raising the transition point from 2% to 5% has negligible impact on reactor operation and is consistent with NUREG-1431. See DOC L.05. **CTS:** 15.01.L — **ITS:** DELETED **CTS:** 15.01.M — **ITS:** 1.01 T1.01-01 MODE 2

Replace with Insert 1.0-07

A.1

A.05

2) Cold Shutdown
~~The reactor is in the cold shutdown condition when the reactor has a shutdown margin of at least 1 percent Δk/k and reactor coolant temperature is ≤200°F.~~

<See LCO 3.6.3 and 3.9.1>

~~3)~~ ~~Refueling Shutdown~~
The reactor is in the refueling shutdown condition when the reactor is subcritical by at least 5 percent Δk/k and ~~T_{avg} is ≤140°F.~~ ~~A refueling shutdown refers to a shutdown to move fuel to and from the reactor core.~~

L.02

Mode 6 Replace with Insert 1.0-08

A.06

~~4)~~ Shutdown Margin
~~Shutdown margin is the instantaneous amount of reactivity by which the reactor core would be subcritical if all withdrawn control rods were tripped into the core but the highest worth withdrawn RCCA remains fully withdrawn. If the reactor is shut down from a power condition, the hot shutdown temperature should be assumed. In other cases, no change in temperature should be assumed.~~

A.07

Replace with Insert 1.0-09

F
RAI 1.0-3

L.05

~~h.~~ Power Operation
~~The reactor is in power operating condition when the reactor is critical and the average neutron flux of the power range instrumentation indicates greater than 2 percent of rated power.~~

Replace with Insert 1.0-10

~~i.~~ ~~Refueling Operation~~ CORE ALTERATIONS
~~Refueling operation is any operation involving movement of core components (those that could affect the reactivity of the core) within the containment when the vessel head is removed.~~

Replace with Insert 1.0-11

LA.03

j. ~~Rated Power~~ RTP shall be a total
~~Rated power is here defined as a steady state~~ reactor core ~~output~~ heat transfer rate to the reactor coolant of 1518.5 MWT.

A.09

~~k.~~ Thermal Power
Thermal power is defined as the total core heat transferred from the fuel to the coolant.

RATED THERMAL POWER (RTP)

A.09

A.1

A.10

~~l. Reactor Critical~~

~~The reactor is said to be critical when the neutron chain reaction is self-sustaining and k_{eff} = 1.0.~~

Replace with Insert 1.0-12

M.3

~~m. Low Power Operation~~

~~The reactor is in the low-power operating condition when the reactor is critical and the average neutron flux of the power range instrumentation indicates less than or equal to 2% of rated power~~.

F
RAI 1 0-3

~~n. Fire Suppression Water System~~

~~A FIRE SUPPRESSION WATER SYSTEM shall consist of: a water source; pump(s); and distribution piping with associated sectionalizing control or isolation valves. Such valves shall include yard post indicating valves and the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe or spray system riser.~~

A.12

a) Rod Operability Requirements

(1) If one rod is determined to be untrippable, perform the following actions:

< See Sections 3.1.5 >

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2;
OR
(b) Within one hour restore the shutdown margin by boration;
OR
(c) Within six hours be in hot shutdown.

(2) If sustained power operation with an untrippable rod is desired, perform the following actions:

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;
AND
(b) Within six hours, adjust the insertion limits to reflect the worth of the untrippable rod.

A.07

(c) If the above actions and associated completion times are not met, be in hot shutdown within six hours.

(3) If more than one rod is determined to be untrippable, perform the following actions:

< See Sections 3.1.5 and 3.1.8 >

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;
AND
(b) Within six hours be in hot shutdown.

b. Rod Bank Alignment Limits

(1) If it has been determined that one rod is not within alignment limits, and the indicated misalignment is not being caused by malfunctioning rod position indication, within one hour restore the rod to within alignment limits; OR perform the following actions:

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;
AND

NSHC Number	NSHC Text
L.05 Rev. F	In accordance with the criteria set forth in 10 CFR 50.92, PBNP has evaluated this proposed Technical Specifications change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion. 1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? This change raises the transition point from low power operation (Mode 2) to power operation (Mode 1). The defined transition point will rise from 2% to 5% power. Operating Mode is administratively defined; it is not an accident precursor. Therefore, the probability of an accident is unchanged. More restrictive TS limits are imposed upon reactor operation in Mode 1. These limits would be imposed at a power level of 5% versus the previous 2%. However, any additional onsite or offsite releases resulting from an accident initiated at 5% power versus 2% power is minor. Therefore, the consequences of an accident previously evaluated are insignificant. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change only delineates a different transition point between two reactor operating modes (Mode 1 and Mode 2). Therefore, this change will not create a new or different kind of accident from any previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? The proposed change establishes a different transition point between reactor operating modes (Mode 1 and Mode 2). Both the original transition point of 2% and the new transition point of 5% are based on establishing a convenient transition point from low power to power operation, where the reactor is near its minimum self-sustaining power level. The difference between these two values is minimal; therefore, this change does not involve a significant reduction in a margin of safety.

Description of Changes - NUREG-1431 Section 2.0

09-May-01

DOC Number	DOC Text	
A.01 Rev. A	In the conversion of Point Beach current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS), certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the Standard Technical Specifications, Westinghouse Plants, NUREG-1431, Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).	
	CTS:	**ITS:**
	15.02.01.01	2.01.01
	15.02.02	2.01.02
	15.02.02 APPL	2.01.02
A.02 Rev. B	Not Used	
	CTS:	**ITS:**
	N/A	N/A
A.03 Rev. A	The Bases of the current Technical Specifications for this section have been completely replaced by revised Bases that reflect the format and applicable content of PBNP ITS, consistent with the Standard Technical Specifications for Westinghouse Plants, NUREG-1431. The revised Bases are as shown in the PBNP ITS Bases.	
	CTS:	**ITS:**
	BASES	B 2.0
A.04 Rev. A	The CTS RCS Pressure Safety Limit states that it is applicable when there is fuel in the reactor vessel. The definition of Mode in the ITS requires there to be fuel in the reactor vessel to be in a specified Mode. Accordingly, the change from "with fuel assemblies installed in the reactor vessel" to "Modes 1, 2, 3, 4, 5, and 6" is an administrative change.	
	CTS:	**ITS:**
	15.02.02	DELETED
A.05 Rev. A	The CTS provides an introductory statement (Objective) at the beginning of each Safety Limits section which provides a brief summary of the purpose for this Section. This information does not establish any regulatory requirements, since this information does not establish any regulatory requirement, this summary information is not required to provide adequate protection of public health and safety. Deletion of this information does not alter any requirement set forth in the Technical Specifications. The ITS equivalent of this information is contained in the Bases of each Specification, which provides a detailed explanation of the objective for each Specification.	
	CTS:	**ITS:**
	15.02.01 OBJ	DELETED
	15.02.02 OBJ	DELETED

DOC Number	DOC Text	
L.01 Rev. A	The CTS Applicability of the Reactor Core Safety Limits is "during Operation" The proposed ITS Core Safety Limits for Point Beach have proposed an Applicability of Modes 1 and 2. The Core Safety Limits are imposed to restrict operation such that overheating and damage of the fuel will not occur. Damage from this mechanism is only probable during power operations (Modes 1 and 2).	
	CTS:	**ITS:**
	15.02.01 APPL	2.01.01
L.02 Rev. F	CTS 15.6.7.C details reporting requirements which are duplicative of those required under 10 CFR50.72 and 50.73. Designation of the individual responsible for providing this information is adequately controlled by plant practices and processes. There is no safety reduction in removing detail from the Technical Specifications relative to the individual who must provide information to the NRC, as regulation 10CFR 50.72 and 50.73 will still require this information to be provided. Additionally, CTS 15.6.7.D contains a requirement to provide a Safety Limit violation report to the NRC within 10 days of the occurrence. This time frame is not sufficient to perform a detailed review of the event, the circumstances, effects of the occurrence on the plant, and corrective actions. Removing this requirement from the Technical Specifications will allow extension of the time frame for a written report (LER) to 30 days consistent with 10CFR 50.73. This change is acceptable based on the need to perform a detailed review and investigation as well as the fact that the ITS has added explicit Actions to the Technical Specifications requiring restoration of compliance with Safety Limits after any violation. Therefore, extending the time frame for a written report has no impact on safety, as the plant has been placed into a safe and stable condition.	
	CTS:	**ITS:**
	15.06.07.C	DELETED
	15.06.07.D	DELETED

DOC Number	DOC Text
LA.01 Rev. F	CTS 15.6.7, administrative actions to be taken if a Safety Limit is violated have been deleted from the Technical Specifications.

Specification 15.6.7.B details company internal reporting requirements. These reporting requirements can be deleted from the Technical Specifications and controlled via licensee controlled mechanisms with no impact on safety. The Quality Assurance Manual provides details on internal reporting and review requirements. This document is maintained in accordance with 10 CFR 50.54. Changes to these requirements will be processed accordingly.

Specification 15.6.7.D contains a requirement to have the Safety Limit violation report reviewed by the Chief Nuclear Officer and Chairman of the Off-Site Review Committee. This requirement will be deleted from the Technical Specifications. The ITS has added explicit Actions to the Technical Specifications requiring restoration of compliance with any Safety Limits violation, placing the plant in a safe and stable condition. The CTS requirement dictating personnel required to review the Safety Limits violation report has no direct bearing on plant safety and accordingly, can be deleted from the Technical Specifications and controlled by the licensee. The ITS has added explicit Actions to the Technical Specifications requiring restoration of compliance with any Safety Limits violation, placing the plant in a safe and stable condition. The Quality Assurance Manual provides details on internal reporting and review requirements. This document is maintained in accordance with 10 CFR 50.54. Changes to these requirements will be processed accordingly.

CTS:	**ITS:**
15.06.07.B	DELETED
15.06.07.D	DELETED

DOC Number	DOC Text
LA.02 Rev. B	The Reactor Core Safety Limit Curves (CTS Figure 15.02.01-01 and 15.02.01-02) have been relocated to the Core Operating Limits Report (COLR) under licensee control. This is consistent with Approved TSTF-339, rev. 1, which relocated this figure out of the STS and into the COLR to be in accordance with the approved version of WCAP-14483-A "Generic Methodology for Expanded Core Operating Limits Report." The figures represent core limits on RCS temperature conditions as a function of pressurizer pressure and fractional rated power. These limits can be relocated with no impact on safety. The limits defined by the curve alert the licensee of a potential violation of a core safety limit. Additional evaluation will be required to determine if an actual safety limit (DNBR and fuel centerline melt design basis limits), which are included in the proposed ITS, has been violated. Therefore, there is no reduction in a level of safety by relocating the curves to the COLR as controls are still in place to define and ensure appropriate action is taken in the event of a violation of a safety limit. The Reactor Core Safety Limit curves are being replaced by the specific safety limits protected by the curves. These are the maximum fuel centerline temperature limit which prevents melting of the fuel and the DNBR correlation limits to protect against a departure of nucleate boiling. These are the actual safety limits and thus meet the intent of the CTS to protect against violation of the safety limits. As indicated above, the curves will be maintained under licensee control in the COLR and will continue to be used to alert the licensee to a potential violation of the defined safety limits. This change is less restrictive, since the curves are being relocated out of the Technical Specifications and into the COLR, which is under licensee control.

CTS:	**ITS:**
15.02.01.01 F 15.02.01-1	COLR
15.02.01.01 F 15.02.01-2	COLR
NEW	2.01.01.01
	2.01.01.02

DOC Number	DOC Text	
LB.01 Rev. F	Several administrative actions stated in CTS 15.6.7 for violation of a Safety Limit are duplicative of regulations, and are therefore unnecessary in the Technical Specifications. Specification 15.6.7.A requiring that the unit remain shutdown until NRC approval is received and Specification 15.6.7.D, detailing Safety Limit violation report content are duplicative of 10CFR 50.36 and 10CFR 50.73 respectively. Accordingly, these items are adequately controlled through regulations and do not have to be repeated in the Technical Specifications. Specification 15.6.7.C details reporting requirements which are duplicative of those required under 10 CFR50.72 and 50.73. These details are adequately controlled through regulations and do not have to be repeated in the Technical Specifications. There is no safety reduction in removing these details from the Technical Specifications, as regulation 10CFR 50.72 and 50.73 will still require this information to be provided.	
	CTS:	**ITS:**
	15.06.07.A	DELETED
	15.06.07.C	DELETED
M.01 Rev. A	The CTS defines exceeding the Core Safety Limit as when the combination of reactor coolant system average temperature and power level is above the appropriate pressure line. The proposed ITS for Point Beach defines violation of the Core Safety Limit based on "highest loop average" temperature versus the "average" temperature. This change is more restrictive than the existing Technical Specifications which would allow averaging of both RCS loops together. By defining the limit as being the highest loop average temperature, the most limiting loop is utilized in determining compliance with the Safety Limit, which represents the loop closest to approaching saturation temperature or the core exit quality limit assumed in the DNBR correlations.	
	CTS:	**ITS:**
	15.02.01.01	2.01.01

DOC Number	DOC Text
M.02 Rev. A	CTS requires the reactor to be shutdown (CTS 15.6.7.A), in the event of either Safety Limit (i.e. Core and RCS Pressure) being violated, but does not contain any explicit time limit for the shutdown. In addition, requiring a reactor shutdown for exceeding the RCS Pressure Safety Limit, is ambiguous when the reactor is not critical. The proposed ITS contains an explicit time limit of one hour to place the unit in Mode 3 (reactor shutdown) and to restore compliance in the event of a Safety Limit violation in Modes 1 and 2. One hour to restore compliance and to place the unit in Mode 3 is a reasonable amount of time to reduce RCS temperature, core power, or adjust RCS pressure (as applicable) to restore compliance with the Core or RCS Pressure Safety Limit, and to complete a plant shutdown, giving consideration to the severity of a Safety Limit violation. In Modes other than 1 and 2, the only Safety Limit which is applicable is the RCS pressure limit, which has been given an Action to restore compliance within 5 minutes. Restoration of RCS pressure within 5 minutes when the reactor is not critical is deemed to be adequate based on restoration actions necessary and the significance of a Safety Limit violation in this condition. The addition of this completion time and restoration actions are more restrictive requirements, imposed for consistency with NUREG 1431.

CTS:	**ITS:**
15.06.07.A	2.02.01
	2.02.02
NEW	2.02.02.01
	2.02.02.02

15.6.7 ACTION TO BE TAKEN IF A SAFETY LIMIT IS EXCEEDED

Specification

A. If a safety limit is exceeded, ~~the affected reactor shall be shut down and reactor operation shall not be resumed until approval is received from the NRC.~~

~~B. An immediate report shall be made to the Chief Nuclear Officer and the Chairman of the Off-Site Review Committee.~~

LA.01

L.2

~~C. The Chief Nuclear Officer shall report the circumstances to the NRC.~~

~~D. A Safety Limit Violation Report including a complete analysis of the circumstances leading to and resulting from the occurrence, effects upon facility components, systems or structures, together with recommendations to prevent a recurrence, shall be prepared. This report shall be submitted to the Chief Nuclear Officer and the Chairman of the Off-Site Review Committee. A Safety Limit Violation Report shall be submitted to the NRC by the Chief Nuclear Officer within 10 days of the occurrence.~~

LB.1

L.2

LB.01

M.02

F

Errata #89

Core Safety Limit Action:	"restore compliance and be in MODE 3 within 1 hour."
RCS Pressure Safety Limit Action:	"In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour" <u>AND</u> "In Modes 3, 4, 5, and 6, rest ore compliance within 5 minutes."

No Significant Hazards Considerations - NUREG-1431 Section 2.0

09-May-01

NSHC Number	NSHC Text
A Rev. A	In accordance with the criteria set forth in 10 CFR 50.92, PBNP has evaluated this proposed Technical Specifications change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion. 1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? The proposed change involves reformatting and rewording of the current Technical Specifications. The reformatting and rewording process involves no technical changes to existing requirements. As such, this change is administrative in nature and does not impact initiators of analyzed events or assumed mitigation of accident or transient events. Therefore, this change does not increase the probability or consequences of an accident previously evaluated. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change will not impose any new or eliminate any old requirements. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? The proposed change will not significantly reduce the margin of safety because it has no impact on any safety analysis assumptions. This change is administrative. As such, there is no technical change to the requirements and, therefore, there is no reduction in the margin of safety.

NSHC Number	NSHC Text
L.01 Rev. A	1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? The Applicability of the Reactor Core Safety Limits has been revised from "during Operation" to Modes 1 and 2. The Core Safety Limits are imposed to restrict operation such that overheating and damage of the fuel will not occur. Damage from this mechanism is only probable during power operations (Modes 1 and 2). Revising the Mode of Applicability for the Reactor Core Safety Limits to Mode 1 and 2 has no impact on accident precursors; therefore, there is no significant effect on the probability of an event occurring. The consequences for previously evaluated events are unchanged as this Specification provides only limitations which will drive plant shutdowns and reporting requirements. Core protection and mitigation of events is provided by the Reactor Protection System, whose function and limitations remain unchanged by this proposed changes. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change provides a defined Mode of Applicability for the Reactor Core Safety Limit reflective of plant conditions which could present a challenge to this barrier. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? Operation of the plant will be unaffected by this change. Core protection and operational limits will continue to be maintained by the Reactor Protection System. In this fashion the margin of safety remains unchanged.

NSHC Number	NSHC Text
L.02 Rev. F	In accordance with the criteria set forth in 10 CFR 50.92, PBNP has evaluated this proposed Technical Specifications change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion. 1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? Details associated with the reporting requirements for exceeding a safety limit are duplicative of those required under 10 CFR50.72 and 50.73. Removing this information from technical specifications has no impact on accident precursors or on the mitigation of an event; therefore, there is no significant increase in the probability or consequences of any previously evaluated accident. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change removes details related to the reporting requirements for exceeding a safety limit. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? There is no safety reduction in removing details from the technical specifications relative to the individual who must provide information to the NRC, or for extending the time required for providing a written report to the NRC. 10CFR 50.72 and 50.73 will still require this information to be provided.

NSHC Number	NSHC Text
LA Rev. A	In accordance with the criteria set forth in 10 CFR 50.92, PBNP has evaluated this proposed Technical Specifications change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion. 1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? The proposed change relocates requirements from the Technical Specifications to the Bases, FSAR, or other plant controlled documents. The Bases and FSAR will be maintained using the provisions of 10 CFR 50.59. In addition to 10 CFR 50.59 provisions, the Technical Specifications Bases are subject to the change process in the Administrative Controls Chapter of the ITS. Plant procedures and other plant controlled documents are subject to controls imposed by plant administrative procedures, which endorse applicable regulations and standards. Changes to the Bases, FSAR, or other plant controlled documents will be evaluated in accordance with the requirements of the Bases Control Program in Chapter 5.0 of the ITS, 10 CFR 50.59, or plant administrative processes. Therefore, no increase in the probability or consequences of an accident previously evaluated will be allowed. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change will not impose any different requirements and adequate control of the information will be maintained. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? The proposed change will not reduce a margin of safety because it has no impact on any safety analysis assumptions. In addition, the requirements to be moved from the Technical Specifications to the Bases, FSAR, or other plant controlled documents are as they currently exist. Future changes to the requirements in the Bases, FSAR, or other plant controlled documents will be evaluated in accordance with the requirements of 10 CFR 50.59, the Bases Control Program in Chapter 5.0 of the ITS, or the applicable plant process and no reduction in a margin of safety will be allowed.

NSHC Number	NSHC Text
LB Rev. A	In accordance with the criteria set forth in 10 CFR 50.92, PBNP has evaluated this proposed Technical Specifications change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion. 1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? This change involves deletion of a Specifications/information which is duplicative of information contained in the Code of Federal Regulations (CFRs). This information is more appropriately addressed by the CFRs and serves no purpose in the Technical Specifications. Deletion of this information will not result in an increase in the probability of an accident. Regulatory requirements do not alter plant design or configuration; therefore, this does not alter any event precursor. Accordingly, there will be no effect on the consequences of any accident. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change deletes materials from the Technical Specifications which are adequately addressed in the CFRs. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? The proposed change deletes materials from the Technical Specifications which are duplicative of requirements contained in the CFRs. These items are not an input to any accident analysis and, therefore, have no impact on margin of safety.

NSHC Number	NSHC Text
M Rev. A	In accordance with the criteria set forth in 10 CFR 50.92, PBNP has evaluated this proposed Technical Specifications change and determined it does not represent a significant hazards consideration. The following is provided in support of this conclusion. 1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated? The proposed change provides more restrictive requirements for operation of the facility. These more stringent requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter the assumptions relative to the mitigation of an accident or transient event. These more restrictive requirements continue to ensure process variables, structures, systems and components are maintained consistent with the safety analyses. Therefore, this change does not increase the probability or consequences of an accident previously evaluated. 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated? The proposed change does not require a physical alteration of the plant (no new or different type of equipment will be installed) or changes in parameters governing normal plant operation. The proposed change does impose different requirements. However, these changes are consistent with assumptions made in the safety analysis. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated. 3. Does this change involve a significant reduction in a margin of safety? The imposition of more restrictive requirements either has no affect on or increases the margin of safety. Each change is providing additional restrictions to enhance plant safety. These changes are consistent with the safety analysis. Therefore, this change does not involve a reduction in a margin of safety.

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, ~~additional~~ evaluation~~s and limitations may be required~~ in accordance with Specification 5.5.~~15~~, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by ~~this program~~, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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Errata #66

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Test Exception LCOs ~~[3.1.9, 3.1.10, 3.1.11, and 3.4.19]~~ allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

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BASES

LCO 3.0.6 (continued)

system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the unit is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

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Specification 5.5.~~5~~ "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

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Errata
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3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications.

LCO 3.0.4 is only applicable for entry into a MODE or other specified conditions in the Applicability in MODES 1, 2, 3, and 4.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be operated under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system operated under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.14, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by the SFDP evaluation, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

F Errata #66

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Test Exception LCOs allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception

3.0 LCO APPLICABILITY (continued)

LCO 3.0.7 (continued)

LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs

LCO 3.0.1 through LCO 3.0.6 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

LCO 3.0.1

LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).

LCO 3.0.2

LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:

a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and

b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.

There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In such cases, compliance with the Required Actions provides an acceptable level of safety for continued operation.

BASES

LCO 3.0.2 (continued)

Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable, alternatives should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time conditions exist which may result in LCO 3.0.3 being entered. Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In such cases, the Completion Times of the Required Actions are applicable when the time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable, and the ACTIONS Condition(s) are entered.

BASES

LCO 3.0.3

LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and:

a. An associated Required Action and Completion Time is not met and no other Condition applies; or

b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit. Sometimes, possible combinations of Conditions are such that entering LCO 3.0.3 is warranted; in such cases, the ACTIONS specifically state a Condition corresponding to such combinations and also that LCO 3.0.3 be entered immediately.

This Specification delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits for safe operation as defined by the LCO and its ACTIONS. It is not intended to be used as an operational convenience that permits routine voluntary removal of redundant systems or components from service in lieu of other alternatives that would not result in redundant systems or components being inoperable.

Upon entering LCO 3.0.3, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid. The time limits specified to reach lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Specification applies. The use and interpretation of specified times to complete the actions of LCO 3.0.3 are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

a. The LCO is now met.

b. A Condition exists for which the Required Actions have now been performed.

BASES

LCO 3.0.3 (continued)

c. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition is initially entered and not from the time LCO 3.0.3 is exited.

The time limits of Specification 3.0.3 allow 37 hours for the unit to be in MODE 5 when a shutdown is required during MODE 1 operation. If the unit is in a lower MODE of operation when a shutdown is required, the time limit for reaching the next lower MODE applies. If a lower MODE is reached in less time than allowed, however, the total allowable time to reach MODE 5, or other applicable MODE, is not reduced. For example, if MODE 3 is reached in 2 hours, then the time allowed for reaching MODE 4 is the next 11 hours, because the total time for reaching MODE 4 is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to reach a lower MODE of operation in less than the total time allowed.

In MODES 1, 2, 3, and 4, LCO 3.0.3 provides actions for Conditions not covered in other Specifications. The requirements of LCO 3.0.3 do not apply in MODES 5 and 6 because the unit is already in the most restrictive Condition required by LCO 3.0.3. The requirements of LCO 3.0.3 do not apply in other specified conditions of the Applicability (unless in MODE 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

Exceptions to LCO 3.0.3 are provided in instances where requiring a unit shutdown, in accordance with LCO 3.0.3, would not provide appropriate remedial measures for the associated condition of the unit. An example of this is in LCO 3.7.15, "Fuel Storage Pool Water Level." LCO 3.7.15 has an Applicability of "During movement of irradiated fuel assemblies in the fuel storage pool." Therefore, this LCO can be applicable in any or all MODES. If the LCO and the Required Actions of LCO 3.7.15 are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of LCO 3.7.15 of "Suspend movement of irradiated fuel assemblies in the fuel storage pool" is the appropriate Required Action to complete in lieu of the actions of LCO 3.0.3. These exceptions are addressed in the individual Specifications.

BASES

LCO 3.0.4

LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It precludes placing the unit in a MODE or other specified condition stated in that Applicability (e.g., Applicability desired to be entered) when the following exist:

a. Unit conditions are such that the requirements of the LCO would not be met in the Applicability desired to be entered; and

b. Continued noncompliance with the LCO requirements, if the Applicability were entered, would result in the unit being required to exit the Applicability desired to be entered to comply with the Required Actions.

Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a MODE or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions. The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

The provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

Exceptions to LCO 3.0.4 are stated in the individual Specifications. The exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.

LCO 3.0.4 is only applicable when entering MODE 4 from MODE 5, MODE 3 from MODE 4, MODE 2 from MODE 3, or MODE 1 from MODE 2. Furthermore, LCO 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODES 1, 2, 3, or 4. The requirements of LCO 3.0.4 do not apply in MODES 5 and 6, or in other specified conditions of the Applicability (unless in MODES 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

BASES

LCO 3.0.4 (continued)

In some cases these ACTIONS provide a Note that states "While this LCO is not met, entry into a MODE or other specified condition in the Applicability is not permitted, unless required to comply with ACTIONS." This Note is a requirement explicitly precluding entry into a MODE or other specified condition of the Applicability.

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by SR 3.0.1. Therefore, changing MODES or other specified conditions while in an ACTIONS Condition, in compliance with LCO 3.0.4 or where an exception to LCO 3.0.4 is stated, is not a violation of SR 3.0.1 or SR 3.0.4 for those Surveillances that do not have to be performed due to the associated inoperable equipment. However, SRs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

LCO 3.0.5

LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of required testing to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is operated in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions, but must be reopened to perform the required testing.

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel out of the tripped condition during the performance of required testing on another channel to prevent the trip function from occurring. A similar

BASES

LCO 3.0.5 (continued)	example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of required testing on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the unit is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.14, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result F Errata # 66

BASES

LCO 3.0.6 (continued)

of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

Cross train checks to identify a loss of safety function for those support systems that support multiple and redundant safety systems are required. The cross train check verifies that the supported systems of the redundant OPERABLE support system are OPERABLE, thereby ensuring safety function is retained. If this evaluation determines that a loss of safety function exists, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

This loss of safety function does not require consideration of additional single failures or loss of offsite power. Since operation is being restricted in accordance with the ACTIONS of the support system, this accounts for any temporary loss of redundancy or single failure protection. Similarly, the ACTIONS for inoperable offsite circuit(s) and inoperable diesel generator(s) provide the necessary restriction for cross train inoperabilities. This explicit cross train verification for inoperable AC electrical power sources also acknowledges that supported system(s) are not declared inoperable solely as a result of inoperability of a normal or emergency electrical power source (refer to the definition of OPERABILITY).

When a loss of safety function is determined to exist, and the SFDP requires entry into the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists, consideration must be given to the specific type of function affected. Where a loss of function is solely due to a single Technical Specification support system (e.g., loss of automatic start due to inoperable instrumentation, or loss of pump suction source due to low tank level) the appropriate LCO is the LCO for the support system. The ACTIONS for a support system LCO adequately address the inoperabilities of that system without reliance on entering its supported system LCO. When the loss of function is the result of multiple support systems, the appropriate LCO is the LCO for the supported system.

LCO 3.0.7

There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Test Exception LCOs allow specified Technical Specification (TS) requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of these TS. Unless otherwise specified, all the other TS requirements

BASES

LCO 3.0.7 (continued)

remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed to perform the special test or operation will remain in effect.

The Applicability of a Test Exception LCO represents a condition not necessarily in compliance with the normal requirements of the TS. Compliance with Test Exception LCOs is optional. A special operation may be performed either under the provisions of the appropriate Test Exception LCO or under the other applicable TS requirements. If it is desired to perform the special operation under the provisions of the Test Exception LCO, the requirements of the Test Exception LCO shall be followed.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

SR 3.0.1

SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.

Systems and components are assumed to be OPERABLE when the associated SRs have been met. However, nothing in this Specification is to be construed as implying that systems or components are OPERABLE when:

a. The systems or components are known to be inoperable, although still meeting the SRs; or

b. The requirements (acceptance criteria) of the Surveillance(s) are known not to be met between required Surveillance performances.

Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a test exception are only applicable when the test exception is used as an allowable exception to the requirements of a Specification.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition.

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

BASES

SR 3.0.1 (continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per ..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. An example of where SR 3.0.2 does not apply is the Containment Leakage Rate Testing Program.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

BASES

SR 3.0.2 (continued)

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is less, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions or operational situations, is discovered not to have been performed when specified, SR 3.0.3 allows the full delay period of 24 hours to perform the Surveillance.

SR 3.0.3 also provides a time limit for completion of Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for

BASES

SR 3.0.3 (continued)

the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or component to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes.

The provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of

BASES

SR 3.0.4 (continued)

Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO Applicability would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs' annotation is found in Section 1.4, Frequency.

SR 3.0.4 is only applicable when entering MODE 4 from MODE 5, MODE 3 from MODE 4, Mode 2 from MODE 3, or MODE 1 from MODE 2. Furthermore, SR 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODES 1, 2, 3, or 4. The requirements of SR 3.0.4 do not apply in MODES 5 and 6, or in other specified conditions of the Applicability (unless in MODES 1, 2, 3, or 4) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

15.3.10 CONTROL ROD AND POWER DISTRIBUTION LIMITS

Applicability

Applies to the operation of the control rods and to core power distribution limits.

A.02

A.03

Objective

To insure (1) core subcriticality after a reactor trip, (2) a limit on potential reactivity insertions from a hypothetical rod cluster control assembly (RCCA) ejection, and (3) an acceptable core power distribution during power operation.

Specification

A.04

COLR

LA.01

LCO 3.01.01
Action A

A. SHUTDOWN MARGIN

ITS LCO 3.1.1

1. The shutdown margin shall exceed the applicable value ~~as shown in Figure 15.3.10-2~~ under all steady-state operating conditions from 350°F to full power. If the shutdown margin is less than the applicable value ~~of Figure 15.3.10-2, within~~ 15 minutes initiate boration to restore the shutdown margin.

LA.01

2. A shutdown margin ~~of at least 1% Δk/k~~ shall be maintained when the reactor coolant temperature is less than 350°F. If the shutdown margin is less than this limit, within 15 minutes initiate boration to restore the shutdown margin.

B. ROD OPERABILITY AND BANK ALIGNMENT LIMITS

ITS LCO 3.1.1 RA A.1

A.05

NOTE: One hour is allowed following rod motion prior to verifying rod operability and bank alignment limits.

1. During power and low power operation, all shutdown and control rods shall be operable and positioned within the allowed rod misalignment between the individual indicated rod positions and the bank demand position as follows;

<See LCO 3.1.5>

i) For operation ≤ 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±24 steps.

ii) For operation > 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±12 steps.

If an RCCA does not step in upon demand, up to six hours is allowed to determine whether the problem with stepping is an electrical problem. If the problem cannot be resolved within six hours, the RCCA shall be declared inoperable until it has been verified that it will step in or would drop upon demand.

F TSCR 216

F TSCR 216

Description of Changes - NUREG-1431 Section 3.01.05

09-May-01

DOC Number	DOC Text	
A.01 Rev. A	In the conversion of Point Beach current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS), certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the Standard Technical Specifications, Westinghouse Plants, NUREG-1431, Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).	
	CTS:	**ITS:**
	15.03.10	LCO 3.01.04
	15.03.10.B.01	LCO 3.01.04
		SR 3.01.04.01
	15.03.10.B.01.A.03	LCO 3.01.04 COND A
	15.03.10.B.01.A.03.A	LCO 3.01.04 COND A RA A.1.1
		LCO 3.01.04 COND A RA A.1.2
	15.03.10.B.01.A.03.B	LCO 3.01.04 COND A RA A.2
	15.03.10.B.01.B.01	LCO 3.01.04 COND B RA B.1
	15.03.10.B.01.B.01.A	LCO 3.01.04 COND B RA B.2.1.1
	15.03.10.B.01.B.01.C	LCO 3.01.04 COND B RA B.2.3
	15.03.10.B.01.B.01.F	LCO 3.01.04 COND C
		LCO 3.01.04 COND C RA C.1
	15.03.10.B.01.B.02	LCO 3.01.04 COND D
	15.03.10.B.01.B.02.A	LCO 3.01.04 COND D RA D.1.1
		LCO 3.01.04 COND D RA D.1.2
	15.03.10.H	SR 3.01.04.03
	15.03.10.H.01	SR 3.01.04.03
	15.04.01 T 15.04.01-02 09 (A)	SR 3.01.04.03
		SR 3.01.04.03
	15.04.01 T 15.04.01-02 10	SR 3.01.04.02
A.02 Rev. A	The CTS provides an introductory statement (Applicability) which simply states which systems/components are addressed within a given section. This same information, while worded differently, is contained within the title of each ITS LCO. Accordingly, this change is a change in format with no change in technical requirement.	
	CTS:	**ITS:**
	15.03.10 APPL	LCO 3.01.04

Description of Changes - NUREG-1431 Section 3.01.05

09-May-01

DOC Number	DOC Text
A.03 Rev. A	The CTS provides an introductory statement (Objective) at the beginning of this Section of the Technical Specifications which provides a brief summary of the purpose for this Section. This information is contained in the Bases Section of the ITS. This information does not establish any regulatory requirements for the systems and components addressed within this Section. Accordingly, deletion of this information does not alter any requirement set forth in the Technical Specifications. This change is administrative and consistent with the format and presentation for the ITS as provided in NUREG 1431. **CTS:** 15.03.10 OBJ **ITS:** B 3.01.04
A.04 Rev. A	The CTS requires all shutdown and control rods to be operable during power and low power operation. All indicated rod positions are required to be within an alignment limit based upon demanded rod position. ITS LCO 3.1.4 will require all shutdown and control rods to be operable and within their alignment limits. The rod alignment limits themselves have been moved to ITS SR 3.1.4.1. ITS SR 3.0.1 establishes the requirement that surveillances must be met when the LCO is applicable. Moving this limit to a surveillance makes the presentation of this LCO more concise, while retaining the same regulatory requirement through application of SR 3.0.1. Accordingly, these changes do not represent a change in intent or usage and are therefore administrative. **CTS:** 15.03.10.B.01 **ITS:** LCO 3.01.04
A.05 Rev. A	The CTS Actions for untrippable and misaligned control rods contain an Action which requires verification that Shut Down Margin (SDM) exceeds its required value which is specified in CTS Table 15.3.10-2. CTS Table 15.3.10-2 has been proposed for relocation to the Core Operating Limits Report (COLR) as discussed in Description of Change LA.1 of LCO 3.1.1. Therefore, the Actions for untrippable and misaligned control rods have been changed to reference the SDM limits provided in the COLR. This change has been classified as an administrative change relative to this LCO, as the basis for relocation of the SDM limit itself has been addressed in LCOs 3.1.1. **CTS:** / **ITS:** 15.03.10.B.01.A.01.A — COLR 15.03.10.B.01.A.03.A — COLR 15.03.10.B.01.B.01.A — COLR 15.03.10.B.01.B.01.C — COLR 15.03.10.B.01.B.02.A — COLR

DOC Number	DOC Text	
A.06 Rev. B	CTS 15.3.10.B.1.A.1.C, 15.3.10.B.01.A.03.B, and 15.3.10.B.01.B.02.B requires the unit to be placed into Hot Shutdown if the LCO Actions are not met. The CTS definition of Hot Shutdown requires the reactor to be greater than or equal to 540 degrees and subcritical by greater than or equal to the required Shutdown Margin (changes to this definition are addressed in Description of Change M.2 of Section 1.0 of this conversion package). This condition is equivalent to ITS Mode 3. Therefore, these changes are administrative.	
	CTS:	**ITS:**
	15.03.10.B.01.A.01.C	LCO 3.01.04 COND A RA A.2
	15.03.10.B.01.A.03.B	LCO 3.01.04 COND A RA A.2
	15.03.10.B.01.B.02.B	LCO 3.01.04 COND D RA D.2
A.07 Rev. A	The CTS specifies control rod alignment limits are to be fulfilled using the demand and individual rod position indicators. CTS 15.3.10.B.1.b.1 and 2 provides an exception to the use of the demand and individual rod indicators for determining alignment when the reason for the misalignment is caused by a malfunctioning position indicator. The proposed ITS LCO 3.1.4 will continue to require control rod alignment, while ITS LCO 3.1.7 establishes the preferential means of determining rod position. Based on the restructuring of the ITS with its associated usage rules, it is no longer necessary to specifically state "except for misalignments caused by malfunctioning rod position indicators". This change is administrative.	
	CTS:	**ITS:**
	15.03.10.B.01.B.01	DELETED
		LCO 3.01.04
		LCO 3.01.04
		LCO 3.01.04 COND B
	15.03.10.B.01.B.02	DELETED
		LCO 3.01.04
A.08 Rev. A	The CTS specifies that FQ(Z) and FN Delta H are to be verified to be within limits within 72 hours of determining that a control rod is misaligned. The ITS has substituted reference to the Surveillance Requirements (SR 3.2.1.1, SR 3.2.1.2, and SR 3.2.2.1) which are used to verify that these limits are met in place of reference to the limitation itself. The specific surveillance referenced to verify that FQ(Z) and FN Delta H are met have been previously addressed in DOC L.04 of LCO 3.2.1. Reference to the specific Surveillances which verify that the thermal limits are met is consistent with the format and presentation of NUREG 1431 and is administrative.	
	CTS:	**ITS:**
	15.03.10.B.01.B.01.D	LCO 3.01.04 COND B RA B.2.4
	15.03.10.B.01.B.01.E	LCO 3.01.04 COND B RA B.2.5

DOC Number	DOC Text	
A.09 Rev. A	The CTS specifies Actions for control rods which do not meet their rod drop time which state that; if the reactor is critical the control rod must be declared untrippable, and if the reactor is subcritical the reactor must be maintained in a subcritical condition. The proposed ITS, while not presented in the same fashion, establishes the same Actions. If a control rod is determined to be outside of its required drop time when the reactor is subcritical, LCO 3.0.4 prohibits entry into Mode 1 or 2 (reactor critical) because the Actions for an inoperable control rod do not allow indefinite operation in Modes 1 or 2. If a control rod is determined to be outside of its required rod drop time with the reactor critical (ITS Modes 1 and 2), The ITS requires that the control rod be declared inoperable, which ultimately requires the unit to be placed into Mode 2 with Keff less than 1.0 within six hours, which as discussed in Description of Change A.06 of this LCO is equivalent to the CTS Action. Accordingly, this change is administrative.	
	CTS:	**ITS:**
	15.03.10.H.01	DELETED
	15.03.10.H.01.A	DELETED
	15.03.10.H.01.B	DELETED
A.10 Rev. A	The CTS states that rod drop timing will be performed for all full length control rods while the ITS specifies that rod drop timing will be performed for all control rods. The Point Beach design no longer incorporates partial length control rods; therefore, deletion of this nomenclature does not alter the testing performed. All control rods will continue to be drop timed.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-02 09 (A)	DELETED
A.11 Rev. A	The CTS requires control rod drop timing to be performed at rated reactor coolant flow. The ITS will continue this practice, but has changed the phrasing of this prerequisite condition to "all reactor coolant pumps running". The reactor coolant pumps are verified to provide a minimum of 100% of the required forced circulation through the reactor core by proposed SR 3.4.1.3. Accordingly, running all reactor coolant pumps is equivalent to the CTS requirement to establish rated reactor coolant flow.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-02 09 (A)(3)	SR 3.01.04.03
A.12 Rev. A	CTS 15.3.10.B.1 states that control rod must be operable during power and low power operation which has previously been established to be equivalent to ITS Modes 1 and 2 with Keff greater than or equal to 1.0, as addressed in Description of Change A.6 of this Section. Line item 10 of CTS Table 15.4.1-2, requires performance of partial control rod movement tests with Note 18 stating that the partial movement testing is not required to be performed if the reactor is subcritical (ITS Mode 3). ITS SR 3.0.1 establishes the requirement that surveillances must be met when the LCO is applicable (ITS Modes 1 and 2 with Keff greater than or equal to 1.0) which is equivalent to power and low power operation, making Note 18 unnecessary in the ITS. Accordingly, the deletion of Note 18 as applied to line item 10 of Table 15.4.1-2 is administrative.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-02 10 (18)	DELETED

DOC Number	DOC Text	
A.13 Rev. A	Note 22 to line item 19 of CTS Table 15.4.1-2, states that shiftly control rod alignment channel checks are not required during periods of cold shutdown and refueling, but must be performed prior to reactor criticality if it had not been performed within its previous surveillance interval. This frequency notation is ambiguous in that it does not provide any specific guidance between cold shutdown and reactor critical operations. The CTS Mode of Applicability for control rod operability and alignment has been determined to be equivalent to ITS Mode 1 and 2 with Keff greater than or equal to 1.0 as stated in Description of Change A.6 of this Section. CTS 15.4.0.1 states that surveillance requirements shall be met when the system or component is required to be operable. By applying Specification 15.4.0.1 to the "Plant Conditions When Required" as modified by Note 22, the CTS required mode of performance for this surveillance has been determined to be equivalent to ITS Modes 1 and 2 with Keff greater than or equal to 1.0. ITS SR 3.0.1 establishes the requirement that surveillances must be met when the LCO is applicable. As such, the ITS mode of performance for this surveillance is equivalent to the CTS, making this change administrative.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-01 19	LCO 3.01.04
	15.04.01 T 15.04.01-01 19 (22)	DELETED
	15.04.01 T 15.04.01-01 19.A	LCO 3.01.04
	15.04.01 T 15.04.01-01 19.A (22)	DELETED
	15.04.01 T 15.04.01-01 ALL	LCO 3.01.04
A.14 Rev. A	CTS Table 15.4.1-1 line item 19 requires the performance of a channel check for control rods on a shiftly basis, which has been concluded to be equivalent to the ITS Surveillance Requirements which verify that the control rods are within their alignment limits. The control rod analog and demand position indicators do not provide any protective functions. These channels are used solely for the purpose of verifying that the control rod alignment limits are maintained. A channel check as discussed in CTS Section 15.4.1 is intended to be a simple observation of instrument function, which is fulfilled through verification of control rod alignment limits. Performance of the proposed ITS surveillances while stated to verify operational limits still encompasses an observation of required channel function while clarifying the intended control rod alignment check. This change is administrative.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-01 19	SR 3.01.04.01
	15.04.01 T 15.04.01-01 19.A	SR 3.01.04.01
A.15 Rev. A	The Bases of the current Technical Specifications for this section have been completely replaced by revised Bases that reflect the format and applicable content of PBNP ITS, consistent with the Standard Technical Specifications for Westinghouse Plants, NUREG-1431. The revised Bases are as shown in the PBNP ITS Bases.	
	CTS:	**ITS:**
	BASES	B 3.01.04

Description of Changes - NUREG-1431 Section 3.01.05

09-May-01

DOC Number	DOC Text
A.16 Rev. B	The CTS requires the control rods to be partially moved quarterly to confirm that the control rods are not impaired in any fashion that could impact the control rods capability to trip upon demand. The frequency for performing this test in the ITS is 92 days, which is equivalent to the CTS frequency. Accordingly, this change is administrative. **CTS:** 15.04.01 T 15.04.01-02 10 **ITS:** SR 3.01.04.02
A.17 Rev. F	The changes to the control rod position indication requirements in CTS 15.3.10 were necessitated by Custom Technical Specification Change Request (TSCR) 216, Individual Rod Position Indication Operability. This change incorporates the CLB provisions of TSCR 216 and is therefore administrative. The proposed Note allows a one hour soak prior to verifying rod operability and alignment limits. **CTS:** / **ITS:** 15.03.10.B NOTE — LCO 3.01.04 NOTE 15.03.10.B.01 — LCO 3.01.04 15.03.10.B.01 i — LCO 3.01.04 15.03.10.B.01 ii — LCO 3.01.04
L.01 Rev. A	CTS Action 15.3.10.B.1.a.1.a and b require Shutdown Margin (SDM) to either be; verified to exceed the applicable value, or to be restored by boration within one hour when a control rod is found to be untrippable. Similarly, CTS Action 15.3.10.B.1.b.1.a requires SDM to either be; verified to exceed the applicable value, or to be restored by boration within one hour when a control rod is found to be misaligned. In the unlikely event of an untrippable or misaligned control rod with SDM not within limits, the CTS Action to restore SDM via boration within one hour is not considered to be a viable action. Restoration of SDM would require determination of the SDM deficit, quantification of the amount of boration required, initiation and completion of the boration, and a confirmatory sample to conclude that the required RCS boron concentration was achieved. The proposed ITS will require initiation of boration to restore SDM within one hour. Relaxing the Required Actions from restoring SDM by boration to the initiation of boration will require prompt action to be initiated to restore SDM (boration) without requiring entry into the default Condition and Required Action if restoration of SDM takes in excess of one hour. Entry into the default Conditions and Required Actions will require the unit to be placed into Mode 3 within six hours. The initiation of a unit shutdown will not restore SDM to within limits; continued boration is the only appropriate Action for restoration of SDM. **CTS:** / **ITS:** 15.03.10.B.01.A.01.B — LCO 3.01.04 COND A RA A.1.2 15.03.10.B.01.A.03.A — LCO 3.01.04 COND A RA A.1.2 15.03.10.B.01.B.01.A — LCO 3.01.04 COND B RA B.2.1.2 15.03.10.B.01.B.02.A — LCO 3.01.04 COND D RA D.1.2

Description of Changes - NUREG-1431 Section 3.01.05

09-May-01

DOC Number	DOC Text	
L.02 Rev. A	The CTS requires rod drop testing to be performed in the hot condition for rods which have had maintenance performed. The CTS defines the hot shutdown condition as being subcritical by at least the required Shutdown Margin, with Tavg being greater than 540 degrees. The ITS will require rod drop testing to be performed prior to reactor criticality with RCS temperature greater than or equal to 500 degrees. The 40 degree decrease in testing condition will not significantly alter control rod drop time, in fact rod drop times at reduced temperatures have been shown to be slightly longer due to increased RCS density. Allowing testing at this slightly reduced temperature is still representative of operating conditions, while allowing added scheduling flexibility which was the intent of the CTS.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-02 09 (A)(4)	SR 3.01.04.03
L.03 Rev. A	The CTS requires rod drop testing to be performed under both hot and cold conditions, with only the hot drop tests requiring to be timed. Cold drop testing is considered to be a good practice for verification of control rod trippability prior to plant heat up where rod drop timing is performed; but is not required by the NUREG. Performance of rod drops in a cold condition could prevent having to return the plant to a cold condition to enact repairs if a problem were disclosed at a higher temperature. There are no credible failure mechanisms that would exist solely under cold conditions nor has there been an occurrence of a control rod failing to trip under cold condition alone. Satisfactory demonstration of control rod trippability in a hot condition, as proposed, is sufficient to provide adequate assurance of function prior to entry into the Mode of Applicability for control rods.	
	CTS:	**ITS:**
	15.04.01 T 15.04.01-02 09 (A)(3)	DELETED
L.04 Rev. B	Not Used.	
	CTS:	**ITS:**
	N/A	N/A

DOC Number	DOC Text
L.05 Rev. A	CTS Table 15.4.1-1 footnote 18 requires rod positions to be logged once per hour, after load changes in excess of 10% power, and after rod motion in excess of 30 steps when the on-line computer is inoperable. This verification is required in addition to routine verification of analog rod position and demand position indication which is required once per shift. Actual and demanded control rod positions are monitored by the on-line computer, which will initiate an alarm if rod alignment exceeds predetermined limits. However, the on-line computer alarm function does not provide any safety function nor does it input to any protection circuits. This alarm merely provides a non-safety means of alerting personnel to a condition which does not comply with an LCO requirement. Inoperability of the alarm in and of itself does not lead to a control rod misalignment. Alarm inoperability represents a reduction in monitoring capability for a condition (control rod misalignment) which rarely occurs. Control rod positions are required to be routinely verified once every 12 hours by the proposed ITS. Deletion of the increased surveillance and conditional frequencies (logged once per hour, after load changes in excess of 10% power, and after rod motion in excess of 30 steps with an inoperable alarm) does not alleviate the responsibility of the licensee to be vigilant of plant conditions and LCO compliance. Typically, the unit is operated with the control rods well within their associated alignment limits with significant rod motion made only due to planned evolutions. However, significant rod motion could be the result of an unplanned evolution such as a large generator load rejection. Unplanned evolutions of this nature are readily apparent and result in increased monitoring of affected parameters and significant plant conditions. Rod position and demand position indicators in combination with routine surveillance verification (every 12 hours) provides adequate assurance that non-compliance is readily detectable without the need for increased monitoring. Accordingly, this requirement may be deleted form the Technical Specifications as it is not required to provide adequate protection of public health and safety. **CTS:** / **ITS:** 15.04.01 T 15.04.01-01 19.B — DELETED 15.04.01 T 15.04.01-01 NOTE (18) — DELETED
L.06 Rev. A	The CTS states that control rod drop timing must be performed on rods which had maintenance performed on them. This provision is no longer necessary in the ITS. ITS SR 3.1.4.3 requires rod drop testing to be performed to verify control rod operability. Post maintenance testing is captured through application of SR 3.0.1 and SR 3.0.2. SR 3.0.1 establishes the requirement that surveillances must be met when the LCO is applicable. Implicit in the application of SR 3.0.1, is the need to ensure that all Surveillance Requirements remain valid upon completion of maintenance. Following any maintenance, a review of applicable Surveillance Requirements must be conducted to determine the appropriate post maintenance testing that must be completed in order to declare the affected equipment operable. This includes ensuring applicable surveillances are not invalidated by the maintenance performed and their most recent performance is within its required frequency of performance in accordance with SR 3.0.2. If the review determines that the maintenance performed could not invalidate the surveillances and the last performed surveillance was within the required periodicity, then the surveillance would not be required post maintenance. This is less restrictive than the CTS requirement to perform rod drop testing following maintenance with no exceptions. **CTS:** / **ITS:** 15.04.01 T 15.04.01-02 09 (A)(4) — DELETED

Description of Changes - NUREG-1431 Section 3.01.05

09-May-01

DOC Number	DOC Text
L.07 Rev. A	The CTS required frequency for performance of rod alignment verifications is "once per shift", while the proposed frequency of performance for the ITS is every 12 hours. The nominal Point Beach shift duration is 8 hours. Therefore this change extends the nominal time between performances of this surveillance by 4 hours, resulting in a relaxation of the current requirement. This relaxation is acceptable, because the 12 hour Frequency takes into account other rod position information that is continuously available to the operator in the control room, so that during actual rod motion, deviations can immediately be detected. **CTS:** / **ITS:** 15.04.01 T 15.04.01-01 19 — SR 3.01.04.01 15.04.01 T 15.04.01-01 19.A — SR 3.01.04.01 15.04.01 T 15.04.01-01 S - EACH SHIFT — SR 3.01.04.01
LA.01 Rev. A	The CTS requires performance of rod worth measurements following each refueling shutdown prior to power operation. This surveillance has been moved to licensee control. The ITS will continue to require performance of a reactivity balance prior to entry into Mode 1 (greater than or equal to 5% power). The reactivity balance is a measure of the predicted versus measured core reactivity which will provide an indirect qualitative verification of control rod worth. The positive reactivity inherent in the core design must be balanced by the negative reactivity of the control components, thermal feedback, neutron leakage, and neutron absorbers. Meeting the acceptance limits of the reactivity balance provides assurance that Design Basis Accident and transient analyses remain valid. Large reactivity differences would be indicative of unanticipated changes in fuel and neutron absorbers. Changes in excess of 1% delta K/k must be evaluated in accordance with the reactivity balance LCO (ITS LCO 3.1.2) to determine that the core is acceptable for continued operation. The Bases of ITS LCO 3.1.8 list control rod worth as a core physics test for which the Mode 2 physics testing exception LCO is intended to be used. In addition, control rod worth is a physics test which is specified in ANSI/ANS 19.6.1-1985, "Reload Startup Physics Tests for Pressurized Water Reactors," which is used as a basis document for physics testing at Point Beach. The CTS does not specify a specific acceptance criteria nor does it specify the number of control rods which must be verified during the performance of the control rod worth test, leaving these variables currently to licensee control. A ten percent margin has been assumed between the calculated control rod worths and the worth assumed in the safety analysis. Previous performances of this test have found that the analysis assumptions relative to predicted ejected rod worth and power peaking factors are consistently overpredicted. Based on the above, it has been concluded that performance of a reactivity balance provides sufficient confidence that the assumptions of the safety analysis are maintained and relocation of the control rod worth tests to licensee control is acceptable based on the absence of acceptance criteria and the margins that exist. Control of the rod worth measurement test, will like other core physics tests continue to be controlled in accordance with 10CFR 50.59. **CTS:** / **ITS:** 15.04.01 T 15.04.01-02 09 (B) — TRM 3.01.01

DOC Number	DOC Text
M.01 Rev. A	The CTS defines control rod operability as trippability. When a control rod fails to step on demand, the CTS allows up to six hours to determine whether the problem is due to an electrical problem in the rod control system (control rod still operable-trippable), or a problem exists which could inhibit the control rods ability to trip in upon demand. The ITS will continue to define control rod operability based upon its ability to trip upon demand, but delete the CTS provision allowing up to six hours to determine operability. **CTS:** 15.03.10.B.01 — **ITS:** DELETED
M.02 Rev. A	CTS 15.3.10.B.1.a.1 and 15.3.10.B.1.a.2 will allow continuous operations with a single untrippable control rod provided shutdown margin is maintained and the rod insertion limits are adjusted to account for the reactivity worth of the stuck rod. The proposed ITS will require the unit to be shutdown whenever one or more control rods are determined to be untrippable. Deletion of the provision to allow continued operation with a single control rod stuck is more restrictive than the CTS, consistent with the provisions of NUREG 1431. The proposed definition of shutdown margin will continue to require the worth of any stuck rod to be considered. In addition, CTS Actions 15.3.10.B.1.a and 15.3.10.B.1.c have been combined into one Condition (ITS Condition A) based on the Actions for one or more inoperable control rods being the same.
M.03 Rev. A	The CTS allows continuous operation with a misaligned control rod at power levels not to exceed 75%, with analysis of hot channel factors and allowable power level required only if operation above 75% power with a misaligned control rod is desired. The proposed ITS will restrict operation with a misaligned control rod to less than or equal to 75% power with a misaligned control rod indefinitely. For continued operation at any power level less than or equal to 75% power, ITS will require a reevaluation and confirmation of safety analysis results within 5 days of a control rod becoming misaligned. This change is an added restriction on plant operation being proposed consistent with NUREG 1431.

M.02 references:

CTS:	ITS:
15.03.10.B.01.A.01.A	LCO 3.01.04 COND A
15.03.10.B.01.A.01.C	LCO 3.01.04 COND A RA A.2
15.03.10.B.01.A.02	DELETED
15.03.10.B.01.A.02.A	DELETED
15.03.10.B.01.A.02.B	DELETED
15.03.10.B.01.A.02.C	DELETED

M.03 references:

CTS:	ITS:
15.03.10.B.01.B.01.G	LCO 3.01.04 COND B RA B.2.6

Description of Changes - NUREG-1431 Section 3.01.05

09-May-01

DOC Number	DOC Text
M.04 Rev. A	The CTS 15.3.10.H requires control rod drop time to be verified with RCS temperature greater than the minimum temperature for criticality. CTS 15.3.1.F establishes the minimum temperature for criticality as being to the left of the criticality curve presented on the plant heatup limitations curve (Figure 15.3.1-1). The plant heat up curve criticality limit is based on achieving a minimum vessel temperature of no lower than 40 degrees above the minimum permissible temperatures calculated in Appendix G of the ASME Code (360 to approximately 445 degrees dependent upon RCS pressure). The proposed ITS will require control rod drop time to be verified with RCS Tavg greater than or equal to 500 degrees. The testing condition proposed is to simulate a reactor trip under actual conditions from an operating condition. This change is a more restrictive change, because the CTS would allow testing to be performed as low as 360 degrees in fulfilling this CTS requirement. **CTS:** 15.03.10.H.01 **ITS:** SR 3.01.04.03
M.05 Rev. A	The CTS requires power to be reduced to less than or equal to 75% power within eight hours if a control rod is not within its alignment limit. The ITS reduces this time frame to two hours. Two hours is a reasonable time to either restore a control rod to within its alignment limit or to reduce reactor power to less than or equal to 75% power. This time frame is consistent with that contained in NUREG 1431 and is a more restrictive requirement. **CTS:** 15.03.10.B.01.B.01.B **ITS:** LCO 3.01.04 COND B RA B.2.2
M.06 Rev. A	The CTS requires control rods to be periodically tested by "partial movement of all rods". This test is intended to confirm that the control rods are capable of tripping upon demand. The proposed ITS will verify freedom of movement by requiring the control rods to be moved a minimum of at least ten steps in either direction. This imposes an additional acceptance criteria for control rod freedom of movement which does not exist in the CTS. This change is a more restrictive change being made consistent with NUREG 1431. **CTS:** 15.04.01 T 15.04.01-02 10 **ITS:** SR 3.01.04.02
M.07 Rev. B	CTS 15.3.10.B.1 requires all shutdown and control rods to be operable (trippable and aligned) during power and low power operation. The proposed ITS 3.1.4 (NUREG-1431 LCO 3.1.5) applicability is Modes 1 and 2, which is more restrictive than the CTS (i.e. reactor can be subcritical in Mode 2). Therefore, adopting the NUREG-1431 Mode of applicability is more restrictive. **CTS:** 15.03.10.B.01 **ITS:** LCO 3.01.04

15.3.10 CONTROL ROD AND POWER DISTRIBUTION LIMITS

Applicability

Applies to the operation of the control rods and to core power distribution limits.

A.02

A.03

Objective

To insure (1) core subcriticality after a ~~reactor trip~~, (2) a limit on potential reactivity ~~insertions~~ from a hypothetical rod cluster control ~~assembly~~ (RCCA) ejection, and (3) ~~an acceptable~~ core power distribution during ~~power~~ operation.

Specification

A. SHUTDOWN MARGIN

1. The shutdown margin shall exceed the applicable value as shown in Figure 15.3.10-2 under all steady-state operating conditions from 350°F to full power. If the shutdown margin is less than the applicable value of Figure 15.3.10-2, within 15 minutes initiate boration to restore the shutdown margin. < See LCO 3.1.1 >

2. A shutdown margin of at least 1% Δk/k shall be maintained when the reactor coolant temperature is less than 350°F. If the shutdown margin is less than this limit, within 15 minutes initiate boration to restore the shutdown margin.

A.17 B. ROD OPERABILITY AND BANK ALIGNMENT LIMITS LCO 3.1.4

B RAI 3.1

NOTE: One hour is allowed following rod motion prior to verifying rod operability and bank alignment limits.

A.4 limits

Mode 1 and 2

M.7

A.17

1. During power and low power operation all shutdown and control rods shall be operable and positioned within the allowed rod misalignment between the individual indicated rod positions and the bank demand position as follows;

i) For operation ≤ 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±24 steps.

ii) For operation > 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±12 steps.

SR 3.1.4.1

F TSCR 216

M.1

~~If an RCCA does not step in upon demand, up to six hours is allowed to determine whether the problem with stepping is an electrical problem. If the problem cannot be resolved within six hours, the RCCA shall be declared inoperable until it has been verified that it will step in or would drop upon demand.~~

F TSCR 216

M.2

LCO 3.1.4 Cond A

a. Rod Operability Requirements

or more rods are

(1) If one ~~rod is~~ determined to be untrippable, perform the following actions:

LCO 3.1.4 RA A.1.1 and A.1.2

A.5

L.1

initiate action to

(a) Within one hour verify that the shutdown margin exceeds the applicable value ~~as shown in Figure 15.3.10-2;~~ provided in the COLR,
OR
(b) Within one hour restore the shutdown margin by boration;

M.2 AND

~~OR~~

(c) Within six hours be in hot shutdown. Mode 3

A.6

LCO 3.1.4 RA A.2

B RAI 3.1.5-1

~~(2) If sustained power operation with an untrippable rod is desired, perform the following actions:~~

~~(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;~~
~~AND~~
~~(b) Within six hours, adjust the insertion limits to reflect the worth of the untrippable rod.~~

~~(c) If the above actions and associated completion times are not met, be in hot shutdown within six hours.~~

A.1

Consolidated with Cond A, RA A.1.1, A.1.2, and A.2

(3) If more than one rod is determined to be untrippable, perform the following actions:

(a) Within one hour verify that the shutdown margin exceeds the applicable value ~~as shown in Figure 15.3.10-2;~~ provided in the COLR, OR within one hour initiate action to restore the shutdown margin by boration;
AND
(b) Within six hours be in hot shutdown. Mode 3

L.1

A.6

A.5

A.7

LCO Statement/ Cond B

b. Rod Bank Alignment Limits

(1) If it has been determined that one rod is not within alignment limits, ~~and the indicated misalignment is not being caused by malfunctioning rod position indication,~~ within one hour restore the rod to within alignment limits; OR perform the following actions:

RA B.1

RA B.2.1.1/ B.2.1.2

L.1

(a) Within one hour verify that the shutdown margin exceeds the applicable value ~~as shown in Figure 15.3.10-2~~ provided in the COLR, OR within one hour initiate action to restore the shutdown margin by boration;
AND

A.5

F TSCR 216

RA B 2.2 → (b) Within ~~eight~~ two hours reduce thermal power to ≤75 percent of rated thermal power; M.5
AND

RA B 2.3 → (c) Verify that the shutdown margin exceeds the applicable value ~~as shown in Figure 15.3.10-2~~ provided in the COLR, once per twelve hours; A.5
AND

RA B 2.4 → (d) Within 72 hours ~~verify that measured values of $F_Q(Z)$ are within limits;~~ perform SR 3.2.1.1 and SR 3.2.1.2;
AND
A.8

RA B 2.5 → (e) Within 72 hours ~~verify that $F^N_{\Delta H}$ is within limits;~~ perform SR 3.2.2.1;

Cond C and RA C.1 → (f) If the above actions and associated completion times are not met, be in hot shutdown within the following six hours.

RA B 2.6 - Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions within 5 days → ~~(g) In order to subsequently increase thermal power above 75 percent of rated thermal power with the existing rod misalignment, perform an analysis to determine the hot channel factors and the resulting allowable power level in accordance with TS 15.3.10.E.~~

M.3

(2) If it has been determined that more than one rod is not within alignment limits ~~and the misalignments are not being caused by malfunctioning rod position indication~~, perform the following actions: A.7

A.5

(a) Within one hour verify that the shutdown margin exceeds the applicable value ~~as shown in Figure 15.3.10-2;~~ provided in the COLR, OR within one hour initiate action to restore the shutdown margin by boration; L.1
AND

(b) Be in hot shutdown within six hours.

Cond D and RA D.1.1, D.1.2, and D.2

A.6

C. ROD POSITION INDICATION

NOTE: Separate entry into TS 15.3.10.C.1.a, b, or c is allowed for each inoperable rod position indicator and each bank of demand position indication.

1. During power operation ≥10 percent of rated thermal power, the rod position indication system and the bank demand position indication system shall be operable.

   a. If one or more rod position indicators (RPI) are determined to be inoperable, perform the following actions:

      (1) Within eight hours verify the position of the rods with inoperable RPIs by using movable incore detectors;
      AND

< See LCO 3.1.8

F
TSCR 216

LCO 3.1.5 CTS INSERT 3.1.5-1

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify individual rod positions are within the following alignment limits: a. ± 12 steps of demanded position in MODE 1 > 85 percent RTP: and b. ± 24 steps of demanded position in MODE 1 ≤ 85 percent RTP or in MODE 2.	12 hours

L.7

F
TSCR
216

A.14

Justification For Deviations - NUREG-1431 Section 3.01.05

09-May-01

JFD Number	JFD Text
01 Rev. F	The CTS requires all shutdown and control rods to be within an alignment limit which is based on current MODE and percent Rated Thermal Power. When in MODE 1 greater than 85 percent RTP, the limit is 12 steps with the limit becoming 24 steps when in MODE 1 less than or equal to 85 percent RTP or in MODE 2. NUREG 1431 presents the control rod alignment limit as a fixed value of 12 steps for the entire range of demand position. The proposed ITS LCO has been rephrased to require the control rod alignment to be maintained within limits, with the variable limit specified in SR 3.1.5.1. Complementary changes have been proposed to the Bases and examples of rod misalignment consistent with the requirements. This change is necessary to retain the variable alignment limit contained in the CTS while maintaining a concise LCO statement. Variable rod alignment limits are required based on non-linearities that exist in the analog rod position indication system at Point Beach. The expanded limits for rod alignment when in MODE 1 less than or equal to 85 percent RTP or in MODE 2 are acceptable based on the relatively low rod worth and peaking factors in this range. **ITS:** / **NUREG:** B 3.01.04 / B 3.01.05 LCO 3.01.04 / LCO 3.01.05 SR 3.01.04.01 / SR 3.01.05.01
02 Rev. A	The NUREG LCO 3.1.5 specifies the instrumentation necessary for LCO compliance within the LCO statement, requiring "indicated rod positions". By stating that the LCO requires "indicated rod position", an inoperable rod position indicator would result in non-compliance with this LCO statement, even though the Actions contined in ITS LCO 3.1.7 provide appropriate compensitory Action for the loss of an indicator. This change simplifies the LCO presentation while retaining the CLB variable rod alignment limits as addressed in Justification for Deviation 1 of this Section. LCO 3.1.5 ensures control rod alignment is maintained within the limit. The prefered means of determining indicated rod position is through the use of the rod position indicator system, however alternate means are addressed in ITS LCO 3.1.7 if a position indicator is inoperable. The CTS contains this concept in CTS 15.3.10.B.1.b.1 which establishes the Action for a control rod which has been determined not to be within its alignment limits based on the inoperability of the position indicator itself. Although the specific instrumentation required for LCO compliance (i.e. the individual indicated rod position) is deleted from the LCO statement, the ITS will continue to require that control rods be maintained within their alignment limits in ITS LCO 3.1.4 while establishing the means of determining rod position in ITS LCO 3.1.7. This change is consistent with the CTS. Changes to the LCO made by TSTF 107, Revision 4, are not applicable with these proposed changes. **ITS:** / **NUREG:** B 3.01.04 / B 3.01.05

JFD Number	JFD Text
03 Rev. A	NUREG 1431 requires verification of steady state FQ (SR 3.2.1.1) within 72 hours of one control rod being found to be outside its alignment limits. The ITS will require verification of the steady state FQ limit (FQC(Z)), and the transient FQ limit (FQW(Z)) within 72 hours of one control rod being found to be outside its alignment limits. As discussed in Description of Change L.04 of LCO 3.2.1, the surveillance methodology at Point Beach, by which FQ is determined uses Relaxed Axial Offset Control. Under this methodology, FQ is approximated using two independent limits FQC(Z) and FQW(Z), which are verified in Surveillance Requirements SR 3.2.1.1 and 3.2.1.2 in the proposed ITS. FQC(Z) is the actual measured heat flux at equilibrium conditions, corrected for measurement and manufacturing tolerances, and FQW(Z) is FQC(Z) corrected for projected worst case heat flux redistributions. Verification of the steady state limit alone does not ensure that the transient limit is met. Therefore, adding a requirement to verify that the transient limit (FQW(Z) - SR 3.2.1.2) is met as well as the steady state limit (FQC(Z) - SR 3.2.1.1) is consistent with verification that the overall FQ limit is maintained as required by the CTS. This implements approved TSTF 314, Revision 0. **ITS:** B 3.01.04; LCO 3.01.04 COND B RA B.2.4 **NUREG:** B 3.01.05; LCO 3.01.05 COND B RA B.2.4
04 Rev. A	Brackets have been removed and the appropriate plant specific information has be input. Appropriate changes made within the Bases text as appropriate. **ITS:** B 3.01.04; SR 3.01.04.03 **NUREG:** B 3.01.05; SR 3.01.05.03
05 Rev. A	Reference to the General Design Criteria (GDC) of 10 CFR 50 Appendix A has been deleted from the Bases of the Technical Specifications, substituting reference to the appropriate section of the FSAR which specifies the Point Beach design criteria. Point Beach was constructed and licensed prior to the GDC being issued. The Point Beach construction permit was issued prior to the GDCs being issued in 1971. Point Beach was designed and constructed utilizing the 1967 proposed GDCs. Accordingly, reference has been provided to the appropriate criteria and section of the Point Beach FSAR which provides explanation of Point Beach's design basis. In addition, References 5 through 7 of the NUREG Bases References Section are not necessary, as the information which is tied to these references is contained in the same Section of the FSAR previously stated as Reference 4. **ITS:** B 3.01.04 **NUREG:** B 3.01.05

Justification For Deviations - NUREG-1431 Section 3.01.05

09-May-01

JFD Number	JFD Text	
06 Rev. A	The Bases for NUREG 1431 contains a generic description of the number of control rod groups per bank. This description has been replaced with information reflective of the Point Beach design.	
	ITS:	**NUREG:**
	B 3.01.04	B 3.01.05
07 Rev. A	NUREG 1431 refers to the equipment used to provide individual rod position indication as being digital, while the equipment installed and used at Point Beach is analog. Accordingly, the description of the equipment and terminology used in the proposed ITS has been alter to reflect Point Beach's design.	
	ITS:	**NUREG:**
	B 3.01.04	B 3.01.05
08 Rev. A	NUREG LCO 3.1.5 requires all control rods to be operable and within their alignment limits. Control rod alignment is verified by SR 3.1.5.1, while operability is defined by SR 3.1.5.2 and SR 3.1.5.3 which verify control rod freedom of movement (trippability) and control rod drop time. NUREG 1431 contains Conditions and Required Actions to address control rod untrippability and misalignment, but does not contain a Condition to address rod drop times that are out of limits. While rod drop timing is required to be performed prior to the reactor being made critical, it is not inconceivable that a control rod could be found to be outside of its rod drop time with the reactor critical, for which there is no Condition specified. Condition A has been rewritten to be applied to inoperable control rods so that it will encompass both untrippable control rods and control rods with excessive drop times. This change has been made to assure that shutdown margin is verified in addition to requiring a timely plant shutdown, as application of ITS LCO 3.0.3 alone would not require verification of shutdown margin and correction of shutdown margin if required. Complementary Bases changes have been made to reflect this change. These changes are consistent with approved TSTF 107, Revision 4.	
	ITS:	**NUREG:**
	B 3.01.04	B 3.01.05
09 Rev. B	Not Used.	
	ITS:	**NUREG:**
	N/A	N/A
10 Rev. A	Point Beach uses the related axial offset methodology for determining compliance with the FQ heat flux hot channel factor. As such, reference to FQ has been revised to reflect FQW(Z) and FQC(Z) as stipulated in ITS LCO 3.2.1. This change is consistent with approved TSTF 314, Revision 0.	
	ITS:	**NUREG:**
	B 3.01.04	B 3.01.05

Justification For Deviations - NUREG-1431 Section 3.01.05

09-May-01

JFD Number	JFD Text	
11 Rev. F	CTS provides an allowance of a one hour soak prior to verifying rod operability and alignment limits. This time period is based on the time deemed necessary to allow the control rod drive shaft to reach thermal equilibrium. The proposed NOTE maintains this allowance in ITS. This change incorporates the current licensing basis (CLB) provisions of TSCR 216 and is therefore administrative.	
	ITS:	**NUREG:**
	B 3.01.04	B 3.01.05
	LCO 3.01.04 NOTE	N/A

Approved TSTF 136

3.1 REACTIVITY CONTROL SYSTEMS

Approved TSTF 11

3.1.~~5~~ 4 Rod Group Alignment Limits

Approved TSTF 136 2

LCO 3.1.~~5~~ All shutdown and control rods shall be OPERABLE, with ~~all~~ individual ~~indicated~~ rod positions within ~~12 steps of their group step counter demand position~~ limits.

1

APPLICABILITY: MODES 1 and 2.

B
RAI 3.1.5-1

ACTIONS

11

-----------------------------------NOTE-----------------------------------
One hour is allowed following rod motion prior to verifying rod operability and group alignment limits.

F
TSCR 216

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rod(s) ~~untrippable~~ inoperable. (8)	A.1.1 Verify SDM ~~is ≥ [1.6]% Δk/k~~.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	A.2 Be in MODE 3.	6 hours
B. One rod not within alignment limits.	B.1 Restore rod to within alignment limits.	1 hour
	<u>OR</u>	
Approved TSTF 9	B.2.1.1 Verify SDM ~~is ≥ [1.6]% Δk/k~~.	1 hour
to be within the limits provided in the COLR	<u>OR</u>	
		(continued)

B
RAI 3.1.5-1

Insert 3.1.5-01

F

TSCR 216

Verify individual rod positions are within the following alignment limits:

a. ± 12 steps of demanded position in MODE 1 > 85 percent RTP; and

b. ± 24 steps of demanded position in MODE 1 ≤ 85 percent RTP or in MODE 2.

BASES

LCO (continued)

RCCAs and banks maintain the correct power distribution and rod alignment.

The requirement to maintain the rod alignment to within plus or minus 12 steps is conservative. The minimum misalignment assumed in safety analysis is 24 steps (15 inches), and in some cases a total misalignment from fully withdrawn to fully inserted is assumed. Failure to meet the requirements of this LCO may produce unacceptable power peaking factors and LHRs, or unacceptable SDMs, all of which may constitute initial conditions inconsistent with the safety analysis.

APPLICABILITY

The requirements on RCCA OPERABILITY and alignment are applicable in MODES 1 and 2 because these are the only MODES in which neutron (or fission) power is generated, and the OPERABILITY (i.e., trippability) and alignment of rods have the potential to affect the safety of the plant. In MODES 3, 4, 5, and 6, the alignment limits do not apply because the control rods are bottomed and the reactor is shut down and not producing fission power. In the shutdown MODES, the OPERABILITY of the shutdown and control rods has the potential to affect the required SDM, but this effect can be compensated for by an increase in the boron concentration of the RCS. See LCO 3.1.1, "SHUTDOWN MARGIN (SDM) ~~$- T_{avg} > 200°F$,~~" for SDM in MODE 2 with Keff < 1.0, and MODES 3, 4, and 5 and LCO 3.9.1, "Boron Concentration," for boron concentration requirements during refueling.

Approved TSTF 136

B RAI 3.1.5-1

F TSCR 216

ACTIONS

Insert B 3.1.5-4

11

A.1.1 and A.1.2

inoperable

8

When one or more rods are ~~untrippable~~ inoperable, there is a possibility that the required SDM may be adversely affected. Under these conditions, it is important to determine the SDM, and if it is less than the required value, initiate boration until the required SDM is recovered. The Completion Time of 1 hour is adequate for determining SDM and, if necessary, for initiating emergency boration and restoring SDM.

In this situation, SDM verification must include the worth

LCO 3.1.5 BASES INSERTS

Insert B 3.1.5-1:

The RPI is a linear variable differential transformer (LVDT) consisting of primary and secondary coils stacked alternately on a support tube with the control rod drive shaft acting as the core of the transformer. The primary and secondary coils are series connected with the primary coil supplied with AC power from a constant current source. The position of the control rod drive shaft changes the primary to secondary coil magnetic coupling resulting in a variable secondary voltage which is proportional to the position of the drive shaft (control rod). The RPI channel has an indication accuracy of 5% of span (11.5 steps) therefore, the maximum deviation between actual and demanded indication could be 24 steps or approximately 15 inches.

The specifications ensure that (1) acceptable power distribution limits are maintained, (2) the minimum shutdown margin is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. Operability of the control rod position indicators is required to determine control rod position and thereby ensure compliance with the control rod alignment and insertion limits. Permitted control rod misalignments (as indicated by the RPI System within one hour after control rod motion) are: a) ± 12 steps of the bank demand position (if power level is greater than 85 percent of rated power, and b) ± 24 steps of the bank demand position (if the power level is less than or equal to 85 percent of rated power). For power levels less than or equal to 85 percent of rated power, the peaking factor margin does not have to be verified on an explicit basis. This is due to the rate of peaking factor margin increase (due to the peaking factor limit increasing) as the power level decreases being greater than the peaking factor margin loss (due to the increased control rod misalignment). This effect is described in WCAP-15432 Rev. 1. These limits are applicable to all shutdown and control rods (of all banks) over the range of 0 to 230 steps withdrawn inclusive. F TSCR 216

Control rods in a single bank move together with no individual rod insertion differing by more than 24 steps from the bank demand position (operation at greater than 85 percent of rated power), nor more than 36 steps (operation at less than or equal to 85 percent of rated power). An indicated misalignment limit of 12 steps precludes a rod misalignment of greater than 24 steps with consideration of instrumentation error; 24 steps indicated misalignment corresponds to 36 steps with instrumentation error.

LCO 3.1.5 BASES INSERTS

Insert B 3.1.5-2:

The control rod OPERABILITY requirement is satisfied provided the control rod will fully insert within the required rod drop time assumed in the safety analysis. Control rod malfunctions that result in the inability to move a control rod (e.g. lift coil and rod control system logic failures), but do not impact the control rod trippability, do not result in control rod inoperability.

Insert B 3.1.5-3:

The accident analyses presented in the FSAR Chapter ~~15~~ (Ref. ~~5~~) that may be adversely affected will be evaluated to ensure that the analyses results remain valid for the duration of continued operation under these conditions.

LCO 3.1.5 BASES INSERTS

Insert B 3.1.5-4:

The ACTIONS table is modified by a Note indicating that verification of rod operability and the comparison of bank demand position and RPI System may take place at any time up to one hour after rod motion, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication.

F

TSCR 216

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Rod Group Alignment Limits

LCO 3.1.4 All shutdown and control rods shall be OPERABLE, with individual rod positions within limits.

B
RAI 3.1.5-1

APPLICABILITY: MODES 1 and 2.

ACTIONS

--NOTE--
One hour is allowed following rod motion prior to verifying rod operability and group alignment limits.

F
TSCR 216

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more rod(s) inoperable.	A.1.1	Verify SDM to be within the limits provided in the COLR.	1 hour
	<u>OR</u>		
	A.1.2	Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>		
	A.2	Be in MODE 3.	6 hours

B
RAI 3.1.5-1

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One rod not within alignment limits.	B.1 Restore rod to within alignment limits.	1 hour
	<u>OR</u>	
	B.2.1.1 Verify SDM to be within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	B.2.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	B.2.2 Reduce THERMAL POWER to ≤ 75% RTP.	2 hours
	<u>AND</u>	
	B.2.3 Verify SDM to be within the limits provided in the COLR.	Once per 12 hours
	<u>AND</u>	
	B.2.4 Perform SR 3.2.1.1 and SR 3.2.1.2.	72 hours
	<u>AND</u>	
	B.2.5 Perform SR 3.2.2.1.	72 hours
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.6 Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	5 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours
D. More than one rod not within alignment limit.	D.1.1 Verify SDM to be within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	D.1.2 Initiate boration to restore required SDM to within limit.	1 hour
	<u>AND</u>	
	D.2 Be in MODE 3.	6 hours

B RAI 3.1.5-1

B RAI 3.1.5-1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.1.4.1	Verify individual rod positions are within the following alignment limits: a. ± 12 steps of demanded position in MODE 1 > 85 percent RTP; and b. ± 24 steps of demanded position in MODE 1 ≤ 85 percent RTP or in MODE 2.	12 hours
SR 3.1.4.2	Verify rod freedom of movement (trippability) by moving each rod not fully inserted in the core ≥ 10 steps in either direction.	92 days
SR 3.1.4.3	Verify rod drop time of each rod, from the fully withdrawn position, is ≤ 2.2 seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry, with: a. T_{avg} ≥ 500°F; and b. All reactor coolant pumps operating.	Prior to reactor criticality after each removal of the reactor head

F
TSCR 216

BASES

BACKGROUND (continued)

The shutdown banks are maintained either in the fully inserted or fully withdrawn position. The control banks are moved in an overlap pattern, using the following withdrawal sequence: When control bank A reaches a predetermined height in the core, control bank B begins to move out with control bank A. Control bank A stops at the position of maximum withdrawal, and control bank B continues to move out. When control bank B reaches a predetermined height, control bank C begins to move out with control bank B. This sequence continues until control banks A, B, and C are at the fully withdrawn position, and control bank D is approximately halfway withdrawn. The insertion sequence is the opposite of the withdrawal sequence. The control rods are arranged in a radially symmetric pattern, so that control bank motion does not introduce radial asymmetries in the core power distributions.

The axial position of shutdown rods and control rods is indicated by two separate and independent systems, which are the Bank Demand Position Indication System (commonly called group step counters) and the Rod Position Indication (RPI) System.

The Bank Demand Position Indication System counts the pulses from the rod control system that moves the rods. There is one step counter for each group of rods. Individual rods in a group all receive the same signal to move and should, therefore, all be at the same position indicated by the group step counter for that group. The Bank Demand Position Indication System is considered highly precise (± 1 step or ± 5/8 inch). If a rod does not move one step for each demand pulse, the step counter will still count the pulse and incorrectly reflect the position of the rod.

The RPI System provides a highly accurate indication of actual rod position, but at a lower precision than the step counters. The RPI is a linear variable differential transformer (LVDT) consisting of primary and secondary coils stacked alternately on a support tube with the control rod drive shaft acting as the core of the transformer. The primary and secondary coils are series connected with the primary coil supplied with AC power from a constant current source. The position of the control rod drive shaft changes the primary to secondary coil magnetic coupling resulting in a variable secondary voltage which is proportional to the position of the drive shaft (control rod). The RPI channel has an indication accuracy of 5% of span (11.5 steps) therefore, the maximum deviation between actual and demanded indication could be 24 steps or approximately 15 inches.

The specifications ensure that (1) acceptable power distribution limits are maintained, (2) the minimum shutdown margin is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. Operability of the control rod position indicators is required to determine control rod position and thereby ensure compliance with the control rod alignment and insertion limits.

F
TSCR
216

BACKGROUND (continued)

Permitted control rod misalignments (as indicated by the RPI System within one hour after control rod motion) are; a) ± 12 steps of the bank demand position (if power level is greater than 85 percent of rated power, and b) ± 24 steps of the bank demand position (if the power level is less than or equal to 85 percent of rated power). For power levels less than or equal to 85 percent of rated power, the peaking factor margin does not have to be verified on an explicit basis. This is due to the rate of peaking factor margin increase (due to the peaking factor limit increasing) as the power level decreases being greater than the peaking factor margin loss (due to the increased control rod misalignment). This effect is described in WCAP-15432 Rev. 1. These limits are applicable to all shutdown and control rods (of all banks) over the range of 0 to 230 steps withdrawn inclusive.

F
TSCR 216

Control rods in a single bank move together with no individual rod insertion differing by more than 24 steps from the bank demand position (operation at greater than 85 percent of rated power), nor more than 36 steps (operation at less than or equal to 85 percent of rated power). An indicated misalignment limit of 12 steps precludes a rod misalignment of greater than 24 steps with consideration of instrumentation error; 24 steps indicated misalignment corresponds to 36 steps with instrumentation error.

APPLICABLE SAFETY ANALYSES

Control rod misalignment accidents are analyzed in the safety analysis (Ref. 4). The acceptance criteria for addressing control rod inoperability or misalignment are that:

a. There be no violations of:

   1. specified acceptable fuel design limits, or
   2. Reactor Coolant System (RCS) pressure boundary integrity; and

b. The core remains subcritical after accident transients.

Two types of misalignment are distinguished. During movement of a control rod group, one rod may stop moving, while the other rods in the group continue. This condition may cause excessive power peaking. The second type of misalignment occurs if one rod fails to insert upon a reactor trip and remains stuck fully withdrawn. This condition requires an evaluation to determine that sufficient reactivity worth is held in the control rods to meet the SDM requirement, with the maximum worth rod stuck fully withdrawn.

Two types of analysis are performed in regard to static rod misalignment (Ref. 4). With control banks at their insertion limits, one type of analysis considers the case when any one rod is completely inserted into the core. The second type of analysis considers the case

BASES

APPLICABLE SAFETY ANALYSES (continued)

of a completely withdrawn single rod from a bank inserted to its insertion limit. Satisfying limits on departure from nucleate boiling ratio in both of these cases bounds the situation when a rod is misaligned from its group by 12 steps.

Another type of misalignment occurs if one RCCA fails to insert upon a reactor trip and remains stuck fully withdrawn. This condition is assumed in the evaluation to determine that the required SDM is met with the maximum worth RCCA also fully withdrawn (Ref. 4).

The Required Actions in this LCO ensure that either deviations from the alignment limits will be corrected or that THERMAL POWER will be adjusted so that excessive local linear heat rates (LHRs) will not occur, and that the requirements on SDM and ejected rod worth are preserved.

Continued operation of the reactor with a misaligned control rod is allowed if the heat flux hot channel factors $F^C_Q(Z)$ and $F^W_Q(Z)$ and the nuclear enthalpy hot channel factor ($F^N_{\Delta H}$) are verified to be within their limits in the COLR and the safety analysis is verified to remain valid. When a control rod is misaligned, the assumptions that are used to determine the rod insertion limits, AFD limits, and quadrant power tilt limits are not preserved. Therefore, the limits may not preserve the design peaking factors, and $F^C_Q(Z)$, $F^W_Q(Z)$, and $F^N_{\Delta H}$ must be verified directly by incore mapping. Bases Section 3.2 (Power Distribution Limits) contains more complete discussions of the relation of $F^C_Q(Z)$, $F^W_Q(Z)$, and $F^N_{\Delta H}$ to the operating limits.

Shutdown and control rod OPERABILITY and alignment are directly related to power distributions and SDM, which are initial conditions assumed in safety analyses. Therefore they satisfy Criterion 2 of the NRC Policy Statement.

LCO

The limits on shutdown or control rod alignments ensure that the assumptions in the safety analysis will remain valid. The requirements on control rod OPERABILITY ensure that upon reactor trip, the assumed reactivity will be available and will be inserted. The control rod OPERABILITY requirement is satisfied provided the control rod will fully insert within the required rod drop time assumed in the safety analysis. Control rod malfunctions that result in the inability to move a control rod (e.g. lift coil and rod control system logic failures), but do not impact the control rod trippability, do not result in control rod inoperability. The LCO requirements also ensure that the RCCAs and banks maintain the correct power distribution and rod alignment.

BASES

LCO (continued)

The requirement to maintain the rod alignment to within plus or minus 12 steps is conservative. The minimum misalignment assumed in safety analysis is 24 steps (15 inches), and in some cases a total misalignment from fully withdrawn to fully inserted is assumed. Failure to meet the requirements of this LCO may produce unacceptable power peaking factors and LHRs, or unacceptable SDMs, all of which may constitute initial conditions inconsistent with the safety analysis.

APPLICABILITY

The requirements on RCCA OPERABILITY and alignment are applicable in MODES 1 and 2 because these are the only MODES in which neutron (or fission) power is generated, and the OPERABILITY (i.e., trippability) and alignment of rods have the potential to affect the safety of the plant. In MODES 3, 4, 5, and 6, the alignment limits do not apply because the control rods are bottomed and the reactor is shut down and not producing fission power. In the shutdown MODES, the OPERABILITY of the shutdown and control rods has the potential to affect the required SDM, but this effect can be compensated for by an increase in the boron concentration of the RCS. See LCO 3.1.1, "SHUTDOWN MARGIN (SDM)" for SDM in MODE 2 with $k_{eff} < 1.0$, and MODES 3, 4, and 5 and LCO 3.9.1, "Boron Concentration," for boron concentration requirements during refueling.

B
RAI 3.1 5-1

ACTIONS

The ACTIONS table is modified by a Note indicating that verification of rod operability and the comparison of bank demand position and RPI System may take place at any time up to one hour after rod motion, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication.

F
TSCR
216

A.1.1 and A.1.2

When one or more rods are inoperable, there is a possibility that the required SDM may be adversely affected. Under these conditions, it is important to determine the SDM, and if it is less than the required value, initiate boration until the required SDM is recovered. The Completion Time of 1 hour is adequate for determining SDM and, if necessary, for initiating emergency boration and restoring SDM.

In this situation, SDM verification must include the worth of the untrippable rod, as well as a rod of maximum worth.

BASES

ACTIONS (continued) A.2

If the inoperable rod(s) cannot be restored to OPERABLE status, the plant must be brought to a MODE or condition in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours.

The allowed Completion Time is reasonable, based on operating experience, for reaching MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

B.1

When a rod becomes misaligned, it can usually be moved and is still trippable. If the rod can be realigned within the Completion Time of 1 hour, local xenon redistribution during this short interval will not be significant, and operation may proceed without further restriction.

An alternative to realigning a single misaligned RCCA to the group average position is to align the remainder of the group to the position of the misaligned RCCA. However, this must be done without violating the bank sequence, overlap, and insertion limits specified in LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits." The Completion Time of 1 hour gives the operator sufficient time to adjust the rod positions in an orderly manner.

B.2.1.1 and B.2.1.2

With a misaligned rod, SDM must be verified to be within limit or boration must be initiated to restore SDM to within limit.

In many cases, realigning the remainder of the group to the misaligned rod may not be desirable. For example, realigning control bank B to a rod that is misaligned 25 steps from the top of the core would require a significant power reduction, since control bank D must be moved fully in and control bank C must be moved in to approximately 100 to 115 steps.

Power operation may continue with one RCCA misaligned, provided that SDM is verified within 1 hour. The Completion Time of 1 hour represents the time necessary for determining the actual unit SDM and, if necessary, aligning and starting the necessary systems and components to initiate boration.

BASES

ACTIONS (continued)

B.2.2, B.2.3, B.2.4, B.2.5, and B.2.6

For continued operation with a misaligned rod, RTP must be reduced, SDM must periodically be verified within limits, hot channel factors ($F_Q^C(Z)$, $F_Q^W(Z)$, and $F_{\Delta H}^N$) must be verified within limits, and the safety analyses must be re-evaluated to confirm continued operation is permissible.

Reduction of power to 75% RTP ensures that local LHR increases due to a misaligned RCCA will not cause the core design criteria to be exceeded (Ref. 4). The Completion Time of 2 hours gives the operator sufficient time to accomplish an orderly power reduction without challenging the Reactor Protection System.

When a rod is known to be misaligned, there is a potential to impact the SDM. Since the core conditions can change with time, periodic verification of SDM is required. A Frequency of 12 hours is sufficient to ensure this requirement continues to be met.

Verifying that $F_Q^C(Z)$, $F_Q^W(Z)$, and $F_{\Delta H}^N$ are within the required limits ensures that current operation at 75% RTP with a rod misaligned is not resulting in power distributions that may invalidate safety analysis assumptions at full power. The Completion Time of 72 hours allows sufficient time to obtain flux maps of the core power distribution using the incore flux mapping system and to calculate $F_Q^C(Z)$, $F_Q^W(Z)$, and $F_{\Delta H}^N$.

Once current conditions have been verified acceptable, time is available to perform evaluations of accident analysis to determine that core limits will not be exceeded during a Design Basis Event for the duration of operation under these conditions. The accident analyses presented in the FSAR Chapter 14 (Ref. 4) that may be adversely affected will be evaluated to ensure that the analysis results remain valid for the duration of continued operation under these conditions. A Completion Time of 5 days is sufficient time to obtain the required input data and to perform the analysis.

ACTIONS (continued)

C.1

When Required Actions cannot be completed within their Completion Time, the unit must be brought to a MODE or Condition in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours, which obviates concerns about the development of undesirable xenon or power distributions. The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching MODE 3 from full power conditions in an orderly manner and without challenging the plant systems. B RAI 3.1.5-1

D.1.1 and D.1.2

More than one control rod becoming misaligned from its group average position is not expected, and has the potential to reduce SDM. Therefore, SDM must be evaluated. One hour allows the operator adequate time to determine SDM. Restoration of the required SDM, if necessary, requires increasing the RCS boron concentration to provide negative reactivity, as described in the Bases of LCO 3.1.1. The required Completion Time of 1 hour for initiating boration is reasonable, based on the time required for potential xenon redistribution, the low probability of an accident occurring, and the steps required to complete the action. This allows the operator sufficient time to align the required valves and start the boric acid pumps. Boration will continue until the required SDM is restored.

D.2

If more than one rod is found to be misaligned or becomes misaligned because of bank movement, the unit conditions fall outside of the accident analysis assumptions. Since automatic bank sequencing would continue to cause misalignment, the unit must be brought to a MODE or Condition in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours.

The allowed Completion Time is reasonable, based on operating experience, for reaching MODE 3 from full power conditions in an orderly manner and without challenging plant systems. B RAI 3.1.5-1

SURVEILLANCE REQUIREMENTS

SR 3.1.4.1

Verification that individual rod positions are within alignment limits at a Frequency of 12 hours provides a history that allows the operator to detect a rod that is beginning to deviate from its expected position.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The specified Frequency takes into account other rod position information that is continuously available to the operator in the control room, so that during actual rod motion, deviations can immediately be detected.

SR 3.1.4.2

Verifying each control rod is OPERABLE would require that each rod be tripped. However, in MODES 1 and 2, tripping each control rod would result in radial or axial power tilts, or oscillations. Exercising each individual control rod every 92 days provides increased confidence that all rods continue to be OPERABLE without exceeding the alignment limit, even if they are not regularly tripped. Moving each control rod by 10 steps will not cause radial or axial power tilts, or oscillations, to occur. The 92 day Frequency takes into consideration other information available to the operator in the control room and SR 3.1.4.1, which is performed more frequently and adds to the determination of OPERABILITY of the rods. Between required performances of SR 3.1.4.2 (determination of control rod OPERABILITY by movement), if a control rod(s) is discovered to be immovable, but remains trippable, the control rod(s) is considered to be OPERABLE. At any time, if a control rod(s) is immovable, a determination of the trippability (OPERABILITY) of the control rod(s) must be made, and appropriate action taken.

B

RAI 3.1.5-1

SR 3.1.4.3

Verification of rod drop times allows the operator to determine that the maximum rod drop time permitted is consistent with the assumed rod drop time used in the safety analysis. Measuring rod drop times prior to reactor criticality, after reactor vessel head removal, ensures that the reactor internals and rod drive mechanism will not interfere with rod motion or rod drop time, and that no degradation in these systems has occurred that would adversely affect control rod motion or drop time. This testing is performed with all RCPs operating and the average moderator temperature ≥ 500°F to simulate a reactor trip under actual conditions.

This Surveillance is performed during a plant outage, due to the plant conditions needed to perform the SR and the potential for an unplanned plant transient if the Surveillance were performed with the reactor at power.

REFERENCES

1. FSAR, Section 3.2.

2. FSAR, Sections 1.3.5.

3. 10 CFR 50.46.

4. FSAR, Chapter 14.

DOC Number	DOC Text	
A.07 Rev. A	The CTS provides an introductory statement (Objective) at the beginning of this Section of the Technical Specifications which provide a brief summary of the purpose for this Section. This information is contained in the Bases Section of the ITS. This information does not establish any regulatory requirements for the systems and components addressed within this Section. Accordingly, deletion of this information does not alter any requirement set forth in the Technical Specifications. This change is administrative and consistent with the format and presentation for the ITS as provided in NUREG 1431.	
	CTS:	**ITS:**
	15.03.10 OBJ	B 3.01.05
A.08 Rev. A	CTS 15.3.10.A.1 and 2 requires Shutdown Margin (SDM) to be maintained whenever the reactor coolant temperature is less than 350 degrees (15.3.10.A.2) and from 350 degrees to full power (15.3.10.A.1). The requirement to maintain SDM within limits has been moved to several LCOs within the ITS. During critical operation (Mode 1 and Mode 2 with Keff greater than or equal to 1.0) , SDM is assured through the maintenance of rod insertion limits in ITS LCO 3.1.5 and 3.1.6, while in Mode 2 with Keff less than 1.0, and Modes 3, 4, and 5, SDM is assured through the application of ITS LCO 3.1.1. Accordingly, while presented in a different fashion than CTS, the requirement to maintain SDM has been retained in the ITS, making this change administrative.	
	CTS:	**ITS:**
	15.03.10.A.01	LCO 3.01.05
A.09 Rev. F	The proposed Note allows a one hour soak prior to verifying bank insertion limits. The changes to the control rod position indication requirements in CTS 15.3.10 were necessitated by Custom Technical Specification Change Request (TSCR) 216, Individual Rod Position Indication Operability. This change incorporates the CLB provisions of TSCR 216 and is therefore administrative.	
	CTS:	**ITS:**
	15.03.10.D NOTE	LCO 3.01.05 NOTE

A.1

15.3.10 CONTROL ROD AND POWER DISTRIBUTION LIMITS

Applicability

Applies to the operation of the control rods and to core power distribution limits.

A.06

Objective

A.07

To insure (1) core subcriticality after a reactor trip, (2) a limit on potential reactivity insertions from a hypothetical rod cluster control assembly (RCCA) ejection, and (3) an acceptable core power distribution during power operation.

L.01

Specification

A.08

COLR

LA.01

Cond A RA A.1.2

A. SHUTDOWN MARGIN

ITS LCO 3.1.5

1. The shutdown margin shall exceed the applicable value ~~as shown in Figure 15.3.10-2~~ under all steady-state operating conditions from 350°F to full power. If the shutdown margin is less than the applicable value ~~of Figure 15.3.10-2, within~~ 15 minutes initiate boration to restore the shutdown margin.

2. A shutdown margin of at least 1% Δk/k shall be maintained when the reactor coolant temperature is less than 350°F. If the shutdown margin is less than this limit, within 15 minutes initiate boration to restore the shutdown margin.

B. ROD OPERABILITY AND BANK ALIGNMENT LIMITS

< See LCO 3.1.1 >

NOTE: One hour is allowed following rod motion prior to verifying rod operability and bank alignment limits.

1. During power and low power operation, all shutdown and control rods shall be operable and positioned within the allowed rod misalignment between the individual indicated rod positions and the bank demand position as follows;

< See LCO 3.1.5 >

i) For operation ≤ 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±24 steps.

ii) For operation > 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±12 steps.

F TSCR 216

If an RCCA does not step in upon demand, up to six hours is allowed to determine whether the problem with stepping is an electrical problem. If the problem cannot be resolved within six hours, the RCCA shall be declared inoperable until it has been verified that it will step in or would drop upon demand.

F TSCR 216

A.1

(2) Once per shift check the position of the rods with inoperable RPIs by using excore detectors, or thermocouples, or movable incore detectors;

(3) If the above actions and associated completion times are not met, perform the actions in accordance with TS 15.3.10.B.1.b.

b. If one or more rods with inoperable RPIs have been moved in excess of 24 steps in one direction since the last determination of the rod's position, perform the following actions:

(1) Within four hours check the position of the rods with inoperable RPIs by using excore detectors, or thermocouples, or movable incore detectors;

< See LCO 3.1.8 >

L.2

Add Note for control rod testing (Insert 3.1.6-02)

(2) If the above action and associated completion time is not met, perform the actions in accordance with TS 15.3.10.B.1.b.

c. If bank demand position indication, for one or more banks, is determined to be inoperable, perform the following actions:

(1) Once per shift verify that all RPIs for the affected banks are operable;
AND
(2) Once per shift verify that the most withdrawn rod and the least withdrawn rod of the affected banks are within the allowed rod misalignment in accordance with TS 15.3.10.B.1.

(3) If the above actions and associated completion times are not met, perform the actions in accordance with TS 15.3.10.B.1.b.

F TSCR 216

LCO 3.1.5

D. BANK INSERTION LIMITS

Modes 1 and 2 M.1

B RAI 3.1.6-1

NOTE: One hour is allowed following rod motion prior to verifying bank insertion limits.

F TSCR 216

A.09

1. ~~When the reactor is critical~~, ~~the shutdown banks shall be fully withdrawn. Fully withdrawn is defined as a bank position equal to or greater than 225 steps. This definition is applicable to shutdown and control banks.~~

Replace with Insert 3.1.6-01

LA.1

If this condition is not met, perform the following actions:

the COLR

a. Within one hour verify that the shutdown margin exceeds the applicable value as shown in ~~Figure 15.3.10-2;~~ OR ~~within one hour restore the shutdown margin by boration;~~

L.1

LCO 3.1.5 Cond A RA A.1.1 and A.1.2

initiate boration to restore SDM to within limits.

F TSCR 216

Justification For Deviations - NUREG-1431 Section 3.01.06

09-May-01

JFD Number	JFD Text	
01 Rev. A	Reference to the General Design Criteria (GDC) of 10 CFR 50 Appendix A has been deleted from the Bases of the Technical Specifications, substituting reference to the appropriate section of the FSAR which specifies the Point Beach design criteria. Point Beach was constructed and licensed prior to the GDC being issued. The Point Beach construction permit was issued prior to the GDCs being issued in 1971. Point Beach was designed and constructed utilizing the 1967 proposed GDCs. Accordingly, reference has been provided to the appropriate criteria and section of the Point Beach FSAR which provides explanation of Point Beach's design basis.	
	ITS:	**NUREG:**
	B 3.01.05	B 3.01.06
02 Rev. A	The brackets have been removed and the proper plant specific information has been provided for reference 3 of the References Section for the Bases of LCO 3.1.6. In addition, the Applicable Safety Analyses Section of the Bases for LCO 3.1.6 has been changed to reference 4 and Reference 4 has been added to the References Section of the Bases to allow the appropriate Section of the FSAR to be listed and referenced. Reference 3 contains the control rod design requirements, while reference 4 contains a broad reference to the Accident Analyses Section of the FSAR which contains the accidents analysis assumption for analyzed events which credit a specific SDM.	
	ITS:	**NUREG:**
	B 3.01.05	B 3.01.06
03 Rev. A	The Bases for Required Action A.1.1 references the Bases for SR 3.1.1.1 to obtain a listing of effects for calculation of SDM when one or more shutdown banks are not within limits. This LCO Action is applicable in Modes 1 and 2 with Keff greater than or equal to 1.0. SR 3.1.1.1 calculates SDM in Mode 2 with Keff < 1.0, and Modes 3, 4, and 5, addressing subcritical conditions. Therefore, the Bases of SR 3.1.1.1 contains effects which are not applicable to an operating reactor. Proposed ITS LCO 3.1.5 Required Action A.1.1 has been modified to list the effects listed from the Bases of SR 3.1.1.1 which are applicable to reactor critical operation.	
	ITS:	**NUREG:**
	B 3.01.05	B 3.01.06
04 Rev. B	Not Used.	
	ITS:	**NUREG:**
	N/A	N/A
05 Rev. A	The Bases for proposed ITS SR 3.1.5.1 has been expanded to include reference to the preferred indication for verifying that shutdown banks are within their insertion limits.	
	ITS:	**NUREG:**
	B 3.01.05	B 3.01.06

Justification For Deviations - NUREG-1431 Section 3.01.06

09-May-01

JFD Number	JFD Text	
06 Rev. A	The proposed Bases has been modified to reflect the Point Beach design. Not all control rod banks consist of two groups of rods as stated in the Bases of NUREG 1431 LCO 3.1.6. Control banks may consist of a single group dependent upon the number of control rods assigned to the bank. Typically control rod banks with four or fewer rods consist of a single group. Any bank that consists of two groups will step the banks within one step of each other.	
	ITS:	**NUREG:**
	B 3.01.05	B 3.01.06
07 Rev. F	CTS provides an allowance of a one hour soak prior to verifying bank insertion limits. This time period is based on the time deemed necessary to allow the control rod drive shaft to reach thermal equilibrium. The proposed NOTE maintains this allowance in ITS. This change incorporates the current licensing basis (CLB) provisions of TSCR 216 and is therefore administrative.	
	ITS:	**NUREG:**
	LCO 3.01.05 NOTE	N/A

Approved TSTF 136 5

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Shutdown Bank Insertion Limits

LCO 3.1.6 Each shutdown bank shall be within insertion limits specified in the COLR.

5 Approved TSTF 136

Approved TSTF 239

APPLICABILITY: MODE 1,
MODE 2 ~~with any control bank not fully inserted~~.

B RAI 3.1.6-1

-----NOTE-----
This LCO is not applicable while performing SR 3.1.5.2.

Approved TSTF 136 4

ACTIONS

7

-----NOTE-----
One hour is allowed following rod motion prior to verifying bank insertion limits.

F TSCR 216

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown banks not within limits.	A.1.1 Verify SDM ~~is ≥ [1.6]% Δk/k~~ to be within the limits provided in the COLR. OR A.1.2 Initiate boration to restore SDM to within limit. AND A.2 Restore shutdown banks to within limits.	1 hour 1 hour Approved TSTF 9 2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

B RAI 3.1.6-1

Approved TSTF 136 5

BASES

APPLICABILITY (continued)

4 ~~SR 3.1.~~5.2. This SR verifies the freedom of the rods to move, and requires the shutdown bank to move below the LCO limits, which would normally violate the LCO.

ACTIONS

A.1.1, A.1.2 and A.2

Insert B 3.1.6-03 7

F TSCR 216

When one or more shutdown banks is not within insertion limits, 2 hours is allowed to restore the shutdown banks to within the insertion limits. This is necessary because the available SDM may be significantly reduced, with one or more of the shutdown banks not within their insertion limits. Also, verification of SDM or initiation of boration within 1 hour is required, since the SDM in MODES 1 and 2 is ensured by adhering to the control and shutdown bank insertion limits (see LCO 3.1.1). If shutdown banks are not within their insertion limits, then SDM will be verified ~~by performing a reactivity balance calculation, considering the effects listed in the BASES for SR 3.1.1.1.~~

3 Replace with Insert 3.1.6-02

B RAI 3.1.6-1

The allowed Completion Time of 2 hours provides an acceptable time for evaluating and repairing minor problems without allowing the plant to remain in an unacceptable condition for an extended period of time.

B.1

If the shutdown banks cannot be restored to within their insertion limits within 2 hours, the unit must be brought to a MODE where the LCO is not applicable. The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

Approved TSTF 136 5

SURVEILLANCE REQUIREMENTS

SR 3.1.6.1

Verification that the shutdown banks are within their insertion limits prior to an approach to criticality ensures that when the reactor is critical, or being taken critical, the shutdown banks will be available to shut down the the reactor, and the required SDM will be maintained following a

B RAI 3.1.6-1

Approved TSTF 136 5

LCO 3.1.6 Bases Inserts

Insert B 3.1.6-01:

The design criteria for reactivity and power distribution are found in FSAR Section 3.1.

Insert B 3.1.6-02:

the following listed reactivity effects:

a. RCS boron concentration;

b. Control bank position;

c. Power defect;

d. Fuel burnup;

e. Xenon concentration; and

f. Samarium concentration.

Insert B 3.1.6-03:

The ACTIONS table is modified by a Note indicating that up to one hour after rod motion is allowed for comparison of the bank insertion limits and the RPI System, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication. This comparison is sufficient to verify that the shutdown banks are above the insertion limits and thus assures the presence of sufficient shutdown margin to satisfy the assumptions of the safety analyses.

F
TSCR
216

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown Bank Insertion Limits

LCO 3.1.5 Each shutdown bank shall be within insertion limits specified in the COLR.

APPLICABILITY: MODES 1 and 2

B
RAI 3.1.6-1

------------------------------NOTE------------------------------
This LCO is not applicable while performing SR 3.1.4.2.

ACTIONS

------------------------------NOTE------------------------------
One hour is allowed following rod motion prior to verifying bank insertion limits.

F
TSCR 216

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown banks not within limits.	A.1.1 Verify SDM to be within the limits provided in the COLR. OR A.1.2 Initiate boration to restore SDM to within limit. AND A.2 Restore shutdown banks to within limits.	1 hour 1 hour 2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

B
RAI 3.1.6-1

BASES

LCO

The shutdown banks must be within their insertion limits any time the reactor is critical or approaching criticality. This ensures that a sufficient amount of negative reactivity is available to shut down the reactor and maintain the required SDM following a reactor trip.

B
RAI 3.1.6-1

The shutdown bank insertion limits are defined in the COLR.

APPLICABILITY

The shutdown banks must be within their insertion limits, with the reactor in MODES 1 and 2. This ensures that a sufficient amount of negative reactivity is available to shut down the reactor and maintain the required SDM following a reactor trip. The shutdown banks do not have to be within their insertion limits in MODE 3, unless an approach to criticality is being made. In MODE 3, 4, 5, or 6, the shutdown banks are fully inserted in the core and contribute to the SDM. Refer to LCO 3.1.1 for SDM requirements in MODES 3, 4, and 5. LCO 3.9.1, "Boron Concentration," ensures adequate SDM in MODE 6.

B
RAI 3.1.6-1

The Applicability requirements have been modified by a Note indicating the LCO requirement is suspended during SR 3.1.4.2. This SR verifies the freedom of the rods to move, and requires the shutdown bank to move below the LCO limits, which would normally violate the LCO.

ACTIONS

The ACTIONS table is modified by a Note indicating that up to one hour after rod motion is allowed for comparison of the bank insertion limits and the RPI System, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication. This comparison is sufficient to verify that the shutdown banks are above the insertion limits and thus assures the presence of sufficient shutdown margin to satisfy the assumptions of the safety analyses.

F
TSCR
216

A.1.1, A.1.2 and A.2

When one or more shutdown banks is not within insertion limits, 2 hours is allowed to restore the shutdown banks to within the insertion limits. This is necessary because the available SDM may be significantly reduced, with one or more of the shutdown banks not within their insertion limits. Also, verification of SDM or initiation of boration within 1 hour is required, since the SDM in MODES 1 and 2 is ensured by adhering to the control and shutdown bank insertion limits (see LCO 3.1.1). If shutdown banks are not within their insertion limits, then SDM will be verified by performing a reactivity balance calculation, considering the following listed reactivity effects:

B
RAI 3.1.6-1

BASES

ACTIONS (continued)

a. RCS boron concentration;

b. Control bank position;

c. Power defect;

d. Fuel burnup;

e. Xenon concentration; and

f. Samarium concentration.

The allowed Completion Time of 2 hours provides an acceptable time for evaluating and repairing minor problems without allowing the plant to remain in an unacceptable condition for an extended period of time.

B.1

If the shutdown banks cannot be restored to within their insertion limits within 2 hours, the unit must be brought to a MODE where the LCO is not applicable. The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

Verification that the shutdown banks are within their insertion limits prior to an approach to criticality ensures that when the reactor is critical, or being taken critical, the shutdown banks will be available to shut down the reactor, and the required SDM will be maintained following a reactor trip. This SR and Frequency ensure that the shutdown banks are withdrawn before the control banks are withdrawn during a unit startup. Typically, the individual rod position indicators are used to confirm shutdown bank insertion limits.

Since the shutdown banks are positioned manually by the control room operator, a verification of shutdown bank position at a Frequency of 12 hours, after the reactor is taken critical, is adequate to ensure that they are within their insertion limits. Also, the 12 hour Frequency takes into account other information available in the control room for the purpose of monitoring the status of shutdown rods. B RAI 3.1.6-1

BASES

REFERENCES

1. FSAR, Section 3.1.
2. 10 CFR 50.46.
3. FSAR, Section 3.2.
4. FSAR, Chapter 14.

Applicability

Applies to the operation of the control rods and to core power distribution limits.

A.06

Objective

A.07

To insure (1) core subcriticality after a reactor trip, (2) a limit on potential reactivity insertions from a hypothetical rod cluster control assembly (RCCA) ejection, and (3) an acceptable core power distribution during power operation.

L.01

Specification

A.08

COLR LA.01 Cond A RA A.1.2

A. SHUTDOWN MARGIN

ITS LCO 3.1.6, COND A AND COND B

1. The shutdown margin shall exceed the applicable value ~~as shown in Figure 15.3.10-2~~ under all steady-state operating conditions from 350°F to full power. If the shutdown margin is less than the applicable value ~~of Figure 15.3.10-2, within~~ 15 minutes initiate boration to restore the shutdown margin.

2. A shutdown margin of at least 1% Δk/k shall be maintained when the reactor coolant temperature is less than 350°F. If the shutdown margin is less than this limit, within 15 minutes initiate boration to restore the shutdown margin.

B. ROD OPERABILITY AND BANK ALIGNMENT LIMITS

< See LCO 3.1.1 >

NOTE: One hour is allowed following rod motion prior to verifying rod operability and bank alignment limits.

1. During power and low power operation, all shutdown and control rods shall be operable and positioned within the allowed rod misalignment between the individual indicated rod positions and the bank demand position as follows;

<See LCO 3.1.5>

i) For operation ≤ 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±24 steps.

ii) For operation > 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±12 steps.

F TSCR 216

If an RCCA does not step in upon demand, up to six hours is allowed to determine whether the problem with stepping is an electrical problem. If the problem cannot be resolved within six hours, the RCCA shall be declared inoperable until it has been verified that it will step in or would drop upon demand.

(2) Once per shift check the position of the rods with inoperable RPIs by using excore detectors, or thermocouples, or movable incore detectors;

(3) If the above actions and associated completion times are not met, perform the actions in accordance with TS 15.3.10.B.1.b.

b. If one or more rods with inoperable RPIs have been moved in excess of 24 steps in one direction since the last determination of the rod's position, perform the following actions:

< See LCO 3.1.8 >

L.2

Add Note for control rod testing (Insert 3.1.7-02)

(1) Within four hours check the position of the rods with inoperable RPIs by using excore detectors, or thermocouples, or movable incore detectors;

(2) If the above action and associated completion time is not met, perform the actions in accordance with TS 15.3.10.B.1.b.

c. If bank demand position indication, for one or more banks, is determined to be inoperable, perform the following actions:

(1) Once per shift verify that all RPIs for the affected banks are operable;

AND

(2) Once per shift verify that the most withdrawn rod and the least withdrawn rod of the affected banks are within the allowed rod misalignment in accordance with TS 15.3.10.B.1.

F TSCR 216

(3) If the above actions and associated completion times are not met, perform the actions in accordance with TS 15.3.10.B.1.b.

B RAI 3.1.6-1

D. BANK INSERTION LIMITS

LA.2 SR 3.1.6.3

F TSCR 216

NOTE: One hour is allowed following rod motion prior to verifying bank insertion limits.

1. When the reactor is critical, the shutdown banks shall be fully withdrawn. Fully withdrawn is defined as a bank position equal to or greater than 225 steps. This definition is applicable to shutdown and control banks. as specified in the COLR

< See LCO 3.1.6 >

If this condition is not met, perform the following actions:

a. Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;

F TSCR 216

Justification For Deviations - NUREG-1431 Section 3.01.07

09-May-01

JFD Number	JFD Text
01 Rev. A	Reference to the General Design Criteria (GDC) of 10 CFR 50 Appendix A has been deleted from the Bases of the Technical Specifications, substituting reference to the appropriate section of the FSAR which specifies the Point Beach design criteria. Point Beach was constructed and licensed prior to the GDC being issued. The Point Beach construction permit was issued prior to the GDCs being issued in 1971. Point Beach was designed and constructed utilizing the 1967 proposed GDCs. Accordingly, reference has been provided to the appropriate criteria and section of the Point Beach FSAR which provides explanation of Point Beach's design basis. **ITS:** B 3.01.06 **NUREG:** B 3.01.07
02 Rev. A	The Bases for LCO 3.1.7 provides a description of control bank overlap, which includes specific reference to the position of Control Bank C when Control Bank D begins to move in addition to the fully withdrawn position for the control rods. The C Bank position at which Control Bank D begins to move at Point Beach is 125 steps and the fully withdrawn position for the control rods is 225 steps. These site specific numbers have been substituted for the numbers used in NUREG 1431. **ITS:** B 3.01.06 **NUREG:** B 3.01.07
03 Rev. A	The Bases for LCO 3.1.7 provides three FSAR Section references (3, 4, and 5) for various analyses and parameters. Reference 3 contains contains a broad reference to the Accident Analyses Section of the FSAR which contains the accident analyses assumptions for analyzed events. Therefore, Reference 4 and 5 are unnecessary. **ITS:** B 3.01.06 **NUREG:** B 3.01.07
04 Rev. A	The brackets have been removed and the proper plant specific information has been provided. **ITS:** B 3.01.06 **NUREG:** B 3.01.07
05 Rev. A	The Bases for Required Action A.1.1 references the Bases for SR 3.1.1.1 to obtain a listing of effects for calculation of SDM when one or more shutdown banks are not within limits. This LCO Action is applicable in Modes 1 and 2 with Keff greater than or equal to 1.0. SR 3.1.1.1 calculates SDM in Mode 2 with Keff < 1.0, and Modes 3, 4, and 5, addressing subcritical conditions. Therefore, the Bases for SR 3.1.1.1 contains effects which are not applicable to an operating reactor. Proposed ITS LCO 3.1.5 Required Action A.1.1 has been modified to list the effects listed from the Bases for SR 3.1.1.1 which are applicable to reactor critical operation. **ITS:** B 3.01.06 **NUREG:** B 3.01.07

Justification For Deviations - NUREG-1431 Section 3.01.07

09-May-01

JFD Number	JFD Text	
06 Rev. A	Figure B 3.1.7-1, "Control Bank Insertion Limits" is provided in the Bases of the ITS as an example of the rod insertion limits in addition to a reference in explaining the concept of bank overlap. This figure has been retained, but as a generic figure for information only to eliminate any possible confusion as to the figure's use. Plant specific information is contained in the COLR.	
	ITS:	**NUREG:**
	B 3.01.06	B 3.01.07
07 Rev. A	The Mode of Applicability for NUREG LCO 3.1.7 is Mode 1 and 2 with Keff greater than or equal to 1.0, while the default Required Action (C.1) requires the unit to be placed into Mode 3 within 6 hours. LCO 3.0.2 states that an LCOs Required Actions are no longer applicable if an LCO is met or no longer applicable. Accordingly, the Required Actions are no longer applicable after the unit reaches Mode 2 with Keff less than 1.0. Therefore, the default action has been revised to require the unit to be placed into Mode 2 with Keff less than 1.0 within 6 hours to establish continuity between the General Usage LCOs and the Required Actions for NUREG 1431 LCO 3.1.7. This implements approved TSTF 238, Revision 0.	
	ITS:	**NUREG:**
	B 3.01.06	B 3.01.07
	LCO 3.01.06 COND C RA C.1	LCO 3.01.07 COND C RA C.1
08 Rev. B	NUREG 1431 allows control bank insertion, sequence, and overlap limits to be specified in the COLR. NUREG 1431 SR 3.1.7.3 states that control banks which are fully withdrawn from the core are not required to be checked for proper sequence and overlap (as in the fully withdrawn position, overlap and sequence are no longer observable parameters). The CTS defines fully withdrawn for the control rods as being greater than or equal to 225 steps. This is to allow the control rods to be "parked" at this position or higher while meeting the definition of fully withdrawn. Defining fully withdrawn at greater than or equal to 225 steps minimizes control rod cladding wear caused by vibration in the guide card area. Fully withdrawn is not adequately defined in the NUREG. Fully withdrawn is subjective and should be defined and maintained consistent with the control bank insertion limits. Therefore, the definition of "fully withdrawn" is proposed for inclusion into the COLR. The Bases has been slightly modified to reflect this COLR attribute.	
	ITS:	**NUREG:**
	B 3.01.06	B 3.01.07

Justification For Deviations - NUREG-1431 Section 3.01.07

09-May-01

JFD Number	JFD Text	
09 Rev. A	The porposed Bases has been modified to reflect the Point Beach design. Not all control rod banks consist of two groups of rods as stated in the Bases of NUREG 1431 LCO 3.1.6. Control banks may consist of a single group dependent upon the number of control rods assigned to the bank. Typically control rod banks with four or fewer rods consist of a single group. Any bank that consists of two groups will step the banks within one step of each other.	
	ITS:	**NUREG:**
	B 3.01.06	B 3.01.07
10 Rev. A	The Mode of Applicability for NUREG 1431 LCO 3.1.7 is Mode 1 and Mode 2 when Keff is greater than or equal to 1.0, however, the Applicability and Actions Sections of the NUREG Bases do not reflect this completely. As such, the proposed ITS Bases has been changed to correspond to the actual Applicability of the LCO.	
	ITS:	**NUREG:**
	B 3.01.06	B 3.01.07
11 Rev. F	CTS provides an allowance of a one hour soak prior to verifying bank insertion limits. This time period is based on the time deemed necessary to allow the control rod drive shaft to reach thermal equilibrium. The proposed NOTE maintains this allowance in ITS. This change incorporates the current licensing basis (CLB) provisions of TSCR 216 and is therefore administrative.	
	ITS:	**NUREG:**
	LCO 3.01.06 NOTE	N/A

Approved TSTF 136

3.1 REACTIVITY CONTROL SYSTEMS

3.1.~~7~~ 6 Control Bank Insertion Limits

LCO 3.1.~~7~~ 6 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

Approved TSTF 136

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

Approved TSTF 136

4

---NOTE---
This LCO is not applicable while performing SR 3.1.~~5~~ 4.2.

ACTIONS

11

---NOTE---
One hour is allowed following rod motion prior to verifying bank insertion limits.

F
TSCR 216

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM ~~is ≥ [1.6]% Δk/k~~ to be within the limits provided in the COLR	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Restore control bank(s) to within limits.	2 hours

Approved TSTF 09

(continued)

BASES

LCO (continued)

distribution, ensuring that the SDM is maintained, ensuring that ejected rod worth is maintained, and ensuring adequate negative reactivity insertion is available on trip. The overlap between control banks provides more uniform rates of reactivity insertion and withdrawal and is imposed to maintain acceptable power peaking during control bank motion.

APPLICABILITY

10

Mode 2 with Keff < 1.0 and

Approved TSTF 136

4

The control bank sequence, overlap, and physical insertion limits shall be maintained with the reactor in MODES 1 and 2 with $k_{eff} \geq 1.0$. These limits must be maintained, since they preserve the assumed power distribution, ejected rod worth, SDM, and reactivity rate insertion assumptions. Applicability in MODES 3, 4, and 5 is not required, since neither the power distribution nor ejected rod worth assumptions would be exceeded in these MODES.

The applicability requirements have been modified by a Note ~~indicating the LCO requirements~~ are suspended during the performance of SR 3.1.5.2. This SR verifies the freedom of the rods to move, and requires the control bank to move below the LCO limits, which would violate the LCO.

ACTIONS

Insert B 3.1.7-05

11

F
TSCR 216

A.1.1, A.1.2, A.2, B.1.1, B.1.2, and B.2

When the control banks are outside the acceptable insertion limits, they must be restored to within those limits. This restoration can occur in two ways:

a. Reducing power to be consistent with rod position; or

b. Moving rods to be consistent with power.

with Keff ≥1.0 is

10

Also, verification of SDM or initiation of boration to regain SDM is required within 1 hour, since the SDM in MODES 1 and 2 normally ensured by adhering to the control and shutdown bank insertion limits (see LCO 3.1.1, "SHUTDOWN MARGIN (SDM) ~~– T_{avg} > 200°F~~") has been upset. If control banks are not within their insertion limits, then SDM will

Approved TSTF 136

LCO 3.1.7 BASES INSERTS

Insert B 3.1.7-05:

The ACTIONS table is modified by a Note indicating that up to one hour after rod motion is allowed for comparison of the bank insertion limits and the RPI System, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication. This comparison is sufficient to verify that the control banks are above the insertion limits and thus assures the presence of sufficient shutdown margin to satisfy the assumptions of the safety analyses. F TSCR 216

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Control Bank Insertion Limits

LCO 3.1.6 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

------------------------------NOTE------------------------------
This LCO is not applicable while performing SR 3.1.4.2.

ACTIONS

---NOTE---
One hour is allowed following rod motion prior to verifying bank insertion limits.
-- F TSCR 216

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM to be within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	A.2 Restore control bank(s) to within limits.	2 hours

(continued)

B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.6 Control Bank Insertion Limits

BASES

BACKGROUND

The insertion limits of the shutdown and control rods are initial assumptions in all safety analyses that assume rod insertion upon reactor trip. The insertion limits directly affect core power and fuel burnup distributions and assumptions of available SDM, and initial reactivity insertion rate.

The design criteria for reactivity and power distribution are found in FSAR Section 3.1, (Ref. 1), and 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors" (Ref. 2). Limits on control rod insertion have been established, and all rod positions are monitored and controlled during power operation to ensure that the power distribution and reactivity limits defined by the design power peaking and SDM limits are preserved.

The rod cluster control assemblies (RCCAs) are divided among control banks and shutdown banks. Each bank may be further subdivided into two groups to provide for precise reactivity control. A group consists of two or more RCCAs that are electrically paralleled to step simultaneously. A bank of RCCAs may consist of one or two groups. When a bank consists of two groups, the groups are moved in a staggered fashion, but always within one step of each other. Control banks A and C and shutdown bank A consist of two groups each while control banks B and D and shutdown bank B consist of a single group. See LCO 3.1.4, "Rod Group Alignment Limits," for control and shutdown rod OPERABILITY and alignment requirements, and LCO 3.1.7, "Rod Position Indication," for position indication requirements.

The control bank insertion limits are specified in the COLR. An example is provided for information only in Figure B 3.1.6-1. The control banks are required to be at or above the insertion limit lines.

Figure B 3.1.6-1 also indicates how the control banks are moved in an overlap pattern. Overlap is the distance traveled together by two control banks. The predetermined position of control bank C, at which control bank D will begin to move with bank C on a withdrawal, will be at 125 steps for a fully withdrawn position of 225 steps. The fully withdrawn position is defined in the COLR.

BASES

BACKGROUND (continued)

The control banks are used for precise reactivity control of the reactor. The positions of the control banks are normally controlled automatically by the Rod Control System, but can also be manually controlled. They are capable of adding reactivity very quickly (compared to borating or diluting).

The power density at any point in the core must be limited, so that the fuel design criteria are maintained. Together, LCO 3.1.4, LCO 3.1.5, "Shutdown Bank Insertion Limits," LCO 3.1.6, LCO 3.2.3, "AXIAL FLUX DIFFERENCE (AFD)," and LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)," provide limits on control component operation and on monitored process variables, which ensure that the core operates within the fuel design criteria.

The shutdown and control bank insertion and alignment limits, AFD, and QPTR are process variables that together characterize and control the three dimensional power distribution of the reactor core. Additionally, the control bank insertion limits control the reactivity that could be added in the event of a rod ejection accident, and the shutdown and control bank insertion limits ensure the required SDM is maintained.

Operation within the subject LCO limits will prevent fuel cladding failures that would breach the primary fission product barrier and release fission products to the reactor coolant in the event of a loss of coolant accident (LOCA), loss of flow, ejected rod, or other accident requiring termination by a Reactor Trip System (RTS) trip function.

APPLICABLE SAFETY ANALYSES

The shutdown and control bank insertion limits, AFD, and QPTR LCOs are required to prevent power distributions that could result in fuel cladding failures in the event of a LOCA, loss of flow, ejected rod, or other accident requiring termination by an RTS trip function. The acceptance criteria for addressing shutdown and control bank insertion limits and inoperability or misalignment are that:

a. There be no violations of:

    1. specified acceptable fuel design limits, or
    2. Reactor Coolant System pressure boundary integrity; and

b. The core remains subcritical after accident transients.

As such, the shutdown and control bank insertion limits affect safety analyses involving core reactivity and power distributions (Ref. 3).

BASES

APPLICABLE SAFETY ANALYSES (continued)	The SDM requirement is ensured by limiting the control and shutdown bank insertion limits so that allowable inserted worth of the RCCAs is such that sufficient reactivity is available in the rods to shut down the reactor to hot zero power with a reactivity margin that assumes the maximum worth RCCA remains fully withdrawn upon trip (Ref. 3). Operation at the insertion limits or AFD limits may approach the maximum allowable linear heat generation rate or peaking factor with the allowed QPTR present. Operation at the insertion limit may also indicate the maximum ejected RCCA worth could be equal to the limiting value in fuel cycles that have sufficiently high ejected RCCA worths. The control and shutdown bank insertion limits ensure that safety analyses assumptions for SDM, ejected rod worth, and power distribution peaking factors are preserved (Ref. 3). The insertion limits satisfy Criterion 2 of the NRC Policy Statement, in that they are initial conditions assumed in the safety analysis.
LCO	The limits on control banks sequence, overlap, and physical insertion, as defined in the COLR, must be maintained because they serve the function of preserving power distribution, ensuring that the SDM is maintained, ensuring that ejected rod worth is maintained, and ensuring adequate negative reactivity insertion is available on trip. The overlap between control banks provides more uniform rates of reactivity insertion and withdrawal and is imposed to maintain acceptable power peaking during control bank motion.
APPLICABILITY	The control bank sequence, overlap, and physical insertion limits shall be maintained with the reactor in MODES 1 and 2 with $k_{eff} \geq 1.0$. These limits must be maintained, since they preserve the assumed power distribution, ejected rod worth, SDM, and reactivity rate insertion assumptions. Applicability in MODE 2 with $K_{eff} < 1.0$ and MODES 3, 4, and 5 is not required, since neither the power distribution nor ejected rod worth assumptions would be exceeded in these MODES. The applicability requirements have been modified by a Note indicating the LCO requirements are suspended during the performance of SR 3.1.4.2. This SR verifies the freedom of the rods to move, and requires the control bank to move below the LCO limits, which would violate the LCO.

BASES

ACTIONS

The ACTIONS table is modified by a Note indicating that up to one hour after rod motion is allowed for comparison of the bank insertion limits and the RPI System, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication. This comparison is sufficient to verify that the control banks are above the insertion limits and thus assures the presence of sufficient shutdown margin to satisfy the assumptions of the safety analyses. F TSCR 216

A.1.1, A.1.2, A.2, B.1.1, B.1.2, and B.2

When the control banks are outside the acceptable insertion limits, they must be restored to within those limits. This restoration can occur in two ways:

a. Reducing power to be consistent with rod position; or

b. Moving rods to be consistent with power.

Also, verification of SDM or initiation of boration to regain SDM is required within 1 hour, since the SDM in MODES 1 and 2 with $K_{eff} \geq 1.0$ is normally ensured by adhering to the control and shutdown bank insertion limits (see LCO 3.1.1, "SHUTDOWN MARGIN (SDM)") has been upset. If control banks are not within their insertion limits, then SDM will be verified by performing a reactivity balance calculation, considering the following listed reactivity effects:

a. RCS boron concentration;

b. Control bank position;

c. Power defect;

d. Fuel burnup;

e. Xenon concentration; and

f. Samarium concentration.

Similarly, if the control banks are found to be out of sequence or in the wrong overlap configuration, they must be restored to meet the limits.

BASES

ACTIONS (continued)

Operation beyond the LCO limits is allowed for a short time period in order to take conservative action because the simultaneous occurrence of either a LOCA, loss of flow accident, ejected rod accident, or other accident during this short time period, together with an inadequate power distribution or reactivity capability, has an acceptably low probability.

The allowed Completion Time of 2 hours for restoring the banks to within the insertion, sequence, and overlaps limits provides an acceptable time for evaluating and repairing minor problems without allowing the plant to remain in an unacceptable condition for an extended period of time.

C.1

If Required Actions A.1 and A.2, or B.1 and B.2 cannot be completed within the associated Completion Times, the plant must be brought to MODE 2 with $K_{eff} < 1.0$, where the LCO is not applicable. The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching the required MODE from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.6.1

This Surveillance is required to ensure that the reactor does not achieve criticality with the control banks below their insertion limits.

The estimated critical position (ECP) depends upon a number of factors, one of which is xenon concentration. If the ECP was calculated long before criticality, xenon concentration could change to make the ECP substantially in error. Conversely, determining the ECP immediately before criticality could be an unnecessary burden. There are a number of unit parameters requiring operator attention at that point. Performing the ECP calculation within 4 hours prior to criticality avoids a large error from changes in xenon concentration, but allows the operator some flexibility to schedule the ECP calculation with other startup activities.

SR 3.1.6.2

Verification of the control bank insertion limits at a Frequency of 12 hours is sufficient to detect control banks that may be approaching the insertion limits since, normally, very little rod motion occurs in 12 hours.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.6.3

When control banks are maintained within their insertion limits as checked by SR 3.1.6.2 above, it is unlikely that their sequence and overlap will not be in accordance with requirements provided in the COLR. A Frequency of 12 hours is consistent with the insertion limit check above in SR 3.1.6.2. Control banks which are fully withdrawn from the core as specified in the COLR, do not have to be verified. In the fully withdrawn position, sequence and overlap can no longer be verified.

REFERENCES

1. FSAR, Section 3.1.
2. 10 CFR 50.46.
3. FSAR, Chapter 14.

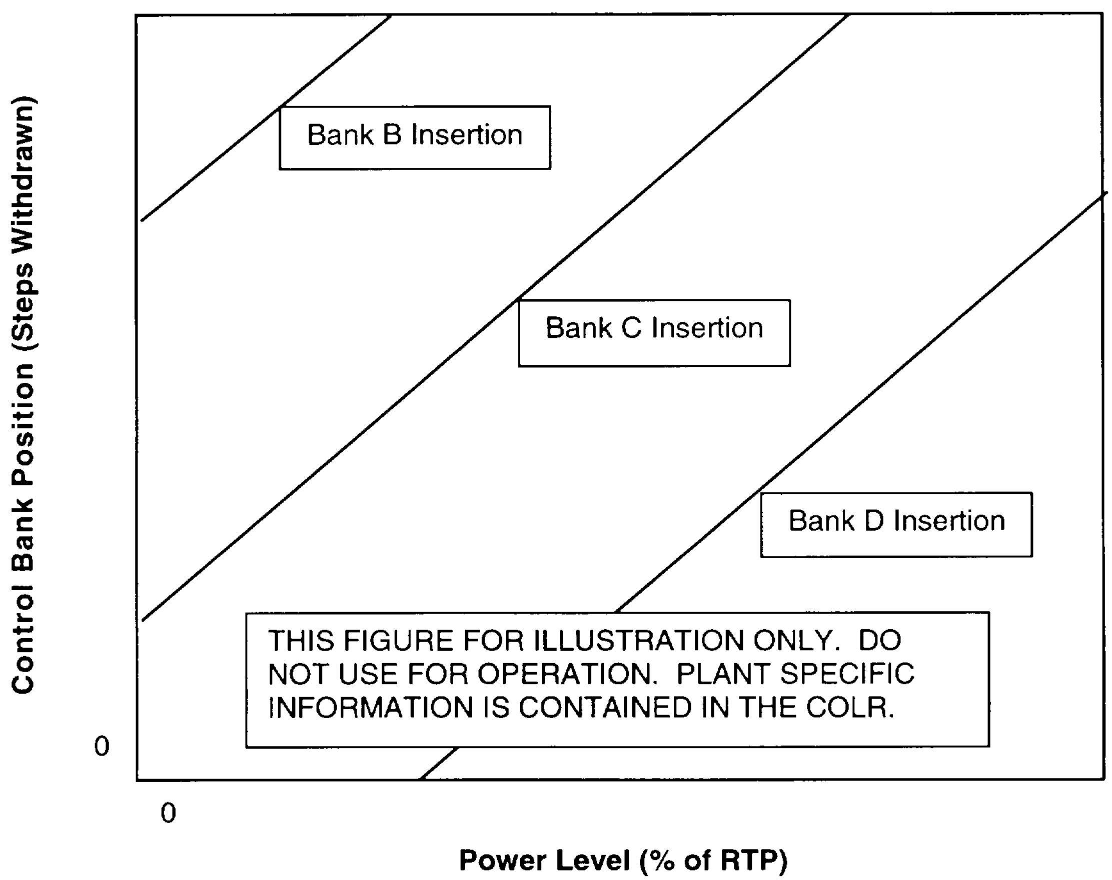

Figure B 3.1.6-1 (Page 1 of 1)
Control Bank Insertion vs. Percent RTP

15.3.10 CONTROL ROD AND POWER DISTRIBUTION LIMITS

Applicability

Applies to the operation of the control rods and to core power distribution limits.

A.02

Objective

A.03

To insure (1) core subcriticality after a ~~reactor trip~~, (2) a limit on potential reactivity ~~insertions~~ from a hypothetical rod cluster control ~~assembly~~ (RCCA) ejection, and (3) ~~an acceptable~~ core power distribution during ~~power~~ operation.

Specification

A. SHUTDOWN MARGIN

See LCOs
LCO 3.1.1
LCO 3.1.6
LCO 3.1.7

1. The shutdown margin shall exceed the applicable value as shown in Figure 15.3.10-2 under all steady-state operating conditions from 350°F to full power. If the shutdown margin is less than the applicable value of Figure 15.3.10-2, within 15 minutes initiate boration to restore the shutdown margin.

2. A shutdown margin of at least 1% $\Delta k/k$ shall be maintained when the reactor coolant temperature is less than 350°F. If the shutdown margin is less than this limit, within 15 minutes initiate boration to restore the shutdown margin.

B. ROD OPERABILITY AND BANK ALIGNMENT LIMITS

NOTE: One hour is allowed following rod motion prior to verifying rod operability and bank alignment limits.

1. During power and low power operation, all shutdown and control rods shall be operable and positioned within the allowed rod misalignment between the individual indicated rod positions and the bank demand position as follows:

   i) For operation ≤ 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±24 steps.

   ii) For operation > 85 percent of rated power, the allowed indicated misalignment between the bank demand position and the individual indicated rod position shall be ≤ ±12 steps.

F
TSCR
216

If an RCCA does not step in upon demand, up to six hours is allowed to determine whether the problem with stepping is an electrical problem. If the problem cannot be resolved within six hours, the RCCA shall be declared inoperable until it has been verified that it will step in or would drop upon demand.

See LCO 3.1.5

a. Rod Operability Requirements

(1) If one rod is determined to be untrippable, perform the following actions:

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2;
OR
(b) Within one hour restore the shutdown margin by boration;
OR
(c) Within six hours be in hot shutdown.

(2) If sustained power operation with an untrippable rod is desired, perform the following actions:

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;
AND
(b) Within six hours, adjust the insertion limits to reflect the worth of the untrippable rod.

(c) If the above actions and associated completion times are not met, be in hot shutdown within six hours.

(3) If more than one rod is determined to be untrippable, perform the following actions:

(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;
AND
(b) Within six hours be in hot shutdown.

M.1

b. Rod Bank Alignment Limits

(1) ~~If it has been determined that one rod is not within alignment limits, and the indicated misalignment is not being caused by malfunctioning rod position indication, within one hour restore the rod to within alignment limits; OR perform the following actions:~~

~~(a) Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;~~
~~AND~~

A.1

M.1

(b) ~~Within eight hours reduce thermal power to ≤75 percent of rated thermal power;~~
~~AND~~
(c) ~~Verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2 once per twelve hours;~~
~~AND~~
(d) ~~Within 72 hours verify that measured values of $F_Q(Z)$ are within limits;~~
~~AND~~
(e) ~~Within 72 hours verify that $F^N_{\Delta H}$ is within limits;~~

(f) If the above actions and associated completion times are not met, be in hot shutdown within the following six hours.

(g) ~~In order to subsequently increase thermal power above 75 percent of rated thermal power with the existing rod misalignment, perform an analysis to determine the hot channel factors and the resulting allowable power level in accordance with TS 15.3.10.E.~~

A.6

(2) ~~If it has been determined that more than one rod is not within alignment limits and the misalignments are not being caused by malfunctioning rod position indication, perform the following actions:~~

(a) ~~Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;~~
AND
(b) Be in hot shutdown within six hours.

B
RAI 3.1.8-1

A.5

LCO 3.1.7

Required Actions Note

C. ROD POSITION INDICATION

NOTE: Separate entry into TS 15.3.10.C.1.a, b, or c is allowed for each inoperable rod position indicator and each bank of demand position indication.

M.2

Modes 1 and 2

1. During ~~power operation ≥10 percent of rated thermal power,~~ the rod position indication system and the bank demand position indication system shall be operable.

B
RAI 3.1.8-2

Cond A

a. If one or more rod position indicators (RPI) are determined to be inoperable, perform the following actions:

Cond A
RA A.1.1

(1) Within eight hours verify the position of the rods with inoperable RPIs by using movable incore detectors;
AND

A.6

B
RAI 3.1.8-1

D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours

F
TSCR 216

Cond D RA D.1 → Be in MODE 3 within 6 hours ← M.1/A.6

A.1

Cond A RA A.1.2

B RAI 3.1.8-1

(2) Once per shift check the position of the rods with inoperable RPIs ~~by using excore detectors, or thermocouples, or movable incore detectors;~~

LA.1

(3) If the above actions and associated completion times are not met, ~~perform the actions in accordance with TS 15.3.10.B.1.b.~~

Cond B

b. If one or more rods with inoperable RPIs have been moved in excess of 24 steps in one direction since the last determination of the rod's position, perform the following actions:

Cond B RA B.1

(1) Within four hours check the position of the rods with inoperable RPIs ~~by using excore detectors, or thermocouples, or movable incore detectors;~~

M.1/A.6

LA.1

A.1

Cond C

One or more demand position indicator(s) per bank inoperable for one or more banks.

Be in MODE 3 within 6 hours

(2) If the above action and associated completion time is not met, ~~perform the actions in accordance with TS 15.3.10.B.1.b.~~

B RAI 3.1.8-1

Cond D RA D.1

c. If bank demand position indication, for one or more banks, is determined to be inoperable, perform the following actions:

Cond C RA C.1.1

(1) Once per shift verify that all RPIs for the affected banks are operable; AND

Cond C RA C.1.2

(2) Once per shift verify that the most withdrawn rod and the least withdrawn rod of the affected banks are within the allowed rod misalignment in accordance with TS 15.3.10.B.1.

F TSCR 216

Be in MODE 3 within 6 hours

(3) If the above actions and associated completion times are not met, ~~perform the actions in accordance with TS 15.3.10.B.1.b.~~

D. BANK INSERTION LIMITS

< See LCO 3.1.6 and 3.1.7 >

NOTE: One hour is allowed following rod motion prior to verifying bank insertion limits.

F TSCR 216

1. When the reactor is critical, the shutdown banks shall be fully withdrawn. Fully withdrawn is defined as a bank position equal to or greater than 225 steps. This definition is applicable to shutdown and control banks.

If this condition is not met, perform the following actions:

a. Within one hour verify that the shutdown margin exceeds the applicable value as shown in Figure 15.3.10-2; OR within one hour restore the shutdown margin by boration;

Cond D RA D.1 ← M.1/A.6

B RAI 3.1.8-1

F TSCR 216

< See LCO 3.1.5 >

If the untrippable rods cannot be restored to an operable condition, the plant must be placed in a condition where the LCO requirements are not applicable. To achieve this status, the unit must be placed in hot shutdown within six hours. This allows this plant condition to be reached in an orderly manner, without challenging any plant systems.

Limits on control rod alignment have been established and all rod positions are monitored and controlled during power operation to ensure that the power distribution and reactivity limits defined by the design power peaking and shutdown margin limits are preserved.

If the misalignment condition cannot be readily corrected, thermal power will be adjusted so that hot channel factors are maintained, and so that the requirements on shutdown margin and ejected rod worth are preserved. Continued operation of the reactor with a misaligned control rod is allowed if $F_Q(Z)$ and $F^N_{\Delta H}$ are verified to be within their limits. When a control rod is misaligned, the assumptions that are used to determine the rod insertion limits, axial flux difference limits, and quadrant power tilt limits are not preserved. Therefore, the limits may not preserve the design peaking factors and $F_Q(Z)$ and $F^N_{\Delta H}$ must be verified directly by incore mapping.

Upon detection of a potential problem concerning one or more rods, a maximum of six hours is provided for troubleshooting activities. Immediately upon determining that one or more rods is inoperable, the applicable actions in TS 15.3.10.B shall be performed. If after six hours, an operability determination has not yet been made, the rod(s) shall be declared inoperable and the applicable actions in TS 15.3.10.B shall be performed.

A.4

Rod Position Indication

During power operation at greater than ten percent of rated thermal power, the rod position indication system and the bank demand position indication system are required to be operable. These systems are required to be operable because the position of rods must be determined in order to ensure that rod alignment and insertion limits are being satisfied. Rod position accuracy is essential during power operations. Power peaking, ejected rod worth, or shutdown margin limits may be violated in the event of a design basis accident with rods operating, undetected, outside of their required limits.

The various control rod banks (shutdown banks and control banks, A, B, C, and D) are each to be moved as a bank; that is, with all rods in the bank within one step (5/8 inch) of the bank position. Direct information on rod position indication is provided by two methods: A digital count of actuating pulses which shows the demand position of the banks and a linear position indicator (LVDT) which indicates the actual rod position. The rod position indicator channel has a demonstrated accuracy of 5% of span (±11.5 steps). Therefore, an analysis has been performed to show that a misalignment of 24 steps cannot cause design hot channel factors to be exceeded. A single fully misaligned RCCA, that is, an RCCA 230 steps out of alignment with its bank, does not result in exceeding core limits in steady-state operation at power levels less than or equal to rated power. In other words, a single dropped RCCA is allowable from a core power distribution viewpoint. If the misalignment condition cannot be readily corrected, the specified reduction in power to 75% will insure that design margins to core limits will be maintained under both steady-state and anticipated transient conditions. The eight (8) hour permissible limit on rod misalignment at rated power is short with respect to the probability of an independent accident.

The specifications of 15.3.10 ensure that (1) acceptable power distribution limits are maintained, (2) the minimum shutdown margin is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. Operability of the control rod position indicators is required to determine control rod position and thereby ensure compliance with the control rod alignment and insertions limits. Permitted control rod misalignments (as indicated by the RPI System within one hour after control rod motion) are: a) ±12 steps of the bank demand position (if power level is greater than 85 percent of rated power), and b) ±24 steps of the bank demand position (if power is less than or equal to 85 percent of rated power). For power levels less than or equal to 85 percent of rated power, the peaking factor margin does not have to be verified on an explicit basis. This is due to the rate of peaking factor margin increase (due to the peaking factor limit increasing) as the power level decreases being greater than the peaking factor margin loss (due to the increased control rod misalignment). This effect is described in WCAP-15432 Rev. 1. These limits are applicable to all shutdown and control rods (of all banks) over the range of 0 to 230 steps withdrawn inclusive.

The comparison of bank demand position and RPI System may take place at any time up to one hour after rod motion, at any power level. This allows up to one hour of thermal soak time to allow the control rod drive shaft to reach a thermal equilibrium and thus present a consistent position indication. A similar time period (up to one hour after rod motion) is allowed for comparison of the bank insertion limits and the RPI System. This comparison is sufficient to verify that the control rods are above the insertion limits and thus assures the presence of sufficient shutdown margin to satisfy the assumptions of the safety analyses.

F
TSCR
216

The action statements which permit limited variation from the basic requirements are accompanied by additional restrictions which ensure that the original criteria are met. Actual misalignment of a rod requires measurement of peaking factors (to confirm acceptability) or a restriction in thermal power; either of these restrictions provides assurance of fuel rod integrity during continued operation. The reactivity worth of a misaligned rod is limited for the remainder of the fuel cycle to prevent exceeding the assumption used in the accident analysis.

The failure of an LVDT in itself does not reduce the shutdown capability of the rods, but it does reduce the operator's capability for determining the position of that rod by direct means. The operator has available to him the excore detector recordings, incore thermocouple readings and periodic incore flux traces for indirectly determining rod position and flux tilts should the rod with the inoperable LVDT become malpositioned. The excore and incore instrumentation will not necessarily recognize a misalignment of 24 steps because the concomitant increase in power density will normally be less than 1% for a 24 step misalignment. The excore and incore instrumentation will, however, detect any rod misalignment which is sufficient to cause a significant increase in hot channel factors and/or any significant loss in shutdown capability. The increased surveillance of the core if one or more rod position indicator channels is out-of-service serves to guard against any significant loss in shutdown margin or margin to core thermal limits.

The history of malpositioned RCCA's indicates that in nearly all such cases, the malpositioning occurred during bank movement. Checking rod position after bank motion exceeds 24 steps will verify that the RCCA with the inoperable LVDT is moving properly with its bank and the bank step counter. Malpositioning of an RCCA in a stationary bank is very rare, and if it does occur, it is usually gross slippage which will be seen by external detectors. Should it go undetected, the time between the rod position checks performed every shift is short with respect to the probability of occurrence of another independent undetected situation which would further reduce the shutdown capability of the rods.

Any combination of misaligned rods below 10% rated power will not exceed the design limits. For this reason, it is not necessary to check the position of rods with inoperable LVDTs below 10% power; plus, the incore instrumentation is not effective for determining rod position until the power level is above approximately 5%.

Power Distribution

< See 3.2.1 and 3.2.2 >

During power operation, the global power distribution is limited by TS 15.3.10.E.2, "Axial Flux Difference," and TS 15.3.10.E.3, "Quadrant Power Tilt," which are directly and continuously measured process variables. These specifications, along with TS 15.3.10.D, "Bank Insertion Limits," maintain the core limits on power distributions on a continuous basis.

As a result of the increased peaking factors allowed by the new 422V+ fuel, a new column was added to TS 15.3.10.E.1.a. The full power $F^N_{\Delta H}$ peaking factor design limit (radial peaking factor) for 422V+ fuel will increase to 1.77 from the 1.70 value for the OFA fuel. The maximum $F_Q(Z)$ peaking factor limit (total peaking factor) for 422V+ fuel will increase to 2.60 from the 2.50 value for the OFA fuel. The OFA fuel design will retain the current $F^N_{\Delta H}$ and $F_Q(Z)$ peaking factors of 1.70 and 2.50, respectively. In addition, the K(Z) envelope for the new 422V+ fuel was modified and a new TS figure 15.3.10-3a was developed and inserted in the Technical Specifications. The K(Z) envelope in TS Figure 15.3.10-3 remains for the OFA fuel.

The purpose of the limits on the values of $F_Q(Z)$, the height dependent heat flux hot channel factor, is to limit the local peak power density. The value of $F_Q(Z)$ varies along the axial height (Z) of the core.

$F_Q(Z)$ is defined as the maximum local fuel rod linear power density divided by the average fuel rod linear power density, assuming nominal fuel pellet and fuel rod dimensions. Therefore, $F_Q(Z)$ is a measure of the peak fuel pellet power within the reactor core.

$F_Q(Z)$ varies with fuel loading patterns, control bank insertion, fuel burnup, and changes in axial power distribution. $F_Q(Z)$ is measured periodically using the incore detector system. These measurements are generally taken with the core at or near steady state conditions.

TABLE 15.4.1-1 (continued)

NO.	CHANNEL DESCRIPTION	CHECK	CALIBRATE	TEST	PLANT CONDITIONS WHEN REQUIRED
9.	Steam Generator Flow Mismatch	S(22)	R	Q(1)	ALL
10.	Steam Generator Pressure	S(16)	R	Q(1)	ALL
11.	4KV Bus Undervoltage (A01 & A02)				
	-AFW pump actuation	-	R	M(1)	ALL
	-Reactor Protection actuation	-	R	M(1,2)	ALL
12.	4KV Bus Underfrequency (A01 & A02)				
	-to Reactor Coolant Pump trip	-	R	-	ALL
13.	Safeguards Bus Voltage				
	-Loss of 4KV	S	R	M	ALL
	-Degraded 4KV	S	R	M	ALL
	-Loss of 480V	S	R	M	ALL
14.	120 Vac Instrument Buses	W(6)	-	-	ALL
15.	Reactor Trip Signal From Turbine				
	-Turbine Autostop	-	-	M(1)	ALL
	-Turbine Stop Valve	-	-	M(1)	ALL
16.	Reactor Trip Signal From SI	-	-	M(1)	ALL
17.	Feedwater Isolation on SI				
	-MFP Trip on Safety Injection	-	-	R	ALL
	-MFRV Shutting on Safety Injection	-	-	R	ALL
18.	Accumulator Level and Pressure	S	R	-	ALL
19.	Analog Rod Position	S(8,22)	R	-	~~ALL~~
	-with step counters	S(22)	-	-	ALL
	-Monitoring by On-Line Computer	(18)	-	-	PWR,HOT S/D

< See LCOs: 3.3.1, 3.3.2, and 3.3.5 >

< See LCOs; 3.8.7, 3.8.9 and 3.8.10 >

< See LCO 3.1.5/6 >

< See LCO 3.5.1 >

SR 3.1.7.1

L.1

Mode 1 and 2

M.3

< See LCO 3.1.5 >

NOTATION USED IN TABLE 15.4.1-1

A - Annually (12 months)
S- Each shift
D- Daily
W- Weekly
Q- Quarterly
M- Monthly
P- Prior to reactor criticality if not performed during the previous week.
R- ~~Each refueling interval (18 months)~~
PWR- Power and Low Power Operation, as defined in Specifications 15.1.h. and 15.1.m.
HOT S/D- Hot Shutdown, as defined in Specification 15.1.g.1.
COLD S/D- Cold Shutdown, as defined in Specification 15.1.g.2.
REF S/D- Refueling Shutdown, as defined in Specification 15.1.g.3.
~~ALL- All conditions of operation, as defined in Specifications 15.1.g, h and m.~~

Discussed in LCOs which notation is applicable to

Once prior to criticality after each removal of the reactor head

L.1

M.3

< See LCOs; 3.3.1, 3.7.4, 3.3.3, 3.3.2, and 3.5.1 >

NOTES USED IN TABLE 15.4.1-1

(1) Not required during periods of refueling shutdown, but must be performed prior to reactor criticality if it has not been performed during the previous surveillance period.

(2) Tests of the low power trip bistable setpoints which cannot be done during power operations shall be conducted prior to reactor criticality if not done in the previous surveillance interval.

< See LCO 3.3.1 >

(3) Perform test of the isolation valve signal.

< See LCO 3.3.2 >

(4) Perform by means of the moveable incore detector system.

(5) Recalibrate if the absolute difference is ≥3 percent.

< See LCO 3.3.1 >

< See Section 3.8 >

(6) Verification of proper breaker alignment and that the 120 Vac instrument buses are energized.

< See Section 3.3 >

(7) Source check is required prior to initiation of a release. Source check is an assessment of channel response by exposing the detector to a source of increased radiation. Channel check is required shiftly during a release. If monitor or isolation function is discovered inoperable, discontinue release immediately.

(8) Verify that the associated rod insertion limit is not being violated at least once per 4 hours whenever the rod insertion limit alarm for a control bank is inoperable.

(9) Test of Narrow Range Pressure, 3.0 psig, -3.0 psig excluded.

< See LCO 3.3.2 >

< See LCO 3.1.6 and 3.1.7 >