ATTACHMENT 1

SUMMARY DISPOSITION MATRIX

Current Number	Title	STS Rev. 4 Number	New TS Number	Retained/ Criterion for Inclusion	Bases for Inclusion/Exclusion[a]
APPENDIX B	RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS (continued)				
3.7	Offgas Treatment System Explosive Gas Mixture Instrumentation	None	5.5.9	Yes	Although this Specification does not meet any criteria of the NRC Final Policy Statement, it has been retained in accordance with the NRC letter from W.T. Russell to the industry ITS Chairpersons, dated October 25, 1993.
3.8	Standby Gas Treatment System (SGTS) (Table 3.10-1 and 3.10-2)	3/4.2	3.3.6.2	Yes-3	Actuates to mitigate the consequences of a DBA LOCA or a refueling accident.
3.9	Mechanical Vacuum Pump Isolation (Table 3.10-1 and 3.10-2)	None	3.3.7.2	Yes-3	Assumed to function to mitigate the consequences of a control rod drop accident. 1
3.10	Main Control Room Ventilation Radiation Monitor (Table 3.10-1 and 3.10-2)	None	3.3.7.1		Alarms during design basis events so that operators can place Control Room Emergency Ventilation Air Supply System in isolate mode to ensure control room dosage remains within limits.
4.0	Solid Radioactive Waste				
4.1	Process Control Program	None	Relocated	No	See Appendix A, Page 19.
5.0	Total Dose				
5.1	Total Dose from Uranium Fuel Cycle	None	Relocated	No	See Appendix A, Page 20.
6.0	Radiological Environmental Monitoring				
6.1	Monitoring Program	None	Relocated	No	See Appendix A, Page 21.
6.2	Land Use Census Program	None	Relocated	No	See Appendix A, Page 22.
6.3	Interlaboratory Comparison Program	None	Relocated	No	See Appendix A, Page 23.
7.0	Administrative Controls	6.0	5.0	Yes	Application of Technical Specification selection criteria is not appropriate. However, Administrative Controls will be included in Technical Specifications as required by 10 CFR 50.36.

(a) The applicable safety analyses are discussed in the Bases for the individual Technical Specification.

SUMMARY OF CHANGES TO ITS SECTION 3.0 - REVISION I

Source of Change	Summary of Change	Affected Pages
Related to RAI 3.0	The time to reach MODE 2 has been decreased by 2 hours in LCO 3.0.3 to be consistent with NUREG-1433, Revision 1.	**Specification 3.0** CTS markup p 1 of 5 DOCs M1 and L1 (DOCs p 6 of 8 and 7 of 8) NSHC L1 (NSHCs p 1 of 5 and 2 of 5) NUREG ITS markup p 3.0-1 JFD X2 (deleted) (JFDs p 2 of 2) Retyped ITS p 3.0-1
Editorial correction	The term "diesel generator(s)" has been changed to "emergency diesel generator(s)" to be consistent with plant terminology and ITS 3.8.1 terminology.	**Specification 3.0** NUREG Bases markup p Insert page B 3.0.9 (II) Retyped ITS Bases p B 3.0-10

A1

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

3. Limiting Conditions for Operation

3.0 General

Applicability:

Applies to the general LCO requirements of Section 3.

Objective:

To specify the general requirements applicable to each Limiting Condition for Operation listed in Section 3.

Specification:

[LCO 3.0.1] A2

A. Limiting Conditions for Operation and ACTION requirements shall be ~~applicable~~ met during the OPERATIONAL CONDITIONS (modes) or other specified ~~for each specification~~ conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

[LCO 3.0.2] A3

B. Adherence to the requirements of the Limiting Condition for Operation and associated ACTION within the specified time interval shall constitute compliance with the specification, except as provided in LCO 3.0.5 and LCO 3.0.6. In the event the Limiting Condition for Operation is restored prior to expiration of the specified time interval, completion of the ACTION statement is not required unless otherwise stated.

[LCO 3.0.3] A11 L1

C. In the event a Limiting Condition for Operation and/or associated ACTION requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, or is directed by the associated ACTIONS the unit shall be placed in COLD SHUTDOWN within the following ~~24~~ 37 hours unless corrective measures are completed that permit operation under the permissible ACTION or until the reactor is placed in an OPERATIONAL CONDITION (mode) in which the specification is not applicable. Exceptions to these requirements shall be stated in the individual specifications. Initiate action within 1 hour, MODE 2 in 7 hours, MODE 3 in 13 hours M1

LCO 3.0.3 is only applicable in MODES 1, 2, and 3. A4

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

4. Surveillance Requirements

4.0 General

Applicability:

Applies to the general surveillance requirements of Section 4.

Objective:

To specify the general requirements applicable to each surveillance requirement in Section 4.

Specification:

[SR 3.0.1] A5

A. Surveillance Requirements shall be ~~applicable~~ met during the OPERATIONAL CONDITIONS (modes) specified for individual Limiting Condition for Operation unless otherwise stated in the individual Surveillance Requirements. INSERT 304-1

[SR 3.0.2] A6

B. Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval. INSERT 302-1 M2 INSERT 302-2 L2 INSERT 302-3

[SR 3.0.1] A5

C. Performance of a Surveillance Requirement within the specified time interval shall constitute compliance with OPERABILITY requirements for a Limiting Condition for Operation and associated ACTION statements ~~unless otherwise required by the specification.~~ Failure to perform a

[SR 3.0.3]

Surveillance Requirement within the allowed surveillance interval, defined by Specification 4.0.B, shall constitute a noncompliance with the OPERABILITY requirements for a Limiting Condition for Operation. The time limits of the ACTION requirements are applicable at the time it is identified

A13 Not Used.

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.0.C requires the unit be placed in COLD SHUTDOWN (MODE 4) within 24 hours if the LCO or action requirements cannot be satisfied because of circumstances in excess of those addressed in the Specifications. ITS LCO 3.0.3 requires that the plant take action within 1 hour to initiate the shutdown, be in MODE 2 in 7 hours, be in MODE 3 in 13 hours, and be in MODE 4 in 37 hours (L1). This change requires the plant to perform the shutdown in a controlled manner which will reduce the chances for a plant transient which could challenge safety systems.

Since this change requires the plant to take action within 1 hour and to be at interim conditions, MODE 2 in 7 hours and MODE 3 in 13 hours, this change imposes additional time restraints on operations and therefore, is more restrictive. The times are consistent with NUREG-1433, Revision 1. This change has no adverse impact on safety.

M2 CTS 4.0.B does not address Frequencies specified as once. ITS SR 3.0.2 includes the phrase "For Frequencies specified as "once," the above interval extension does not apply." This is because the interval extension concept is based on scheduling flexibility for repetitive performance and these Surveillances are not repetitive in nature and essentially have no interval as measured from the previous performance. This change precludes the ability to extend these performances consistent with NUREG-1433, Revision 1. Since, CTS 4.0.B can be interpreted to apply the extension to all Surveillances, stating that the extension does not apply imposes additional requirements on operations and therefore, is more restrictive. This change has no adverse impact on safety.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

None

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS 3.0.C requires the unit to be placed in COLD SHUTDOWN (MODE 4) within 24 hours if the LCO or action requirements cannot be satisfied because of circumstances in excess of those addressed in the Specification. ITS LCO 3.0.3 allows 37 hours to be in MODE 4 which includes the requirements (M1) to initiate the shutdown within 1 hour, be in MODE 2 within 7 hours, and be in MODE 3 in 13 hours. This change is considered less restrictive since the time to get to MODE 4 has increased by 13 hours (37 versus 24 hours). This change is acceptable since the compensating actions added in accordance with M1 and this extended time to reach MODE 4 will ensure a more continuous reduction in power and reactor coolant temperature which is within the specified maximum cooldown rate and within the capabilities of the plant. This reduces thermal stresses on components of the Reactor Coolant System and also reduces the chances for a plant transient which could challenge safety systems. This change is consistent with NUREG-1433, Revision 1. I

L2 CTS 4.0.B has had the following sentence added, "If a Completion Time requires periodic performance on a "once per..." basis, the above Frequency extension applies to each performance after the initial performance." ITS SR 3.0.2 includes this statement which provides the consistency in scheduling flexibility for all performances of periodic requirements, whether they are Surveillances or Required Actions. The intent remains to perform the activity, on the average, once during each specified interval. This change is consistent with NUREG-1433, Revision 1.

L3 When it is determined that a Surveillance was not performed, CTS 4.0.C allows ACTION requirements to be delayed for up to 24 hours to permit completion of the Surveillance if the allowable outage time limits of the ACTION requirements are less than 24 hours. ITS SR 3.0.3 continues to allow a delay, from the time of discovery, up to 24 hours or up to the limit of the specified Surveillance Frequency, whichever is less. This change is less restrictive since the delay will now apply to any Surveillance instead of those specifications with ACTION requirements of less than 24 hours. The current dependance to the ACTION allowable outage time is considered not to be necessary since the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.0 - LCO AND SR APPLICABILITY

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

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

   This change allows a more gradual plant shutdown path than allowed by CTS 3.0.C. Currently the plant has to be in Cold Shutdown within 24 hours. ITS LCO 3.0.3 requires the plant to initiate action within 1 hour to place the plant in Mode 2 (Startup/Hot Standby) within 7 hours, Mode 3 (Hot Shutdown) within 13 hours (M1) and Mode 4 (Cold Shutdown) within 37 hours. The overall time to Cold Shutdown is increased by 13 hours by the proposed change. The proposed changes will require the shutdown to proceed in a more orderly and controlled manner. This reduces thermal stresses on components of the reactor coolant system and the potential for a plant transient that could challenge safety systems under conditions to which this Specification applies. This relaxation is also acceptable based on the small probability of an event requiring the inoperable Technical Specification structures, systems and components (SSCs) to function or variables to be maintained and the desire to minimize transients. LCO 3.0.3 is only entered if the Action and Completion Time are not met and no other condition applies or if the condition of the plant is not specifically addressed by the associated actions. It is the intent of the Technical Specifications to provide action provisions, where possible, to avoid the use of LCO 3.0.3 and subsequent plant shutdown. The proposed changes to the overall shutdown Completion Times have no impact on any analyzed event. The change will not allow continuous operation when SSCs are inoperable or parameter limits are not met. In addition, the consequences of an event occurring during the proposed shutdown Completion Times are the same as the consequences of an event occurring during the existing Completion Times. The proposed change to extend the time required to reach MODE 4 is less restrictive than present provisions; however, ITS LCO 3.0.3 will provide a more orderly plant shutdown sequence without involving a significant increase in the probability or consequences of an accident previously evaluated.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE (contined)

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

   The proposed change will not alter the plant configuration (no new or different type of equipment will be installed or removed) nor will the operation of the plant change. The change still ensures the plant is placed in a specified Mode or condition in a timely manner. Therefore, the proposed change will 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 relaxation in the time allowed to reach MODE 4 in accordance with proposed LCO 3.0.3 represents a relaxation over the provisions in CTS 3.0.C. However, this relaxation is acceptable based on the small probability of an event requiring the inoperable Technical Specification components to function or variables to be maintained and the desire to minimize transients. LCO 3.0.3 is only entered if the Action and Completion Time are not met and no other condition applies or if the condition of the plant is not specifically addressed by the associated ACTIONS. It is the intent of the Technical Specifications to provide action provisions, where possible, to avoid the use of LCO 3.0.3 and subsequent plant shutdown. This change will not affect a margin of safety because it has no impact on the safety analysis assumptions. The shutdown Completion Times specified in CTS 3.0.C or in ITS LCO 3.0.3 are not assumed in any analyzed accidents. This proposed change and the compensatory actions added in accordance with M1 (to initiate action within 1 hour to place the plant in MODE 2 in 7 hours and MODE 3 in 13 hours) will enhance plant safety by requiring a more orderly plant shutdown while still requiring the plant to reach MODE 4 (Cold Shutdown) within 13 hours of present provisions. Therefore, the change will not involve a significant reduction in a margin of safety. | I

[3.]
[3.0]

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

[3.0.A]

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.

[3.0.B]

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.

[3.0.C]

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: plant PA 1 I

a. MODE 2 within 7 hours;

b. MODE 3 within 13 hours; and

c. MODE 4 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, and 3.

[3.0.D]

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

(continued)

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 The bracketed "Reviewer's Note" has been deleted. This information is for the NRC Reviewer to be keyed in to what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific information.

I

INSERT B 3.0-6 TA7

This loss of safety function does not require the assumption of additional single failures or loss of offsite power. Since operation is being restricted in accordance with the ACTIONS of the support system, any resulting temporary loss of redundancy or single failure protection is taken into account. Similarly, the ACTIONS for inoperable offsite circuit(s) and inoperable emergency 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). 1 I

When 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 addresses 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.

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 plant 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 plant, as applicable, in: 1 I

a. MODE 2 within 7 hours;

b. MODE 3 within 13 hours; and

c. MODE 4 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, and 3.

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.

(continued)

BASES

LCO 3.0.6 (continued)

This loss of safety function does not require the assumption of additional single failures or loss of offsite power. Since operation is being restricted in accordance with the ACTIONS of the support system, any resulting temporary loss of redundancy or single failure protection is taken into account. Similarly, the ACTIONS for inoperable offsite circuit(s) and inoperable emergency 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). I

When 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 addresses 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 plant. These special tests and operations are necessary to demonstrate select plant performance characteristics, to perform special maintenance activities, and to perform special evolutions. Special Operations LCOs in Section 3.10 allow specified 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 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.

(continued)

SUMMARY OF CHANGES TO ITS SECTION 3.1 - REVISION I

Source of Change	Summary of Change	Affected Pages
Typographical errors	Minor typographical errors in the Discussion of Changes, No Significant Hazards Considerations, NUREG markup, and retyped ITS have been corrected. (DOC and NSHC L4 inadvertently included the words ", power operated, and automatic" in a discussion concerning the actual ITS SR wording and has been deleted (the change covered by DOC L4 was not justifying the deletion of these words, but the addition of a separate allowance); the NUREG markup for SR 3.1.7.6, the word "valve" was inadvertently marked out; and the retyped ITS SR 3.1.7.6 has been changed by deleting the words ", power operated, and automatic" to be consistent with the NUREG markup.)	**Specification 3.1.7** DOC L4 (DOCs p 6 of 7) NSHC L4 (NSHCs p 7 of 10) NUREG ITS markup p 3.1-22 Retyped ITS p 3.1-22

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 CTS 4.4.B requires that when a SLC subsystem or component becomes inoperable, the redundant subsystem or component be verified to be OPERABLE immediately and daily thereafter. ITS 3.1.7 does not have this cross system check. This change will allow credit to be taken for normal periodic Surveillances as a verification of OPERABILITY and availability of the remaining SLC subsystem. The periodic Frequencies specified to verify OPERABILITY of the remaining SLC subsystem has been shown to be adequate to ensure equipment OPERABILITY. As stated in NRC Generic Letter 87-09, "It is overly conservative to assume that systems or components are inoperable when a surveillance requirement has not been performed. The opposite is in fact the case; the vast majority of surveillances demonstrate the systems or components in fact are operable." Therefore, reliance on the specified Surveillance intervalsdoes not result in a reduced level of confidence concerning the equipment availability. The ITS and current BWR operating philosophy accept the philosophy of system OPERABILITY based on satisfactory performance of monthly, quarterly, refueling interval, post-maintenance or other specified performance tests without requiring additional testing when another system is inoperable (except for diesel generator testing, which is not being changed).

L4 CTS 4.4.A.1 requires that each SLC subsystem "valve (manual, power operated, or automatic) in the system flow path that is not locked, sealed or otherwise secured in position, is in the correct position" once per 31 days. ITS SR 3.1.7.6 requires that "each SLC subsystem manual valve (see M1) in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position" every 31 days. The proposed change permits the SLC subsystem to be considered OPERABLE as long as the valves can be manually realigned to their correct position. The Bases stipulates that this realignment must be capable of being done from the control room, or locally by a dedicated operator at the valve control. The SLC System is a manually initiated system. Therefore allowing the system to be considered OPERABLE whenever the system valves can be correctly aligned does not reduce the level of safety and is considered acceptable. This change is consistent with NUREG-1433, Revision 1. I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below. 1 I

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

   CTS 4.4.A.1 requires that each SLC subsystem "valve (manual, power operated, or automatic) in the system flow path that is not locked, sealed or otherwise secured in position, is in the correct position" once per 31 days. ITS SR 3.1.7.6 requires that "each SLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position" every 31 days. The proposed change permits the SLC subsystem to be considered Operable as long as the valves can be manually realigned to their correct position. The Bases stipulates that this realignment must be capable of being done from the control room, or locally by a dedicated operator at the valve control. The SLC System is a manually initiated system. As such it is not the initiator of any accident previously evaluated. Therefore, the probability of any previously evaluated accident can not increase. The proposed change does not change the system capability or any assumed response time (since it is a manually initiated system). Therefore, the consequences of any previously evaluated accident has not changed. 1 I

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 introduce a new mode of plant operation and does not involve physical modification to the plant. Therefore, it 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?

   This change will have no impact on any safety analysis assumptions. As such, no question of safety is involved. The SLC system provides manual backup scram protection only in case the control rods do not shutdown the reactor. Permitting the system to be manually aligned does not change the ability of the system to perform its intended function.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
[4.4.A.1][M1][L4] SR 3.1.7.6	Verify each SLC subsystem manual, ~~power operated, [and automatic]~~ valve~~[s]~~ in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position. DB3	31 days I
[4.4.A.2] SR 3.1.7.7	Verify each pump develops a flow rate ≥ ~~[41.2]~~ 50 gpm at a discharge pressure ≥ ~~[1190]~~ 1275 psig. DB2	[In accordance with the Inservice Testing Program ~~or 92 days~~] CLB1
[4.4.A.4] [4.4.A.5][M5] SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	~~[18]~~ 24 months on a STAGGERED TEST BASIS CLB2
[4.4.A.3] [M2] SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	~~[18]~~ 24 months **AND** Once within 24 hours after solution temperature is restored within the limits of ~~[~~Figure 3.1.7-2~~]~~ CLB2 CLB2
[4.4.C.4] [M4] SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ ~~[60.0]~~ 34.7 atom percent B-10. DB2	Prior to addition to SLC tank DB6

[4.4.C.4] INSERT SR 3.1.7.11 CLB3

SURVEILLANCE		FREQUENCY
SR 3.1.7.6	Verify each SLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 50 gpm at a discharge pressure ≥ 1275 psig.	In accordance with the Inservice Testing Program
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	24 months on a STAGGERED TEST BASIS
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	24 months <u>AND</u> Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-2
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 34.7 atom percent B-10.	Prior to addition to SLC tank
SR 3.1.7.11	Verify the enrichment of boron in solution is ≥ 34.7 atom percent B-10.	24 months

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SUMMARY OF CHANGES TO ITS SECTION 3.2 - REVISION I

Source of Change	Summary of Change	Affected Pages
Typographical error	Minor typographical errors in Discussion of Changes have been corrected. (ITS 3.2.3 DOC A2, "APLHGR" changed to "LHGR"; ITS 3.2.3 DOC M1, "ITS 3.2.1.1" changed to "ITS SR 3.2.3.1"; and ITS 3.2.4 DOC M1, "SR 3.2.3.2" changed to "SR 3.2.4.2."	**Specification 3.2.3** DOCs A2 and M1 (DOCs p 1 of 2) **Specification 3.2.4** DOC M1 (DOCs p 2 of 3)
Typographical error	Minor typographical error has been corrected. (Reference 3 in the References section has been changed from "NEDE-24011-PA-13" to "NEDE-24011-P-A-13.")	**Specification 3.2.4** NUREG Bases markup p Insert page B 3.2-19 Retyped ITS Bases p B 3.2-18

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.2.2 - MINIMUM CRITICAL POWER RATIO (MCPR)

RETENTION OF EXISTING REQUIREMENT (CLB)

None

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature.

PA2 Changes have been made for enhanced clarity or to correct a grammatical/typographical error.

PA3 Editorial change made with no change in intent.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 ITS 3.2.2 Applicable Safety Analyses and References have been revised to reflect the specific design at JAFNPP, which does not include the Average Power Range Monitor, Rod Block Monitor, and Technical Specification Improvements (ARTS) Program.

DB2 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific references.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TSTF-229

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 229, Revision 0, have been incorporated into the revised Improved Technical Specifications. The new Surveillance Frequency of ITS SR 3.2.2.2 was added in accordance with M2.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases references to "NRC Policy Statement" have been replaced with 10 CFR 50.36(c)(2)(ii) in accordance with 60 FR 36953 effective August 18, 1995.

DISCUSSION OF CHANGES
ITS: 3.2.3 - LINEAR HEAT GENERATION RATE (LHGR)

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) 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. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4," Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 CTS 3.5.I requires the reactor power be reduced "to less than 25% of rated power within the next four hours or until the LHGR is returned to within the prescribed limits". The phrase "or until the LHGR is returned to within the prescribed limits" is being deleted, since it is redundant to ITS LCO 3.0.2 which states generically that Required Actions are not required to be continued once the LCO is met. Therefore, the elimination of this application in CTS 3.5.I is considered administrative. I

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 4.5.I requires that LHGR be determined "daily during reactor operation at ≥ 25% rated thermal power." ITS SR 3.2.3.1 Frequency is "within 12 hours after ≥ 25% RTP AND 24 hours thereafter". This change requires the first LHGR determination within 12 hours and the current specifications require the same determination be made within 24 hours after RTP ≥ 25% RTP. This change imposes added time restraints on operations consistent with the BWR Standard Technical Specifications, NUREG-1433, Revision 1, and therefore is more restrictive. This change is necessary to ensure LHGRs are verified to be within limits in a timely manner upon entry into the Applicability. I

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The detail in CTS 3.5.I which specifies that the linear heat generation rate (LHGR) is at any rod in any fuel assembly at any axial location is proposed to be relocated to the Bases. The requirement in ITS LCO 3.2.3 that all LHGRs shall be less than or equal to the limits specified in the COLR, and the definition of LHGR in ITS Chapter 1.0 is sufficient to ensure all required LHGRs are calculated and compared to the limits. The CTS does not include a definition for LHGR in the ITS. A definition for LHGR has been added to the CTS as discussed in the Discussion of Changes for ITS Chapter 1.0. The definition explicitly defines the LHGR to be the heat generation rate per unit length of fuel rod and that it

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 (continued)

same Frequency as the MFLPD determination. ITS SR 3.2.4.2 establishes a specific Frequency of every 12 hours. These changes require the first MFLPD determination within 12 hours and the current specifications require the same determination be made within 24 hours after RTP ≥ 25% RTP, and the APRM setpoint adjustment is required at a 12 hour Frequency and not the 24 hour Frequency presently permitted. This change imposes added time restraints on operations consistent with NUREG-1433, Revision 1, and therefore is more restrictive. This change has no adverse impact on safety. I

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

None

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS 4.1.B includes a daily surveillance requirement to determine MFLPD whenever reactor power is > 25% RTP and to make any necessary adjustments to APRM high flux scram trip settings. When the surveillance is not met CTS 3.0.C must be entered and the plant must be in COLD SHUTDOWN within 24 hours since there is no specific LCO or action for not meeting CTS 4.1.B. ITS LCO 3.2.4 and ACTIONS A and B have been added to the current requirements in CTS 4.1.B. The requirements of ITS LCO 3.2.4 are consistent with the requirements in CTS 4.1.B (except as modified by A3, M1 and R1). ACTION A will allow 6 hours to satisfy the requirements of LCO 3.2.4. If this Required Action and associated Completion Time can not be met, ACTION B will require a reduction in power to < 25% RTP within 4 hours. Since an explicit time has been added to satisfy the LCO and since entry into CTS 3.0.C (or ITS LCO 3.0.3) is no longer required this change is considered less restrictive, but acceptable due to the low probability of a transient or Design Basis Accident during this 6 hour period. The 4 hour Completion Time to be < 25% RTP is reasonable, based on operating experience, to reduce THERMAL POWER TO < 25% RTP in an orderly manner and without challenging plant systems. The requirement to only reduce power to < 25% RTP is acceptable since it places the plant outside of the Applicability of CTS 4.1.B (ITS LCO 3.2.4). Therefore, this last portion of change may be considered administrative. These changes are consistent with NUREG-1433, Revision 1.

DB2 X1

Insert Ref

3. NEDE-24011-P-A-13, General Electric Standard Application for Reactor Fuel, August 1996. I

4. NEDO-31960-A, BWR Owners' Group Long Term Stability Solutions Licensing Methodology, June 1991.

5. NEDO-31960-A, Supplement 1, BWR Owners' Group Long-Term Stability Solutions Licensing Methodology, March 1992.

6. GENE-637-004-0295, Application Of The "Regional Exclusion With Flow-Biased APRM Neutron Flux Scram" Stability Solution (Option I-D) To The James A. FitzPatrick Nuclear Power Plant, February 1995.

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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.4.1 and SR 3.2.4.2 (continued)

circuitry. SR 3.2.4.1 and SR 3.2.4.2 have been modified by Notes which clarify that the respective SR does not have to be met if the alternate requirement demonstrated by the other SR is satisfied. The 24 hour Frequency of SR 3.2.4.1 is chosen to coincide with the determination of other thermal limits, specifically those for the APLHGR (LCO 3.2.1) and LHGR (LCO 3.2.3). The 24 hour Frequency is based on the recognition of the slowness of changes in power distribution during normal operation. The 12 hour allowance after THERMAL POWER ≥ 25% RTP is achieved is acceptable given the large inherent margin to operating limits at low power levels.

The 12 hour Frequency of SR 3.2.4.2 requires a more frequent verification than if MFLPD is less than or equal to FRTP. When MFLPD is greater than FRTP, more rapid changes in power distribution are typically expected.

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 14.5.
3. NEDE-24011-P-A-13, General Electric Standard Application for Reactor Fuel, August 1996.
4. NEDO-31960-A, BWR Owners' Group Long Term Stability Solutions Licensing Methodology, June 1991.
5. NEDO-31960-A, Supplement 1, BWR Owners' Group Long-Term Stability Solutions Licensing Methodology, March 1992.
6. GENE-637-044-0295, Application Of The "Regional Exclusion With Flow-Biased APRM Neutron Flux Scram" Stability Solution (Option I-D) To The James A. FitzPatrick Nuclear Power Plant, February 1995.
7. 10 CFR 50.36(c)(2)(ii).

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Technical change	The previous ITS revision for this section (Revision F) changed the RPS Reactor High Pressure Allowable Value from ≤ 1080 psig to ≤ 1079 psig. This change is being withdrawn and the Allowable Value will remain ≤ 1080 psig.	**Specification 3.3.1.1** CTS markup p 8 of 16 DOC M16 (DOCs p 11 of 25) NUREG ITS markup p 3.3-8 Retyped ITS p 3.3-7
Technical change	The Channel Calibration Frequencies for the APRM and IRM Functions have been changed from 184 days and 24 months, respectively, to 92 days. This new Frequency is consistent with the CTS Channel Calibration Frequency for the APRM and IRM Functions in the Control Rod Block Specification.	**Specification 3.3.1.1** CTS markup p 6 of 16, 12 of 16, 13 of 16, 14 of 16, and 15 of 16 DOCs A14, A20, M4, M8, M9, M11, M12, M13, and LA12 (DOCs p 4 of 25, 7 of 25, 8 of 25, 9 of 25, 10 of 25, and 15 of 25) NUREG ITS markup p 3.3-4, 3.3-5, 3.3-6, 3.3-7, 3.3-8, and 3.3-9 JFDs CLB2, CLB6, CLB10, DB5, DB7, DB8, X1, and X2 (JFDs p 1 of 4, 2 of 4, 3 of 4, and 4 of 4) NUREG Bases markup p B 3.3-29, B 3.3-30, Insert page B 3.3-30, B 3.3-31, B 3.3-32, and Insert page B 3.3-32 Bases JFDs CLB4, CLB7, CLB9, DB9, and X2 (Bases JFDs p 1 of 4, 3 of 4, and 4 of 4) Retyped ITS p 3.3-4, 3.3-5, 3.3-6, 3.3-7, and 3.3-8 Retyped ITS Bases p B 3.3-31, B 3.3-32, B 3.3-33, B 3.3-34, B 3.3-35, and B 3.3-36

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
RAI 3.3.1.1-8	The changes agreed to by JAFNPP during a conversation with the NRC concerning RAI 3.3.1.1-8 have been made. Specifically, Notes have been added to clarify which Channel Calibration SR covers the recirculation loop flow signal portion of the APRM Neutron Flux - High (Flow Biased) Function.	**<u>Specification 3.3.1.1</u>** CTS markup p 14 of 16 NUREG ITS markup p 3.3-5 JFD CLB2 (JFDs p 1 of 4) NUREG Bases markup p B 3.3-30 and Insert page B 3.3-30 Bases JFD CLB5 (Bases JFDs p 1 of 4) Retyped ITS p 3.3-4 and 3.3-5 Retyped ITS Bases p B 3.3-32 and B 3.3-33
NRC extra comment #1	The time to reach MODE 2 has been decreased by 2 hours to be consistent with NUREG-1433, Revision 1.	**<u>Specification 3.3.1.1</u>** CTS markup p 7 of 16 and 10 of 16 DOCs M17 and L5 (DOCs p 12 of 25 and 22 of 25) NSHC L5 (NSHCs p 11 of 26 and 12 of 26) NUREG ITS markup p 3.3-2 JFD CLB11 (JFDs p 2 of 4) Retyped ITS p 3.3-2 **<u>Specification 3.3.6.1</u>** CTS markup p 3 of 22 DOCs M15 and L15 (DOCs p 12 of 25 and 22 of 25) NSHC L15 (NSHCs p 23 of 32 and 24 of 32) NUREG ITS markup p 3.3-53 JFD CLB9 (JFDs p 2 of 5) NUREG Bases markup p B 3.3-177 and B 3.3-178 Bases JFD CLB8 (deleted) (Bases JFDs p 2 of 4) Retyped ITS p 3.3-48 Retyped Bases p B 3.3-177

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
NRC extra comment #2	The changes agreed to by JAFNPP during a conversation with the NRC concerning NRC extra comment #2 have been made. Specifically, the certain information provided in an RAI response concerning the APRM heat balance calibration has been added to DOC L13.	**Specification 3.3.1.1** DOC L13 (DOCs p 24 of 25)
Typographical errors	Minor typographical errors in the CTS markup, the Discussion of Changes, the NUREG Bases markup, the retyped ITS, and the retyped ITS Bases have been corrected. (CTS markup page 14 of 16, Function 2.a changed to 2.b in the Calibration column; DOC A2, "Note 1.a" changed to "Notes 1.a and 1.b"; DOC A16, "Table 3.3-1" changed to "Table 3.1-1"; DOC A18, "CTS 2.1.A.1.c" changed to "CTS 2.1.A.1.c(1)"; DOC M10, "LCO 3.2.3" changed to "LCO 3.2.4"; DOC M12, "CTS Table 4.1.2" changed to "CTS Table 4.1-2"; DOC M14, "CTS 4.1-2" changed to "CTS Table 4.2-2"; DOC M15, "Action A" changed to "Note 3.A" and "Action B" changed to "Note 3.B"; DOC LA2 "CTS Table 3.3-1" changed to "CTS Table 3.1-1"; DOC LA3, "CTS Table 3.1.1" changed to "CTS Table 3.1-1"; DOC LA12, "CTS Tables 4.1.1 and 4.1.2" changed to "CTS Tables 4.1-1 and 4.1-2"; DOC L3, "Action A" changed to "Note 3.A"; DOC L5, "Action 3.A" changed to "Note 3.A"; the term "NOTES" has been changed to "Notes" in the NUREG Bases markup and retyped ITS Bases for SR 3.3.1.1.9; the word "or" has been changed to "for" in the Background section of the NUREG Bases markup and retyped ITS Bases; the word "analytical" has been changed to "analytic" in the ASA section of the NUREG Bases markup and retyped ITS Bases; retyped ITS SR 3.3.1.1.2, "LCO 3.2.3" changed to "LCO 3.2.4"; retyped ITS SR 3.3.1.1.9, deleted the word "a"; and the words "is not specifically credited in the safety analysis, but is intended to" has been deleted and the word "provide" changed to "provides" in the retyped ITS Bases to be consistent with the NUREG Bases markup.)	**Specification 3.3.1.1** CTS markup p 14 of 16 DOCs A2, A16, A18, M10, M12, M14, M15, LA2, LA3, LA12, L3, and L5 (DOCs p 1 of 25, 5 of 25, 10 of 25, 11 of 25, 12 of 25, 13 of 25, 15 of 25, 17 of 25, and 22 of 25) NUREG Bases markup p Insert page B 3.3-1a, Insert page B 3.3-3, and B 3.3-30 Retyped ITS p 3.3-3 and 3.3-4 Retyped ITS Bases p B 3.3-1, B 3.3-6, B 3.3-10, and B 3.3-32
Editorial correction	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, the sentence "This change is consistent with NUREG-1433, Revision 1" has been deleted from DOC L5 and the word "demonstrate" has been changed to "show" in the NUREG Bases markup and retyped ITS Bases for Function 2.b.	**Specification 3.3.1.1** DOC L5 (DOCs p 22 of 25) NUREG Bases markup p Insert page B 3.3-8 Retyped ITS Bases p B 3.3-10
Consistency issue	The title of an RPS Function has been changed from "Reactor Water Level - Low (Level 3)" to "Reactor Vessel Water Level - Low (Level 3)" to be consistent with the Bases and the identical Function in another Specification.	**Specification 3.3.1.1** NUREG ITS markup p 3.3-8 NUREG ITS Bases markup p Insert Page B 3.3-30 Retyped ITS p 3.3-7 Retyped ITS Bases p B 3.3-33
Consistency issue	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, the statement in the NUREG Bases that the APRM Neutron Flux - High (Flow Biased) Function monitors neutron flux "and approximates the THERMAL POWER being transferred to the reactor coolant" has been added to the ITS.	**Specification 3.3.1.1** NUREG Bases markup p B 3.3-8 Retyped ITS Bases p B 3.3-10

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Technical change	The Channel Calibration Frequency for the SRMs has been changed from 24 months to 92 days. This new Frequency is consistent with the CTS Channel Calibration Frequency for the SRMs in the Control Rod Block Specification.	**Specification 3.3.1.2** CTS markup p 1 of 3 DOCs A3, M4, and M9 (DOCs p 1 of 7, 2 of 7, and 3 of 7) NUREG ITS markup p 3.3-13 and 3.3-14 JFD CLB2 (JFDs p 1 of 2) NUREG Bases markup p B 3.3-42 and B 3.3-43 Bases JFD CLB1 (Bases JFDs p 1 of 1) Retyped ITS p 3.3-14 Retyped ITS Bases p B 3.3-46
Technical change	ITS SR 3.3.1.2.5 has been modified to add a Note that exempts the performance of the signal to noise determination if there are less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies are in the associated core quadrant. This Note is necessary since the ratio cannot be determined without fuel in the vessel. This Note is consistent with the Note in ITS SR 3.3.1.2.4, and has been previously approved by the NRC during the ITS conversions for NMP2, Quad Cities 1 and 2, Dresden 2 and 3, and LaSalle 1 and 2.	**Specification 3.3.1.2** DOC M10 (DOCs p 4 of 7) NUREG ITS markup p 3.3-13 JFD X1 (JFDs p 1 of 2 and 2 of 2) NUREG Bases markup p B 3.3-42 and Insert page B 3.3-42 Retyped ITS p 3.3-13 Retyped ITS Bases p B 3.3-45 and B 3.3-46
Technical change	The requirement in Required Action C.2.1.2 to verify that a startup with the RWM inoperable has not been performed in the "last" calendar year has been changed to "current" calendar year, consistent with the CTS. The Bases has also been changed to reflect this change.	**Specification 3.3.2.1** NUREG ITS markup p 3.3-16 JFD CLB3 (JFDs p 1 of 3) NUREG Bases markup p B 3.3-49 Retyped ITS p 3.3-16 Retyped ITS Bases p B 3.3-53

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
NRC extra comment #3	The changes agreed to by JAFNPP during a conversation with the NRC concerning NRC extra comment #3 have been made. Specifically, the term "reactor engineer" has been moved to the Bases and replaced in the ITS with the generic term "other qualified member of the technical staff." In addition, due to this change, a similar change to ITS 3.10.7 has been made for consistency.	**Specification 3.3.2.1** CTS markup p 8 of 10 and 9 of 10 DOC LA6 (DOCs p 5 of 9 NUREG ITS markup p 3.3-16 JFD CLB1 (JFDs p 1 of 3) NUREG Bases markup p B 3.3-49 and B 3.3-50 Bases JFD CLB1 (Bases JFDs p 1 of 2) Retyped ITS p 3.3-16 Retyped ITS Bases p B 3.3-53 and B 3.3-54
Editorial changes	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, the term "of RTP" has been added to the Background section of the Bases, and the term "12 rods" has been changed to "12 control rods" and the words "These individuals shall have no other concurrent duties during rod withdrawal or insertion" has been changed to "Plant procedures prohibit this individual from having other concurrent duties during rod withdrawal or insertion" in the Required Actions C.1, C.2.1.1, C.2.1.2, and C.2.2 Bases.	**Specification 3.3.2.1** NUREG Bases markup p Insert page B 3.3-44 and B 3.3-49 Retyped ITS Bases p B 3.3-48 and B 3.3-53
Editorial change	A sentence has been deleted from DOC R1 that was not associated with the specific change being justified. (Of these functions, only the RBM-Upscale function is being retained in Technical Specifications.)	**Specification 3.3.2.1** DOC R1 (DOCs p 9 of 9)

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Technical change	The previous ITS revision for this section (Revision F) changed the Feedwater and Main Turbine, HPCI, and RCIC High Water Level Allowable Value from ≤ 222.5 inches to ≤ 222.4 inches. The change is being withdrawn and the Allowable Value will remain ≤ 222.5 inches.	**Specification 3.3.2.2** CTS markup p 2 of 3 DOC M1 (deleted) (DOCs p 4 of 5) NUREG ITS markup p 3.3-22 Retyped ITS markup p 3.3-22 **Specification 3.3.5.1** CTS markup p 2 of 15 DOC M7 (deleted) (DOCs p 9 of 13) NUREG ITS markup p 3.3-44 Retyped ITS p 3.3-40 **Specification 3.3.5.2** CTS markup p 2 of 10 DOC M4 (deleted) (DOCs p 5 of 7) NUREG ITS markup p 3.3-51 Retyped ITS p 3.3-46
NRC extra comment #4	The changes agreed to by JAFNPP during a conversation with the NRC concerning NRC extra comment #4 have been made. Specifically, The Background section of the Bases has been modified to more clearly describe the initiation logic.	**Specification 3.3.2.2** NUREG Bases markup p B 3.3-56 Retyped ITS Bases p B 3.3-60
Consistency issue	The change agreed to by JAFNPP during a conversation with the NRC has been made. Specifically, the words in the SR 3.3.2.2.2 Bases "was approved by the Nuclear Regulatory Commission as documented in Reference 5" have been changed to "are based on Reference 5."	**Specification 3.3.2.2** NUREG Bases markup p Insert page B 3.3-61 Retyped ITS Bases p B 3.3-66

Source of Change	Summary of Change	Affected Pages
Technical change	A Note has been added to the Surveillance Requirements to allow a channel to be inoperable during Surveillance testing for up to 6 hours without requiring entry into the associated ACTIONS, provided the other required channel in the associated Function is Operable. This change has been previously approved by the NRC during the ITS conversions for WNP-2, NMP2, and LaSalle 1 and 2.	**Specification 3.3.3.1** CTS markup p 1 of 7 DOC L7 (DOCs p 6 of 8) NSHC L7 (NSHCs p 10 of 10) NUREG ITS markup p 3.3-25 JFD X4 (JFDs p 3 of 3) NUREG Bases markup p B 3.3-72 and Insert page B 3.3-72 Bases JFD X6 (Bases JFDs p 3 of 3) Retyped ITS p 3.3-25 Retyped ITS Bases p B 3.3-78
RAI 3.3.3.1-5	The change agreed to by JAFNPP during a conversation with the NRC concerning RAI 3.3.3.1-5 has been made. Specifically, "Table 3.2-6, Note F" has been changed to "Table 3.2-8, Note F" in DOC LA2.	**Specification 3.3.3.1** DOC LA2 (DOCs p 4 of 8)
Typographical error	A minor typographical error in the CTS markup has been corrected. (The words "add SR 3.3.3.1 and SR 3.3.3.3 for Function 11" have been changed to "add SR 3.3.3.1.1 and SR 3.3.3.1.3 for Function 11.")	**Specification 3.3.3.1** CTS markup p 7 of 7
Technical change	A Note has been added to the Surveillance Requirements to allow a channel to be inoperable during Surveillance testing for up to 6 hours without requiring entry into the associated ACTIONS. This change has been previously approved by the NRC during the ITS conversions for WNP-2, NMP2, and LaSalle 1 and 2.	**Specification 3.3.3.2** CTS markup p 1 of 11 DOC L1 (DOCs p 3 of 4 and 4 of 4) NSHC L1 (NSHCs p 1 of 2) NUREG ITS markup p 3.3-27 JFD X2 (JFDs p 1 of 2 and 2 of 2) NUREG Bases markup p B 3.3-77 and Insert page B 3.3-77 Bases JFD X3 (Bases JFDs p 2 of 2) Retyped ITS p 3.3-28 Retyped ITS Bases p B 3.3-84

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
RAI 3.3.3.2-3	The change agreed to by JAFNPP during a conversation with the NRC concerning RAI 3.3.3.2-3 has been made. Specifically, The Bases have been modified to state the actual TRM location of the instrumentation and controls table and the change control process for this Table is specified as being the Bases Change Control Process.	<u>Specification 3.3.3.2</u> NUREG Bases markup p B 3.3-75 and B 3.3-79 Bases JFD X2 (Bases JFDs p 1 of 2 and 2 of 2) Retyped ITS Bases p B 3.3-81 and B 3.3-85
NRC extra comment #6	The changes agreed to by JAFNPP during a conversation with the NRC concerning NRC extra comment #6 have been made. Specifically, the Bases have been modified to be more consistent with the NUREG, with respect to the reason the remote shutdown system is in the ITS (i.e., it is not in the ITS for fire protection purposes).	<u>Specification 3.3.3.2</u> NUREG Bases markup p B 3.3-74, Insert page B 3.3-74, B 3.3-75, B 3.3-76, B 3.3-78, and Insert page B 3.3-78 (deleted) Retyped ITS Bases p B 3.3-80, B 3.3-81, B 3.3-82, and B 3.3-84
Typographical error	Minor typographical error in the Discussion of Changes has been corrected. (DOC L2, "SR 3.3.3.2" changed to "SR 3.3.3.2.2.")	<u>Specification 3.3.3.2</u> DOC L2 (DOCs p 4 of 4)
Correct inaccurate ·scussion of Change	The Discussion of Change has been modified to delete the discussion concerning the 1 hour Completion Time, since the change is not associated with this Completion Time (i.e., the CTS is consistent with the ITS, thus no change to the CTS is being made).	<u>Specification 3.3.4.1</u> DOC L2 (DOCs p 7 of 8)
Typographical error	Minor typographical error in the Discussion of Changes has been corrected. (DOC L3, "shutdown" changed to "standby.")	<u>Specification 3.3.4.1</u> DOC L3 (DOCs p 8 of 8)
Editorial changes	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, minor editorial changes have been made to Function 2.h, Containment Pressure - High, Function 3.a, HPCI Reactor Vessel Water Level - Low Low (Level 2), and Functions 4.d, 4.e, 5.d, and 5.e, ADS Pump Discharge Pressure - High Functions Bases.	<u>Specification 3.3.5.1</u> NUREG Bases markup p Insert page B 3.3-114, Insert page B 3.3-115, and B 3.3-123 Retyped ITS Bases p B 3.3-112, B 3.3-113, and B 3.3-122
Typographical error	A minor typographical error in the retyped ITS Bases has been corrected. (The retyped ITS Bases did not include the proper header for one of the Functions).	<u>Specification 3.3.5.1</u> Retyped ITS Bases p B 3.3-121 and B 3.3-122
Technical change	The change agreed to by JAFNPP during a conversation with the NRC has been made. Specifically, The proper loss of function description for the low water level Function has been provided in the Required Actions B.1 and B.2 Bases.	<u>Specification 3.3.5.2</u> NUREG Bases markup p B 3.3-145 Retyped ITS Bases p B 3.3-142

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Editorial change	The change agreed to by JAFNPP during a conversation with the NRC has been made. Specifically, the purpose of the RCIC System has been included in the ITS, consistent with the NUREG (i.e., The purpose of the RCIC instrumentation is to initiate actions to ensure adequate core cooling when the "reactor vessel is isolated from its primary heat sink (the main condenser)").	**Specification 3.3.5.2** NUREG Bases markup p B 3.3-139 Retyped ITS Bases B 3.3-136
Technical change	The original ITS submittal included Functions 2.d and 2.i, Reactor Building Exhaust Radiation - High Functions. These Functions provide isolation signals to the hydrogen/oxygen sample supply and return valves and the gaseous/particulate sample supply and return valves. These primary containment isolation Functions are not in the CTS, but were added since the isolation signals exist. However, upon further review, it has been determined that the signals are not credited in any safety analysis. Therefore, they are being removed from the ITS. (Note, the secondary containment isolation Functions for these instruments are being retained in the ITS, consistent with the CTS). In addition, the Notes to Table 3.3.6.1-1 have been properly numbered.	**Specification 3.3.6.1** CTS markup p 1 of 22 through 22 of 22 (old p 23 of 25, 24 of 25, and 25 of 25 are deleted) DOCs A3, A5, A8, A9, A10, A11, A15, M2, M3, M5, M9, M11, LA2, LA4, LA10, L8, and L14 (DOCs p 1 of 25, 2 of 25, 3 of 25, 4 of 25, 6 of 25, 7 of 25, 8 of 25, 9 of 25, 13 of 25, 14 of 25, 16 of 25, 20 of 25, and 22 of 25 NUREG ITS markup p 3.3-52, 3.3-55, 3.3-57, 3.3-58, Insert page 3.3-58, 3.3-61, and 3.3-62 JFDs CLB1, CLB7, DB3, DB6, DB9, and X2 (JFDs p 1 of 5, 2 of 5, 3 of 5, 4 of 5, and 5 of 5) NUREG Bases markup p Insert page B 3.3-152, Insert page B 3.3-154a, Insert page B 3.3-161, B 3.3-162, B 3.3-163, Insert page B 3.3-163, B 3.3-164, Insert page B 3.3-164a, Insert page B 3.3-164b, B 3.3-171, B 3.3-174, B 3.3-175, B 3.3-176, Insert page B 3.3-176, B 3.3-180, and Insert page B 3.3-180 Bases JFDs CLB1, CLB2, and DB4 (Bases JFDs p 1 of 4 and 3 of 4) Retyped ITS p 3.3-47, 3.3-50, 3.3-52, 3.3-53, and 3.3-56 Retyped ITS Bases p B 3.3-149, B 3.3-151, B 3.3-160, B 3.3-161, B 3.3-162, B 3.3-164, B 3.3-168, B 3.3-171, B 3.3-174, B 3.3-175, and B 3.3-179

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Technical change	The Allowable Values for the RWCU Area Temperatures (Functions 5.a, 5.b, and 5.c) have been rounded up to the nearest whole degree. The Allowable Values are supported by plant specific calculations.	**Specification 3.3.6.1** DOC M14 (DOCs p 11 of 25) NUREG ITS markup p 3.3-61 and Insert page 3.3-61 Retyped ITS p 3.3-56
RAI 3.3.6.1-5	The changes agreed to by JAFNPP during a conversation with the NRC concerning RAI 3.3.6.1-5 have been made. Specifically, DOC A7 has been corrected to properly categorize those Functions with one channel per trip systems and those with two channels per trip system. In addition, in lieu of having two separate line items for the RWCU Pump Room A and RWCU Pump Room B Area Temperature - High Functions, a single line item has been provided for RWCU Pump Area Temperature - High, and the Allowable Value column specifies the proper Allowable Values for the two separate rooms.	**Specification 3.3.6.1** DOC A7 (DOCs p 2 of 25) NUREG ITS markup p 3.3-61 JFD DB11 (JFDs p 4 of 5) Retyped ITS p 3.3-56
Consistency issue	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, the various Allowable Value Bases for the Reactor Vessel Water Level - Low (Level 3) has been modified to be consistent with one another.	**Specification 3.3.6.1** NUREG Bases markup p B 3.3-162, Insert page B 3.3-162, B 3.3-172, Insert page B 3.3-172, and B 3.3-174 Retyped ITS Bases p B 3.3-161, B 3.3-169, and B 3.3-171 **Specification 3.3.6.2** NUREG Bases markup p B 3.3-187, B 3.3-188, and Insert page B 3.3-188 Retyped ITS Bases p B 3.3-189
Consistency issue	The statement (in the Background section of the Bases for the TIP System Isolation) that the TIP System Isolation Functions isolate the inboard ball valves has been deleted. This is consistent with the other Isolation System descriptions in the Background section of the Bases. The descriptions of the individual Functions in the ASA, LCO, and Applicability section of the Bases provides this information.	**Specification 3.3.6.1** NUREG Bases markup p Insert Page B 3.3-155 Retyped ITS Bases p B 3.3-153

Source of Change	Summary of Change	Affected Pages
Consistency issue	The title of the Isolation instrumentation and Condenser Air Removal Pump Isolation instrumentation Main Steam Tunnel Radiation - High Function has been changed to "Main Steam Line Radiation - High" to be consistent with plant nomenclature.	**Specification 3.3.6.1** CTS markup p 8 of 22 DOC L13 (DOCs p 22 of 25) NUREG ITS markup p 3.3-57 and Insert page 3.3-58 JFDs DB2 and DB6 (JFDs p 3 of 5) NUREG Bases markup p Insert page B 3.3-152, B 3.3-153, Insert page B 3.3-154a, Insert page B 3.3-161, and Insert page B 3.3-164b Bases JFDs DB4 and DB6 (Bases JFDs p 3 of 4) Retyped ITS p 3.3-52 and 3.3-53 Retyped ITS Bases p B 3.3-149, B 3.3-150, B 3.3-159, B 3.3-160, B 3.3-163, and B 3.3-164 **Specification 3.3.7.2** DOCs A2, A3, A5, A6, A8, A10, A13, A14, LA1, LA2, LA3, and L3 (DOCs p 1 of 8, 2 of 8, 3 of 8, 5 of 8, 6 of 8, and 7 of 8 NSHCs L1 and L2 (NSHCs p 1 of 8 and 3 of 8) NUREG ITS markup p Insert page 3.3-74a JFD DB1 (JFDs p 1 of 1) NUREG Bases markup p Insert page B 3.3-219a, Insert page B 3.3-219b, Insert page B 3.3-219g, and Insert page B 3.3-219j Retyped ITS p 3.3-64 Retyped ITS Bases p B 3.3-203, B 3.3-204, B 3.3-206, and B 3.3-208

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Typographical errors	Minor typographical errors in the Discussion of Changes, the NUREG ITS markup, the Justification for Differences, the NUREG Bases markup, and the retyped ITS Bases have been corrected. (DOC A15, "CTS Table Note 1.a.1) and 2)" changed to "CTS Table Note 1.a.1) and 2) and Note 1.b.3)(a) and (b)"; DOC M2, "Table 3.3.6-1" changed to "Table 3.3.6.1-1"; DOC M9, "Table 4.1.1" changed to "Table 4.1-1"; DOC L1, "CTS 1.2.2.2" changed to "CTS 1/2.2.2"; DOC L12, "Note 2.B and 2.G" changed to "Note 3.B and 3.G"; DOC L7, "in24" changed to "in 24"; JFD CLB7, "Table 3.3.6.1" changed to "Table 3.3.6.1-1"; "high pressure coolant injection HPCI" changed to "high pressure coolant injection (HPCI)" in the Background section of the NUREG Bases markup and retyped ITS Bases; "Reactor Vessel Water – Low Low Low (Level 1)" changed to Reactor Vessel Water Level – Low Low Low (Level 1)" in the Background section for Primary Containment Isolation in the NUREG Bases markup and retyped ITS Bases; "These Functions isolate" changed to "This Function isolates" in the NUREG Bases markup and retyped ITS Bases for Function 1.e; "This Function isolates" changed to "These Functions isolate" in the NUREG Bases markup and retyped ITS Bases for Functions 2.b and 2.d; the acronym "RWC" changed to "RWCU" in the NUREG Bases markup for Functions 5.a and 5.b; the words "pentration" has been changed to "penetration" and "sytem" changed to "system" in the NUREG Bases markup Insert Function 5-2; the words "with THERMAL POWER is ≤ 10%" are changed to "with THERMAL POWER ≤ 10% RTP" in both the NUREG Bases markup and retyped ITS Bases for Functions 1.f and 2.f; "Reactor Vessel Water Level – Low Low Level 3" changed to "Reactor Vessel Water Level – Low (Level 3)" in the NUREG Bases markup for Function 5.e; the word "isloation" has been changed to "isolation" in the NUREG Bases markup Insert G.1; the word "abreak" has been changed to "a break" in the retyped ITS Bases for Function 1.e; "Reactor Vessel Water Level – Low Low (Level 3)" changed to "Reactor Vessel Water Level – Low (Level 3)" in the retyped ITS Bases for Function 5.e; and the words "SLC initiation" added to the retyped Bases for ACTION B.1.)	**<u>Specification 3.3.6.1</u>** DOC A15, M9, L1, L7, and L12 (DOCs p 4 of 25, 6 of 25, 8 of 25, 17 of 25, 20 of 25, and 21 of 25) NUREG Bases markup p Insert page B 3.3-152, Insert page B 3.3-154a, Insert page B 3.3-155, B 3.3-161, Insert page B 3.3-161, B 3.3-163, Insert page B 3.3-164b, B 3.3-171, B 3.3-172, and Insert page B 3.3-179 Retyped ITS Bases p B 3.3-149, B 3.3-151, B 3.3-159, B 3.3-160, B 3.3-162, B 3.3-164, B 3.3-169, and B 3.3-175
Editorial change	Since the Bases describes two Notes that modify the Surveillance Requirements, the actual Note numbers (i.e., Note 1 and Note 2) have been added for clarity.	**<u>Specification 3.3.6.1</u>** NUREG Bases markup p B 3.3-180
Typographical error	Minor typographical error in the Discussion of Changes has been corrected. (DOC L8, "CTS RETS Table 3.10-1 Note (1)" changed to "CTS RETS Table 3.10-1.")	**<u>Specification 3.3.6.2</u>** DOC L8 (DOCs p 12 of 12)
Editorial error	Errors induced during the last two revision to this Section (Revisions B and F) have been corrected. Specifically, the CTS markup incorrectly identified the ITS Functions (this was generated during revision B when a new CTS Amendment page was marked up) and DOC L6 was incorrectly deleted (it should have been just modified) based on our response to a NRC RAI (this was generated during revision F). In lieu of adding DOC L6 back into the submittal, DOC L7 has been modified to include the change.	**<u>Specification 3.3.6.2</u>** CTS markup p 10 of 15 DOC L7 (DOCs p 11 of 12) NSHC L7 (NSHCs p 8 of 9)

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
Technical change	The changes agreed to by JAFNPP during a conversation with the NRC have been made. Specifically, the Applicability has been changed from "MODES 1 and 2 with any condenser air removal pump in service" to "MODES 1 and 2 with any condenser air removal pump not isolated and any main steam line not isolated." Minor editorial changes to Required Actions C.1 and C.2 have also been made. In addition, the Bases for Inclusion/Exclusion column for the Summary Disposition Matrix in the Split Report for this item has been modified to reflect the correct reason the Specification is being maintained in the ITS.	<u>Specification 3.3.7.2</u> CTS markup p 1 of 10 DOC L1 (DOCs p 6 of 8 and 7 of 8) NSHC L1 (NSHCs p 1 of 8 and 2 of 8) NUREG ITS markup p Insert page 3.3-74a and Insert page 3.3-74b NUREG Bases markup p Insert page B 3.3-219d, and Insert page B 3.3-219e Retyped ITS p 3.3-64 and 3.3-65 Retyped ITS p B 3.3-205 and B 3.3-207 <u>Split Report</u> Summary Disposition Matrix p 13 of 14
ypographical errors	Minor typographical errors in the Discussion of Changes have been corrected. (DOC A9, "Table 3.10-1" changed to "Table 3.10-2"; and DOC LA3, "CTS Table 3.2-1 Note (*)" changed to "CTS Table 3.2-1 Note 1.a footnote (*).")	<u>Specification 3.3.7.2</u> DOCs A9 and LA3 (DOCs p 2 of 8 and 6 of 8)
Typographical error	Minor typographical error in the NUREG Bases markup has been corrected. (The inserted Bases page duplicated two lines that were already located on the inserted Bases page prior to this inserted page.)	<u>Specification 3.3.7.3</u> NUREG Bases markup p Insert page B 3.3-219n

SUMMARY OF CHANGES TO ITS SECTION 3.3 - REVISION I

Source of Change	Summary of Change	Affected Pages
NRC extra comment #10	The changes agreed to by JAFNPP during a conversation with the NRC concerning NRC extra comment #10 have been made. Specifically, the Applicability has been modified to be consistent with TSTF-320 (which added the Applicability of MODES 3 and 4 with any control rod withdrawn from a core cell containing one or more fuel assemblies).	**Specification 3.3.8.2** DOC L1 (DOCs p 4 of 7) NUREG ITS markup p 3.3-78 and 3.3-79 JFDs CLB1 and TA1 (JFDs p 1 of 3, 2 of 3, and 3 of 3) NUREG Bases markup p B 3.3-227, B 3.3-229, B 3.3-230, B 3.3-231, and B 3.3-232 Bases JFDs CLB2 and TA2 (Bases JFDs p 1 of 2 and 2 of 2) Retyped ITS p 3.3-72 and 3.3-73 Retyped ITS Bases p B 3.3-223, B 3.3-226, and B 3.3-227
Editorial change	ITS SR 3.3.8.2.2 has been modified to more clearly identify the proper undervoltage values and to be consistent with the format of the ITS.	**Specification 3.3.8.2** NUREG markup p 3.3-80 Retyped ITS p 3.3-74

Specification 3.3.1.1

A1

3.1 LIMITING CONDITIONS FOR OPERATION

3.1 REACTOR PROTECTION SYSTEM

Applicability:

Applies to the instrumentation and associated devices which initiate the reactor scram.

Objective:

To assure the operability of the Reactor Protection System.

Specification:

[LCO 3.3.1.1] A. The setpoints and minimum number of instrument channels per trip system that must be operable for each position of the reactor mode switch, shall be as shown in Table ~~3.1-1~~. 3.3.1.1-1

[Table 3.3.1.1-1]

4.1 SURVEILLANCE REQUIREMENTS

4.1 REACTOR PROTECTION SYSTEM

Applicability:

Applies to the surveillance of the instrumentation and associated devices which initiate reactor scram.

Objective:

To specify the type of frequency of surveillance to be applied to the protection instrumentation.

Specification: [Note 1 to SRs]

A Instrumentation systems shall be functionally tested and calibrated as indicated in Tables 4.1-1 and 4.1-2 respectively.

[SR 3.3.1.1.15] The response time of the reactor protection system trip functions listed below shall be demonstrated to be within its limit once per 24 months. [Note 1 to SR 3.3.1.1.15] Neutron detectors are exempt from response time testing. [Note 3 to SR 3.3.1.1.16] Each test shall include at least one channel in each trip system. All channels in both trip systems shall be tested within two test intervals. M8

1 L
1 L
1 L

[Function]

[3] 1. Reactor High Pressure (02-3PT-55A, B, C, D)*
[6] 2. Drywell High Pressure (05PT-12A, B, C, D)
[4] 3. Reactor Water Level-Low (L3) (02-3LT-101A, B, C, D)*
[5] 4. Main Steam Line Isolation Valve Closure (29PNS-80A2, B2, C2, D2) (29PNS-86A2, B2, C2, D2)
[8] 5. Turbine Stop Valve Closure (94PNS-101, 102, 103, 104)
[9] 6. Turbine Control Valve Fast Closure (94PS-200A, B, C, D)
[2.c] 7. APRM Fixed High Neutron Flux
[2.b] 8. APRM Flow Referenced Neutron Flux

L11

* Sensor is eliminated from response time testing for the RPS actuation logic circuits. Response time testing and conformance to the test acceptance criteria for the remaining channel components includes trip unit and relay logic.

LA14

A14

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TABLE 3.1-1 3.3.1.1-1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS

Required Minimum No. of Operable Instrument Channels Per Trip System (Notes 1 and 2)	Trip Function	Allowable Value Trip Level Setting	Applicable Mode or Other Specified Condition — Mode in Which Function Must Be Operable: Refuel (Note 7)	Startup 2	Run 1	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Conditions Referenced from Required Action D.1 — Action (Note 3)
Function No. [10] 1	Mode Switch in Shutdown	N/A	X	X	X	1 Mode Switch	A — G, H (MODES only)
[11] 1	Manual Scram	N/A	X	X	X	2	A
[1.a] 3	IRM High Flux	≤96% (120/125) of full scale	X	X		8	A
[1.b] 3	IRM Inoperative	N/A	X	X		8	A
[2.a] 2	APRM Neutron Flux-Startup (Note 15)	≤15% Power	X	X		6	A — G
[2.b] 2	APRM Flow Referenced Neutron Flux (Not to exceed 117%) (Note 13)	(Note 12) As specified in the COLR			X	6	A or B — F, M17
[2.c] 2	APRM Fixed High Neutron Flux	≤120% Power			X	6	A or B — F
[2.d] 2	APRM Inoperative	NA (Note 10)	X	X	X	6	A or B — G, M5

Sta

L1 L2 L3 L4 LA2 LA3 LA4 A1 A3 A4 A5 A16 A19

Specification 3.3.1.1

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TABLE ~~3.1-1~~ 3.3.1.1-1 (cont'd)

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS

Function No.	Minimum No. of Operable Instrument Channels For Trip System (Notes 1 and 2) (Required)	Trip Function	Trip Level Setting (Allowable Value) (A17)	Refuel (Note 7)	Startup (2)	Run (1)	Total Number of Instrument Channels Provided by Design for Both Trip Systems (LA2)	Action (Note 3) (Conditions referenced from Required Action D.1)
[3]	2	Reactor High Pressure	≤1000 psig	X (Note 8)	X	X	4	L2 G A
[6]	2	Drywell High Pressure (Note 16) LA10	≤2.7 psig	X (Note 8) A7	X (Note 8) A8	X	4	L2 G A
[4]	2	Reactor Low Water Level (Note 16)	≥177 in. above TAF LA1	X	X	X	4	L2 G A; L2 L3 G, H (MODES only) A
[7.a, 7.b]	~~8~~ 2, 2 M2	High Water Level in Scram Discharge Volume	≤34.5 gallons per Instrument Volume (Note 4) M1	X	X	X	8	L5 F A
[5]	~~8~~ ~~8~~ M3	Main Steam Line Isolation Valve Closure	≤15% valve closure LA5			X (Note 6)	8	
[9]	2	Turbine Control Valve Fast Closure L14	500 ≤ P ≤ 850 psig Control oil pressure between fast closure solenoid and disc dump valve LA6			X (Note 5)	4	A9 A or C E
[8]	4	Turbine Stop Valve Closure	≤ ~~10~~% valve closure L14 15			X (Notes 5 & 6) LA5	8	A or C E

Amendment No. ~~18, 30, 43, 72, 87, 88, 134, 162, 227,~~ ~~232~~ 265

Specification 3.3.1.1 A1

TABLE ~~3.1-1~~ 3.3.1.1-1 (cont'd)

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS

NOTES OF TABLE 3.1-1 (cont'd)

I

3. Action Statements:

[ACTION G] A. Insert all operable control rods within ~~one~~ hours. (12) L2

[ACTION F] B. Reduce power level to IRM range and place Mode Switch in the Startup position within ~~eight~~ hours. (6) M17

[ACTION E] C. Reduce power level to less than 29 percent of rated within four hours.

~~4. Permissible to bypass, if the Reactor Mode Switch is in the Refuel or Shutdown position.~~ M1

~~5. Bypassed when reactor power is less than 29 percent of rated power.~~ [Applicability Functions 8 and 9]

~~6. The design permits closure of any two lines without a scram being initiated.~~ LA5

7. When the reactor is subcritical and the reactor water temperature is less than 212°F, only the following trip functions need to be operable:

[footnote (a)] L1

A. Mode Switch in Shutdown.
B. Manual Scram.
C. High Flux IRM
D. Scram Discharge Volume High Level when any control rod in a control cell containing fuel is not fully inserted.
E. APRM 15% Power Trip.

L4

[footnote (a)] [Applicability for Function 7.a and 7.b]

~~8. Not required to be operable when primary containment integrity is not required.~~ A8

~~9. Not required to be operable when the reactor pressure vessel head is not bolted to the vessel.~~ A7

~~10. An APRM will be considered operable if there are at least 2 LPRM inputs per level and at least 11 LPRM inputs of the normal complement.~~ LA4

~~11. (Deleted)~~

Amendment No. ~~40, 62, 64, 67, 69, 72, 74, 100, 117, 150, 162, 207, 227,~~ 239

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Specification 3.3.1.1

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TABLE ~~4.1-1~~ 3.3.1.1-1

REACTOR PROTECTION SYSTEM ~~(SCRAM)~~ INSTRUMENTATION ~~TEST REQUIREMENTS~~

~~Trip~~ Function	~~Group (Note 2)~~ L6	Functional Test	Functional Test Frequency ~~(Note 3)~~ A10	~~Instrument~~ channel Check M4
[10] Mode Switch in Shutdown	A	~~Place Mode Switch in Shutdown~~ LA8	~~R~~ SR 3.3.1.1.11	NA add proposed SR 3.3.1.1.13
[11] Manual Scram A17	A	Trip Channel and Alarm L7	Q SR 3.3.1.1.8	NA
[SR3.3.1.1.4] ~~RPS Channel Test Switch~~ M7 add proposed SR 3.3.1.1.5	A	Trip Channel and Alarm	W ~~(Note 1)~~ LA9	NA
[1.a] IRM High Flux	C	Trip Channel and Alarm (Note 4)	S/U and W (Note 5)	~~NA~~ add proposed SR 3.3.1.1.1 12 Hours M5
[1.b] IRM Inoperative M4 add proposed SR 3.3.1.1.13	C	Trip Channel and Alarm (Note 4)	S/U and W (Note 5) SR 3.0.4 SR 3.3.1.1.13	NA L10 add proposed Note
APRM				
[2.c] High Flux	B	Trip Output Relays (Note 4)	Q SR 3.3.1.1.8	~~NA~~
[2.d] Inoperative	B	Trip Output Relays (Note 4)	Q SR 3.3.1.1.3	NA
[2.b] Flow Biased High Flux	B	Trip Output Relays (Note 4)	Q	~~NA~~ SR 3.3.1.1.6 M5
[2.a] High Flux in Startup or Refuel	C	Trip Output Relays (Note 4)	~~S/U~~ and W (Note 5) SR 3.0.4	~~NA~~
[3] Reactor High Pressure	~~B~~	Trip Channel and Alarm (Note 4)	Q	D
[6] Drywell High Pressure	B	Trip Channel and Alarm (Note 4)	Q SR 3.3.1.1.8	D 12 hours M6 SR 3.3.1.1.1
[4] Reactor Low Level	B	Trip Channel and Alarm (Note 4)	Q	D
[7b] High Water Level in Scram Discharge Instrument Volume	~~A~~	Trip Channel	Q ~~(Note 6)~~ LA11	NA
[7a] High Water Level in Scram Discharge Instrument Volume	B	Trip Channel and Alarm (Note 4)	Q A15	D

A I, A I, A I

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Specification 3.3.1.1

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TABLE 4.1-1 (Cont'd) 3.3.1.1-1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION TEST REQUIREMENTS

add proposed SR 3.3.1.1.13 M4

Trip Function	Group (Note 2) L6	Functional Test	Functional Test Frequency (Note 3) A10	Instrument Check channel
[5] Main Steam Line Isolation Valve Closure	A	Trip Channel and Alarm	SR 3.3.1.1.8 Q	NA
[9] Turbine Control Valve Fast Closure	A	Trip Channel and Alarm	Q	NA
[8] [9] Turbine First Stage Pressure Permissive	B	Trip Channel and Alarm (Note 4) A12	Q	[8] [9] D 12 hours M6 SR 3.3.1.1
[8] Turbine Stop Valve Closure LA12	A	Trip Channel and Alarm L7	Q	NA

NOTES FOR TABLE 4.1-1

1. The automatic scram contactors shall be exercised once every week by either using the RPS channel test switches or performing a functional test of any automatic scram function. If the contactors are exercised using a functional test of a scram function, the weekly test using the RPS channel test switch is considered satisfied. The automatic scram contactors shall also be exercised after maintenance on the contactors. LA9 L8

2. A description of the three groups is included in the Bases of this Specification. L6

3. Functional tests are not required on the part of the system that is not required to be operable or are tripped. If tests are missed on parts not required to be operable or are tripped, then they shall be performed prior to returning the system to an operable status. A10

4. This instrumentation is exempted from the instrument channel test definition. This instrument channel functional test will consist of injecting a simulated electrical signal into the instrument channels. A12

5. Weekly functional test required only during refuel and startup mode. [1.a, 1.b and 2.a Applicable Modes]

6. The functional test shall be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected. LA11

Specification 3.3.1.1 (A1)

add proposed SR 3.3.1.1.9 (A20)

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TABLE ~~4.1-2~~ 3.3.1.1-1

~~REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION~~

~~MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS~~

	Function ~~Instrument Channel~~	~~Group (1)~~ (L6)	Calibration	Frequency ~~(2)~~ (A10)	
[1a]	IRM High Flux	C	(M10) Comparison to APRM on Controlled Shutdowns	W ← [SR 3.3.1.1.6] ← add proposed Note (M14)	I
	add proposed SR 3.3.1.1.9 for Function 2.a, 2.b, 2.c (A20)		[SR 3.3.1.1.2] ← add proposed Note (L12)		
	APRM High Flux Output Signal	B	Heat Balance	~~D~~ 7 days (L13)	I
[2.b]	Flow Bias Signal	B	Internal Power and Flow Test with Standard Pressure Source	R ← [SR 3.3.1.1.12, including Note 3 to SR 3.3.1.1.9]	
[2.]	SR 3.3.1.1.7 LPRM Signal	B	[2.b, 2.c] (L7)	Every 1000 MWD/T average core exposure	I
[3]	High Reactor Pressure	B	Standard Pressure Source	(Note 6) ← [SR 3.3.1.1.10, SR 3.3.1.1.12]	
[6]	High Drywell Pressure	B	Standard Pressure Source	(Note 6)	I
[4]	Reactor Low Water Level	B	Standard Pressure Source	(Note 6)	
[7.b]	High Water Level in Scram Discharge Instrument Volume	A	Water Column ~~(Note 5)~~ (LA11)	R ~~(Note 5)~~ [SR 3.3.1.1.12]	I
[7.a]	High Water Level in Scram Discharge Instrument Volume	B	Standard Pressure Source	Q ← [SR 3.3.1.1.9]	
[5]	Main Steam Line Isolation Valve Closure	A	~~(Note 4)~~ (M12)	~~(Note 4)~~ ← [SR 3.3.1.1.12]	I
[8][9]	(LA12) Turbine First Stage Pressure Permissive	B	Standard Pressure Source (L7)	(Note 6) ← [SR 3.3.1.1.10, SR 3.3.1.1.12]	I

add SR 3.3.1.1.6 to Function 2.a (M14)

Specification 3.3.1.1 (A1)

JAFNPP

TABLE 4.1-2 (Cont'd) 3.3.1.1-1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION
MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS

	FUNCTION Instrument Channel	Group (1)	Calibration	Frequency (2) (A10)	
[9]	Turbine Control Valve Fast Closure Oil Pressure Trip	A	Standard Pressure Source (L7)	R [SR 3.3.1.1.12]	I
[8]	Turbine Stop Valve Closure	A (L6)	(Note 4)	(Note 4) [SR 3.3.1.1.12]	I
				add SR 3.3.1.1.14 (M13)	I

NOTES FOR TABLE 4.1-2

1. A description of three groups is included in the Bases of this Specification.

(A10) 2. Calibration test is not required on the part of the system that is not required to be operable, or is tripped, but is required prior to return to service.

3. Deleted

4. Actuation of these switches by normal means will be performed once per 24 months. (M12)

(LA11) 5. Calibration shall be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected.

6. Sensor calibration once per 24 months. Master/slave trip unit calibration once per 6 months.

[SR 3.3.1.1.12] [SR 3.3.1.1.10]

I

DISCUSSION OF CHANGES
ITS: 3.3.1.1 - REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) 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. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 This change proposes to add ITS 3.3.1.1 ACTIONS Note, consistent with conditional details ("For each Trip Function...") contained in CTS Table 3.1-1 Notes 1.a and 1.b, which will allow separate Condition entry for each channel. In conjunction with proposed Specification 1.3 - "Completion Times," the Note ("Separate condition entry ...") and the Conditions of ITS 3.3.1.1 provide more explicit direction of the current interpretation of the existing Specifications. This change in presentation method provides instructions, in a manner more explicit for proper application of the Actions for Technical Specification compliance, consistent with the format and requirements of NUREG-1433, Revision 1. Therefore, this change is considered administrative.

A3 The Trip Level Settings in CTS Table 3.1-1 for the Mode Switch in Shutdown, Manual Scram, IRM Inoperative and APRM Inoperative Functions have been changed to NA, since in reality, there are no Allowable Values. These Functions are the result of mechanically actuated contacts or are dependent on fixed configurations and are not adjustable (i.e., the setpoints cannot be adjusted). Since CTS Table 3.1-1 does not specify Trip Level Settings for these Functions this change is considered administrative.

A4 The Actions in CTS Table 3.1-1 for APRM Flow Referenced Neutron Flux provides an option of either Action A, inserting all Operable rods within 4 hours (being in MODE 3), or Action B reducing power to the IRM range and placing the reactor mode selector switch in startup (being in MODE 2) within eight hours if the APRM Flow Referenced Neutron Flux Function has less than the minimum number of Operable channels per trip system. Proposed ITS 3.3.1.1 ACTION F requires entry into MODE 2. The APRM Flow Referenced Neutron Flux Function is only required in MODE 1 when there is a possibility of generating excessive THERMAL POWER and potentially exceeding the Safety Limit applicable to high pressure and core flow conditions (MCPR Safety Limit). During Modes 2 and 5, other IRM and APRM Functions provide protection for fuel cladding integrity. Therefore, once the plant reaches MODE 2, the LCO is no longer applicable. The CTS option of proceeding to MODE 3 is unnecessary and would not be used; therefore, this change is considered administrative.

ADMINISTRATIVE CHANGES

A10 (continued)

the equipment to be placed in the trip condition. In this condition, the equipment is still inoperable but has accomplished the required safety function. Therefore the allowances in SR 3.0.1 and the associated actions provide adequate guidance with respect to when the associated surveillances are required to be performed and this explicit requirement is not retained. CTS Table 4.1-2 Note 2 contains a similar note and it is also deleted. This change is consistent with NUREG-1433, Revision 1.

A11 Not Used.

A12 CTS Table 4.1-1 Note 4 specifies that certain instrumentation is excepted from the instrumentation channel test definition. The instrumentation channel functional test will consist of injecting a simulated electrical signal into the instrument channels. This explicit allowance is not retained in ITS 3.3.1.1 since it is duplicative of the current and proposed CHANNEL FUNCTIONAL TEST definition in ITS Chapter 1.0. Since this change does not change any technical requirements, it is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A13 Not Used.

A14 CTS 4.1.A Note * specifies that Response Time Testing and conformance to the test acceptance criteria for the remaining channel components includes trip unit and relay logic. This requirement is not explicitly included in ITS SR 3.3.1.1.15 since the definition of RPS RESPONSE TIME in ITS Chapter 1.0 and SR 3.3.1.1.15 ensure the proper testing is performed. Since this deletion does not change any current requirements, this change is considered administrative. I

A15 The explicit requirement to perform a quarterly Functional Test of the High Water Level in Scram Discharge Instrument Volume Function of CTS Table 4.1-1 is being deleted. CTS Table 4.1-2 and ITS SR 3.3.1.1.9 require a CHANNEL CALIBRATION at the same Frequency, therefore this explicit requirement to perform a quarterly CHANNEL FUNCTIONAL TEST is not required since the ITS definition of CHANNEL CALIBRATION fulfills all the requirements of the CHANNEL FUNCTIONAL TEST. This change is considered administrative since the existing requirements will be fulfilled by performing a CHANNEL CALIBRATION every 92 days.

ADMINISTRATIVE CHANGES

A16 CTS Table 3.1-1 specifies that the trip level setpoint of the IRM High Flux Function is ≤ 96% (120/125) of full scale. The Allowable Value retained for this Function (ITS Table 3.3.1.1-1 Function 1.a) in the ITS is ≤ 120/125 divisions of full scale. Since the current and proposed values are equivalent, this change is considered administrative. This change in format is consistent with NUREG-1433, Revision 1.

A17 CTS Table 4.1-1 specifies that a Functional test of the RPS Channel Test switches are required to be performed on a weekly (W) basis. Note 1 of the Table clarifies that this test is to exercise the automatic scram contactors by either the RPS channel test switches or by performing a functional test of any automatic scram function. Therefore, ITS SR 3.3.1.1.4 requires the performance of a functional test of the automatic scram contactors every 7 days. Since this change does not change any technical requirements this change is considered administrative. The details of CTS Table 4.1-1 Note 1 have been relocated to the Bases according to LA9.

A18 CTS 2.1.A.1.c(1) specifies that the APRM Flow Referenced Neutron Flux Scram Trip Setting shall be adjusted during single loop operation when required by Specification 3.5.J (The actual requirement is specified in CTS 3.5.K). This cross reference is deleted since the explicit requirement that the Allowable Values must be adjusted is included in proposed ITS LCO 3.4.1.c. This cross reference is included in ITS 3.4.1, "Recirculation Loops Operating" since this Specification provides the specific requirements that must be met for single loop operation. The actual Allowable Values are included in the COLR since the values are fuel cycle dependent. Since the ITS will continue to require this adjustment, this change is considered administrative.

A19 CTS Table 3.1-1 includes a "Trip Level Setting" column. The setting for each Reactor Protection System (RPS) Function is listed in this column. In some cases the settings are also duplicated in CTS 2.1.A (Fuel Cladding integrity - Trip Settings). This CTS Section also refers to these settings as the "limiting safety system trip settings" consistent with the terminology used in 10 CFR 50.36. In the ITS, the RPS Functions are included in Table 3.3.1.1-1 along with its associated "Allowable Value".

The CTS "trip level settings" and the CTS "trip settings" are considered the "Allowable Values" as described in the ITS since the instrumentation is considered inoperable if the value is exceeded when either the CTS or the ITS is applicable. A detailed explanation of trip setpoints, allowable values and analytical limits as they relate to instrumentation uncertainties is provided below.

ADMINISTRATIVE CHANGES

A19 (continued)

"Allowable Values". Since the instrumentation will be declared inoperable at the same numerical value, this change is considered administrative. Any changes to any "Trip Level Setting" or "limiting safety system trip settings" in the CTS will be discussed below. This change is consistent with NUREG-1433, Revision 1.

A20 The CTS does not have a specific CHANNEL CALIBRATION requirement for the APRM and IRM RPS Functions. However, the CTS does have a 92 day CHANNEL CALIBRATION requirement for the APRM and IRM Control Rod Block Functions. Therefore, consistent with this CTS requirement and with current practice, a Surveillance Requirement is included as ITS SR 3.3.1.1.9 to perform a CHANNEL CALIBRATION on IRM Function 1.a and APRM Functions 2.a, 2.b, and 2.c every 92 days. I

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS Table 3.1-1, Note 4, that allows the Scram Discharge Volume High Function to be bypassed when the mode switch is in refuel or shutdown, is being deleted. ITS Table 3.3.1.1-1 Function 7 footnote (a) requires this Function to be OPERABLE in MODE 5 whenever any control rod is withdrawn from a core cell containing one or more fuel assembles. This will ensure that if a scram occurs the control rod insertion will not be hindered by the water level in the scram discharge volume being too high. When the reactor mode switch is in shutdown, the control rods can not be withdrawn, therefore this scram function is not required. This change is consistent with the requirements of NUREG-1433, Revision 1. This change constitutes a more restrictive requirement, and is not considered to result in any reduction to safety.

M2 CTS Table 3.1-1 requires 3 channels of Scram Discharge Volume High Water Level to be OPERABLE in each Trip System. In the ITS, the Scram Discharge Water level Functions have been divided into Table 3.3.1.1-1 Functions 7.a and 7.b. Both Function 7.a (Scram Discharge Instrument Volume Water Level - Differential Pressure Transmitter/Trip Unit) and Function 7.b (Level Switch) require 2 channels to be OPERABLE in each Trip System. This change is more restrictive since the required number of channels has been increased from 3 channels to 4 channels in each Trip System. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE (continued)

M3 CTS Table 3.1-1 requires 4 channels of Main Steam Line Isolation Valve Closure to be OPERABLE in each Trip System. In the ITS, Table 3.3.1.1-1 Functions 5 (Main Steam Isolation Valve—Closure) require 8 channels to be OPERABLE in each Trip System. This change is more restrictive since the required number of channels has been increased from 4 channels to 8 channels in each Trip System. This change is consistent with NUREG-1433, Revision 1.

M4 ITS SR 3.3.1.1.13 adds the requirement to perform Logic System Functional Tests every 24 months for the following Functions: 1

IRM Neutron Flux—High (MODE 2 and MODE 5(a))
IRM Inop (MODE 2 and MODE 5(a))
APRM Neutron Flux—High (Startup) (MODE 2)
APRM Neutron Flux—High (Flow Biased)
APRM Neutron Flux—High (Fixed)
APRM Inop (MODE 1 and MODE 2)
Reactor Pressure—High
Reactor Vessel Water Level—Low (Level 3)
Main Steam Isolation Valve—Closure
Drywell Pressure—High
SDIV Water Level—High (MODE 1, MODE 2, and MODE 5(a))
Turbine Stop Valve—Closure
Turbine Control Valve Fast Closure, EHC Trip Oil Pressure-Low
Reactor Mode Switch—Shutdown Position (MODE 1, MODE 2, and MODE 5(a))
Manual Scram (MODE 1, MODE 2, and MODE 5(a))

The addition of new requirements (Surveillances) to the current Technical Specifications constitutes a more restrictive change. The added testing is currently being performed at JAFNPP in accordance with the guidelines of GL-96-01 (Testing of Safety-Related Logic) therefore this change will not add any additional testing. This change is consistent with NUREG-1433, Revision 1. This change is not considered to result in any reduction to safety.

M5 ITS SR 3.3.1.1.1, adds the requirement to perform Channel Checks every 12 hours for the Functions listed below:

IRM Neutron Flux—High (MODE 2 and MODE 5(a))
APRM Neutron Flux—High (Startup) (MODE 2)
APRM Neutron Flux—High (Fixed) (MODE 1)
APRM Neutron Flux—High (Flow Biased) (MODE 1)

TECHNICAL CHANGES - MORE RESTRICTIVE

M5 (continued)

The addition of new requirements (Surveillances) to the current Technical Specifications constitutes a more restrictive change necessary to ensure the RPS Functions are maintained Operable. This change is consistent with NUREG-1433, Revision 1. This change is not considered to result in any reduction to safety.

M6 ITS SR 3.3.1.1.1, increases the frequency for performing the Channel Checks in CTS Table 4.1-1 from the current Daily to every 12 hours for the Functions listed below:

Reactor Pressure – High
Drywell Pressure – High
Reactor Vessel Water Level – Low (Level 3)
High Water Level in Scram Discharge Instrument Volume (DP transmitter/trip unit)
Turbine First Stage Pressure Permissive (see LA12)

This change to the requirements (Surveillances) of the current Technical Specifications constitutes a more restrictive change necessary to ensure the RPS Functions are maintained Operable. This change is consistent with NUREG-1433, Revision 1. This change is not considered to result in any reduction to safety.

M7 ITS SR 3.3.1.1.5 was added to verify SRM and IRM channels overlap prior to withdrawing SRMs from the fully inserted position. This change to the requirements (Surveillances) of the current Technical Specifications constitutes a more restrictive change necessary to ensure the RPS Functions are maintained Operable. This change is consistent with NUREG-1433, Revision 1.

M8 CTS 4.1.A specifies that the response time of the reactor protection system trip functions listed shall be demonstrated to be within its limit once per 24 months. Each test shall include at least one channel in each trip system. All channels in both trip systems shall be tested within two test intervals. In ITS SR 3.3.1.1.15 the RPS RESPONSE TIME test must be performed every 24 months on a STAGGERED TEST BASIS. Note 3 of this SR specifies that "n" equals 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. Therefore, SR 3.3.1.1.15 will require all channels requiring response time testing to be tested in two (2) surveillance intervals. This change is more restrictive since at least eight (8) ITS 3.3.1.1 Function 5 (Main Steam Isolation Valve – Closure) channels and four (4) ITS 3.3.1.1 Function 8 (Turbine Stop Valve – Closure) channels must be tested each interval

TECHNICAL CHANGES - MORE RESTRICTIVE

M8 (continued)

instead of one channel in each trip system required by the CTS. This change will ensure a sufficient number of channels are tested each interval to identify any significant response time degradation.

M9 Not Used.

M10 CTS Table 4.1-2 requires only a heat balance for APRM High Flux Output Signal calibration. ITS SR 3.3.1.1.2 additionally requires that the absolute difference between the APRM channels and the calculated power be ≤ 2% RTP plus any gain adjustment required by LCO 3.2.4, "Average Power Range Monitor (APRM) Gain and Setpoint" while operating at ≥ 25% RTP (L10). The addition of acceptance criteria to ensure instrument OPERABILITY constitutes a more restrictive change. The requirement to adjust the gain in accordance with LCO 3.2.4 is consistent with current practice in CTS 4.1.B. This change is consistent with NUREG-1433, Revision 1. This change is not considered to result in any reduction to safety.

M11 Not Used.

M12 CTS Table 4.1-2, Note 4 requires actuation of the MSIV Closure limit switches and Turbine Stop Valve Closure pressure switches by normal means every 24 months. ITS SR 3.3.1.1.12 requires an actual Channel Calibration of these instruments every 24 months to ensure channel OPERABILITY. This change in requirements (Surveillances) to the current Technical Specifications constitutes a more restrictive change necessary to ensure the RPS Functions are maintained Operable. This change is consistent with NUREG-1433, Revision 1. This change is not considered to result in any reduction to safety.

M13 A new requirement has been added (ITS SR 3.3.1.1.14) to the Surveillances of CTS Table 4.1-2 to verify the Turbine Stop Valve–Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure–Low Functions are not bypassed when THERMAL POWER is ≥ 29 % RTP at a Frequency of 24 months. The addition of new requirement (Surveillance) to the current Technical Specifications constitutes a more restrictive change necessary to ensure the associated RPS Functions are maintained Operable when required. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE (continued)

M14 CTS Table 4.1-2 requires a comparison of the IRM channels with the APRM channels on a controlled shutdown. However, the requirement is only associated with the IRM High Flux Function in the CTS. In the ITS, this test (ITS SR 3.3.1.1.6) is associated with ITS Table 3.3.1.1-1 Functions 1.a (IRM Neutron Flux-High) and 2.a (APRM Neutron Flux-High (Startup)) since it is equally important to both Functions and the explicit requirement is to verify the IRM and APRM channels overlap. In addition, a Note is included which states that the SR is only required to be met during entry into MODE 2 from MODE 1 since this is when the IRM and APRM channels are designed to overlap with one another. Currently, the Surveillance implies that the calibration is to be performed on controlled shutdowns. It does not imply that the Surveillance is required to be met during the entire shutdown. The overlap can not exist during the entire shutdown since the APRMs may be reading downscale during operations in MODE 2. Since the requirement is more explicit to when the requirement must be met and since the association is related to both of the specified Functions this change is considered more restrictive on plant operations. This change is consistent with NUREG-1433, Revision 1.

M15 The Actions in CTS Table 3.1-1 for the APRM Inoperative Function provides an option of either Note 3.A, inserting all Operable rods within 4 hours (being in MODE 3), or Note 3.B reducing power to the IRM range and placing the reactor mode selector switch in startup (being in MODE 2) within 8 hours if the APRM Inoperative Function has less than the minimum number of Operable channels per trip system. ITS 3.3.1.1 ACTION G requires entry into MODE 3 since the APRM Inoperative Function is required in MODEs 1 and 2. CTS Table 3.1-1 requires the Function to be OPERABLE in startup (MODE 2), the Action B option of reducing power and placing the reactor mode switch in startup (MODE 2) will not place the plant outside of the associated Applicability (MODE 1 and 2). This allowance is not consistent with the philosophy of the ITS, since it does not place the plant outside the Applicability of the Specification. Therefore, this option has been deleted. Since the option has been deleted this change is considered more restrictive on plant operation, but necessary to ensure proper actions are taken when the APRM Inoperative Function is inoperable. The proposed Action is consistent with the default actions for the APRM Neutron Flux - High (Startup) which also has an Applicability of MODE 2. This change is consistent with NUREG-1433, Revision 1.

M16 Not used.

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M17 CTS Table 3.3-1 Note 3.B requires the plant to be in Startup within 8 hours when CTS Table 3.3-1 Notes 1 and 2 (as applicable) are not met for inoperable APRM Flow Referenced Neutron Flux or APRM Fixed High Neutron Flux High channels (ITS 3.3.1.1 Functions 2.b and 2.c). ITS 3.3.1.1 ACTION F will require the plant to be in MODE 2 within 6 hours, a decrease of 2 hours. The new time is consistent with other ITS ACTIONS that require the plant to be in MODE 2, and provides adequate time to reach MODE 2 without challenging plant systems. I

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The detail in CTS 2.1.A.2 and CTS Table 3.1-1 that the Trip Level Setting of the Reactor Low Water Level Function is referenced from the Top of Active Fuel (TAF) is proposed to be relocated to the Bases. CTS 1.0.Z definition specifies that the Top of Active Fuel, corresponding to the top of the enriched fuel column of each fuel bundle, is located 352.5 inches above vessel zero, which is the lowest point in the inside bottom of the reactor pressure vessel. (See General Electric drawing No. 919D690BD). These details are also proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.1.1 that the RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE, the requirements in the Table including the Allowable Value for the Reactor Water Level – Low (Level 3) Function, the definition of Operability, the proposed Actions, and Surveillance Requirements are adequate to ensure the instrumentation is properly maintained. In addition, the Bases includes a statement that the Reactor Water Level – Low (Level 3) Allowable Value The Allowable Value corresponds to a level of water 352.56 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA2 CTS Table 3.1-1 Column "Total Number of Instrument Channels Provided by Design for Both Trip Systems", is to be relocated to the Bases. These details related to system design are not necessary to ensure the associated instruments remain OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. Therefore, the relocated details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS. I

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA3 The details in CTS Table 3.1-1 Note 15, stating this Average Power Range Monitor (APRM) scram function is fixed point and is increased when the reactor mode switch is placed in the Run position, and the details in Note 13, stating the APRM Flow Referenced Neutron Flux scram function is varied as a function of recirculation flow (W) is proposed to be relocated to the Bases. These are informational Notes which describe the design of the instrumentation, and which are not needed to comply with Technical Specifications. These details related to system operation are not necessary to ensure the associated instruments remain Operable. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. Therefore, the relocated details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS. I

LA4 This change proposes to relocate the requirement contained in Note 10 of CTS Table 3.1-1, that an APRM will be considered inoperable if there are less than 2 LPRM inputs per level or less than 11 operable LPRM detectors to an APRM, to the Bases. The details for system Operability are not necessary to ensure the APRMs are OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. Therefore, the relocated details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of ITS.

LA5 CTS Table 3.1-1 Note 6, statement regarding the function's design which permits closure of any two lines without a scram being initiated, is proposed to be relocated to the Bases. The details of system design are not necessary to ensure the MSIV-Closure instrumentation is OPERABLE. The requirements of ITS 3.3.1.1 which require the MSIV-Closure instrumentation to be OPERABLE and the definition of OPERABILITY suffice. Therefore, the relocated details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA6 The design detail in CTS Table 3.1-1 Turbine Control Valve Fast Closure, Trip Level Setting, regarding the physical location of the pressure switch, is proposed to be relocated to the Bases. The details of system design are not necessary to ensure the Turbine Control Valve Fast Closure instrumentation is OPERABLE. The requirements of ITS 3.3.1.1 which require the Turbine Control Valve Fast Closure instrumentation to be OPERABLE and the definition of OPERABILITY suffice. Therefore, the

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA6 (continued)

relocated details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA7 The details contained in CTS Table 3.1-1, Notes of Table 3.1-1 footnote *, providing conditions and precautions for placing an inoperable channel or trip system in trip, are to be relocated to the Bases. These details related to system configuration are not necessary to ensure the associated instruments remain OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. Therefore, the relocated details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA8 The details contained in CTS Table 4.1-1 Mode switch in Shutdown Functional Test Requirements, for the performance of the Channel Functional Test of the Mode Switch in Shutdown which requires placing the Mode Switch in Shutdown, is being relocated to the Bases. The details for system OPERABILITY are not necessary to ensure the Reactor Mode Switch - Shutdown Position Function is OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA9 The details contained in CTS Table 4.1-1 Note 1, allowing exercising of the automatic scram contactors by performing a functional test of an automatic scram function or using the RPS Channel Test Switch, are being relocated to the Bases. The details for system OPERABILITY are not necessary to ensure the RPS instrumentation is OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA10 The design details contained in CTS Table 3.1-1 Note 16, that state the instrumentation (Drywell High Pressure and Reactor Low Water Level) are common to PCIS, are proposed to be relocated to the UFSAR. These design details are not necessary to be included in the Technical Specifications to ensure the OPERABILITY of the RPS instrumentation. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the UFSAR will be controlled by the provisions of 10 CFR 50.59.

LA11 Details of the methods in CTS Table 4.1-1 Note 6 and Table 4.1-2 Note 5, that require testing using a water column or similar device to provide assurance that damage to a float or other portion of the float assembly will be detected, is being relocated to the Bases. The details for performing system Operability are not necessary to ensure the High Water Level Scram Discharge Instrument Volume Function is Operable. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA12 CTS Tables 4.1-1 and 4.1-2 identify the Turbine First Stage Pressure Permissive as a separate Function. ITS Table 3.3.1.1-1 includes the current Turbine First Stage Pressure Permissive Surveillances in the Surveillances for Function 8, Turbine Stop Valve—Closure and for Function 9, Turbine Control Valve Fast Closure, EHC Oil Pressure—Low. Testing of the Turbine First Stage Pressure Permissive is included in ITS SR 3.3.1.1.14 (see M13). This change proposes to relocate the listing of this Function from CTS Tables 4.1-1 and 4.1-2 to the Bases for proposed Functions 8 and 9 and SR 3.3.1.1.14. The identification of the Turbine First Stage Pressure Permissive as a separate Function is not necessary to ensure the instrumentation remains Operable. The requirements of ITS 3.3.1.1 Functions 8 and 9 which require the Turbine First Stage Pressure Permissive to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS. I

LA13 The operational details in CTS Table 3.1-1 Notes, footnote **, that state that the trip system with the greatest number of inoperable instrument channels should be the trip system that is tripped, is being relocated to the Bases. These operational details are not necessary to

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA13 (continued)

ensure the RPS instrumentation is OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA14 The details described in CTS 4.1.A footnote * that state that the sensor is eliminated from response time testing for the RPS actuation logic circuits for Reactor High Pressure and Reactor Water Level-Low CTS functions is relocated to the Bases. These operational details are not necessary to ensure the RPS instrumentation is OPERABLE. The requirements of ITS 3.3.1.1 which require the RPS instrumentation to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS. In addition, the relocation of these details to the Bases is consistent with TSTF 332, R1.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CTS Table 3.1-1 Note 7 Applicability (reactor is subcritical, fuel is in the vessel and the reactor temperature is less than 212°F) for the Mode Switch in Shutdown, Manual Scram, and IRM High Flux, is being relaxed. ITS Table 3.3.1.1-1, footnote (a), establishes requirements for when in MODE 5 (Refuel) with any control rod withdrawn from a core cell containing one or more fuel assemblies. This change also proposes to relax the Applicability for the IRM Inoperative Function in CTS Table 3.1-1 from when the mode switch is in Refuel to MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies. These changes in the Applicability are consistent with the Applicability requirements for the scram discharge volume high level Functions as indicated in Note 7. This change does not impact the safety of the plant or any of the safety analysis assumptions. The design function, of the RPS Functions, is to shutdown the reactor when required by initiating a reactor scram. This is only necessary when control rods are withdrawn. Control rods withdrawn from a core cell containing no fuel assemblies do not affect the reactivity of the core. With all the rods inserted, the Shutdown Margin Requirements (LCO 3.1.1) and the required one-rod-out interlock (LCO 3.9.2) ensure that no scram is

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

necessary. The Actions for inoperable equipment in MODE 5 are also revised to be consistent with the proposed Applicability. Since all control rods are required to be fully inserted during fuel movement (LCO 3.9.3), the proposed applicable conditions cannot be entered while moving fuel. The only possible core alteration is control rod withdrawal which is adequately addressed by the proposed actions. This change is consistent with NUREG-1433, Revision 1. Special Operations ITS 3.10.4 will allow a single control rod to be withdrawn in MODE 4 by allowing the Reactor Mode Switch to be in the Refuel position. Therefore, the IRM MODE 4 RPS requirements have been included in ITS 3.10.4.

L2 CTS Table 3.1-1 Note 3.A action time, to reach MODE 3 (all rods inserted) in 4 hours, is proposed to be extended. Proposed ITS 3.3.1.1 ACTION G requires being in MODE 3 within 12 hours. This provides the necessary time to shutdown in a controlled and orderly manner that is within the capabilities of the plant, assuming the minimum required equipment is OPERABLE. This extra time reduces the potential for a plant upset that could challenge safety systems. This time is consistent with NUREG-1433, Revision 1.

L3 CTS Table 3.1-1 Note 3.A (for Mode Switch in Shutdown, Manual Scram, IRM High Flux, IRM Inoperative, and High Water Level in Scram Discharge Volume Functions) requires the insertion of <u>all</u> operable control rods within 4 hours if the requirements of Table 3.1-1 are not met. ITS 3.3.1.1 ACTION H will require, in MODE 5 for the above listed Functions, control rods in core cells containing one or more fuel assemblies to be inserted if ACTION A, B, or C cannot be performed within the required Completion Times. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core cells and are, therefore, not required to be inserted. The removal of the four fuel bundles surrounding a control rod very significantly reduces the reactivity worth of the associated control rod to the point where removal of that rod no longer has the potential to cause a reactivity excursion. This is reflected in the proposed definition of Core Alterations. This change is consistent with NUREG-1433, Revision 1. | I

L4 CTS Table 3.1-1 requirements, for APRM Neutron Flux–Startup (Note 7), APRM Inoperative during MODE 5 operations, and CTS 2.1.A.1.b requirements for APRM Neutron Flux scram during refuel are proposed to be deleted. Amendments 41 and 7 to Limerick Generating Station Units 1 and 2 (NPF-39 and NPF-85), respectively, issued July 30, 1990, eliminated APRM RPS trip OPERABILITY requirements during MODE 5, other

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 (continued)

than during SDM demonstrations. This remaining requirement is therefore moved into the SHUTDOWN MARGIN demonstration Special Operation Technical Specification (ITS 3.10.8).

A JAF plant specific analysis which justifies the proposed CTS changes described above is provided below. The JAF analysis presented below is consistent with the evaluation presented in the License Amendements for the Limerick Units.

The proposed CTS changes remove the requirements for APRM operability while the plant is in the Refuel Mode. To assess the impact of the proposed change on safety and the design bases accidents, an examination of those systems and mechanisms which contribute to safe operation while the plant is in the Refuel Mode is presented below. Each of these systems and mechanisms contribute to the defense-in-depth design and operation. This examination demonstrates that the current APRM operability requirement is unnecessary to maintain this defense-in-depth.

The SRM and IRM are subsystems of the Neutron Monitoring System (NMS). The purpose of these subsystems is to monitor neutron flux levels and provide, as appropriate, trip signals to the Reactor Protection System (RPS).

The SRM subsystem is composed of four detectors that are inserted into the core during shutdown and refuel conditions. Although the SRM subsystem is not safety-related, it is important to plant safety. During refueling operations, the plant operators use the SRMs to ensure that neutron flux remains within an acceptable range. Also, plant operators can monitor the SRMs for increases in neutron flux which may indicate that the reactor is approaching criticality. The SRMs are required by TS to be operational in the Refuel Mode (CTS 3.3.B.4, 4.3.B.4, 4.10.B and 3.10.B.2) (ITS Table 3.3.1.2-1).

The IRM subsystem is composed of eight detectors that are inserted into the core. The IRM is a safety related subsystem. The IRM is a five-decade instrument with ten ranges that are ranged up during normal power increases. The IRMs are designed to monitor neutron flux levels at a local core location and provide protection against local criticality events caused by control rod withdrawal and fuel insertion errors. The IRMs monitor neutron flux levels from the upper portion of the SRM range to the lower portion of the APRM range. In terms of rated reactor power, the IRMs range from about 10E-4% of rated reactor power to

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 (continued)

greater than 15% of rated reactor power. The IRMs provide a scram function at ≤ 120 of a 125 division scale. The safety design bases of the IRM subsystem is to generate trip signals to prevent fuel damage resulting from anticipated or abnormal operational transients that could possibly occur while operating in the intermediate power range. The IRMs are required by TS to be operational in the Refuel Mode (CTS 2.1.A.1.a; Table 3.3-1, Item 3; Table 4.1-1, Item 4 and Table 4.1-2, Item 1)(ITS Table 3.3.1.1-1, Function 1a)

There are various levels of control to prevent inadvertent reactor criticality and fuel damage during refueling operations. These levels of control include the following:

1. Licensed plant operators are trained to operate equipment and follow approved procedures.

2. Plant approved refueling and maintenance procedures specify core alteration steps.

3. SRMs indicate the potential for reactor criticality by monitoring neutron flux levels.

4. Refueling interlocks prevent the withdrawal of more than one control rod and prevent the insertion of fuel assemblies into the core unless all control rods are fully inserted (except as permitted by CTS Section 3.10, "Core Alterations" and ITS 3.10.6, "Multiple Control Rod Withdrawal - Refueling").

5. The IRMs provide an indication of local power. IRMs provide a scram signals on high neutron flux levels.

The APRMS are not necessary for safe operation of the plant during refueling because the IRMs will generate an RPS scram if neutron flux increases to the applicable setpoint. The IRMs are required by TS to be operational in the Refuel Mode. The IRMs are a safety-related subsystem of the NMS and are designed to indicate and respond to neutron flux increases at local core locations. The APRMs are designed to monitor and respond to a core average neutron flux level. The most likely reactivity insertion transient expected during refueling would be a core alteration type event, e.g., control rod withdrawal or fuel assembly insertion into the core. A core alteration event would result in a local core criticality transient readily detected by the IRMs and/or SRMs.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 (continued)

The IRM subsystem is designed and calibrated to respond to a neutron flux level that is significantly less than the flux level monitored by the APRMs. For example, during refueling, when the IRMs are on their most sensitive range, the IRMs will generate a scram signal at less than 0.01% core average power while the APRMs will generate a scram signal at ≤15% core average power. The IRM subsystem acts as a backup protection system to the Refueling Interlocks (RIs) during refueling.

RIs are required to be operational during refueling operations (CTS 3.10.A.1) (ITS 3.9.1 & 3.9.2). The purpose of the RIs is to restrict the movement of the control rods and the operation of the refueling equipment to reinforce operational procedures that prevent the reactor from becoming critical during refueling operations. RIs will prevent the withdrawal of a control rod if the refueling platform is over the core. Also, the RIs require an "all-rods-in" signal before allowing the refueling platform to go over the core.

TS and plant operating procedures allow only one control rod to be withdrawn or removed at a time while the mode switch is in "Refuel" (except as permitted by CTS section 3.10, "Core Alterations" and ITS 3.10.6, "Multiple Control Rod Withdrawal - Refueling"). The core loading pattern is designed to ensure that the core is subcritical by a specified margin with the most reactive control rod at the full out position. Withdrawal of one control rod would not cause criticality and the event would not result in an APRM response.

The design of the control rod drive system reduces the probability of a control rod error during refueling. For example, the latching action of the collet finger assembly serves to lock the index tube in place. The velocity limiter physically prevents the control blade from being removed from the core with fuel in place.

The James A. FitzPatrick Final Safety Analysis Report (FSAR) Section 14.5.4, "Events Resulting in a Positive Reactivity Insertion," evaluated the potential for a control rod withdrawal error and fuel assembly insertion error during refueling. The FSAR concludes that the above scenarios are adequately precluded by refueling interlocks, core design, and control rod hardware design. However, should operator errors, followed by equipment malfunctions, result in an inadvertent criticality event, necessary safety actions (a scram) will be taken prior to violation of a safety limit. Specifcally, the IRMs would provide a scram function as appropriate.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 (continued)

The hypothetical question arises as to whether the APRM subsystem (if operable) would indicate and scram the control rods on a high neutron flux level before the operable IRMs would respond to the event. The answer is that a neutron flux transient would be observed by the IRMs before the APRM electronics would detect the event. The core coupling is such that a local criticality event would immediately be transmitted throughout the core and would be detected by the operable IRMs. The IRMs would be on scale before the APRMs detected the event because the IRMs are designed and calibrated to be more sensitive to neutron flux than the APRMs.

In summary, the APRMs are not necessary for safe operation of the plant while in the Refuel Mode for the following reasons:

1. The IRMs are a safety-related subsystem of the NMS and are required by TS to be operable in the Refuel Mode. The IRMs will generate an RPS Scram if the neutron flux increases to the applicable setpoint.

2. The IRMs and SRMs are designed and calibrated to be more sensitive to neutron flux than the APRMs.

3. The IRMs are designed to monitor local core events while the APRMs provide a measure of core average power condition. The IRMs can monitor and react to the reactivity events expected during refueling, i.e., control rod withdrawal or fuel insertion.

4. The IRMs would detect and respond (reactor scram) to an inadvertent criticality event before the APRMs would provide a trip function.

5. The withdrawal of only one control rod in the Refuel Mode is permitted by the "one-rod-out" interlock while in "Refuel". The core is designed to be subcritical with one rod out.

6. The withdrawal of a second control rod or inadvertent insertion of a fuel bundle in the Refuel Mode is precluded by refueling interlocks, refueling procedures, and administrative controls.

7. The APRMs are required to be operational during shutdown margin demonstration when the reactor in Mode 5 with the Mode switch in the Startup/Hot Standby position in accordance with ITS 3.10.8, "SDM Test - Refueling."

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L4 (continued)

8. The SRMs are required to be Operational when in the Refuel mode.

9. The transient analysis discussed in the FSAR does not require the APRMs to be operational in the Refuel Mode to mitigate a transient condition.

The proposed TS changes will not represent a change in the plant as described in the FSAR. FSAR sections 7.5, 12.2A, and 14 were reviewed in making this determination.

In conclusion, monitoring of neutron flux levels, administrative controls, plant procedures, refueling interlocks, and SRM and IRM protective features provide and maintain the defense-in-depth design and operation which precludes the need for the APRMs and APRM Trip Functions to be operable in the Refuel Mode. These changes are consistent with NUREG-1433, Revision 1.

L5 The CTS Table 3.3-1 Note 3.A requirement associated with the Main Steam Isolation Valve Closure Function (ITS Table 3.3.1.1 Function 5), to insert all Operable control rods (MODE 3) within 4 hours, is being relaxed. ITS 3.3.1.1 ACTION F will require that the plant be put in MODE 2 within 6 hours when the Main Steam Isolation Valve Closure Function is inoperable and not restored, or channels tripped, within the required Completion Times. This Function is required only in MODE 1 (current and proposed); therefore, once the plant reaches MODE 2, the LCO is no longer applicable. The current requirement to place the plant in MODE 3 is overly restrictive and inconsistent with CTS LCO 3.0.A. The Main Steam Isolation Valve Closure Function provides protection against over pressure transients in MODE 1, since, with the MSIVs open and the heat generation high, a pressurization transient can occur if the MSIVs close. In Mode 2 the heat generation rate is low enough that other diverse RPS functions provide sufficient protection. The Completion Time of 6 hours to be in MODE 2 is acceptable due to the low probability of an event requiring this Function during the proposed additional 2 hours. In addition, the 6 hour Completion Time provides sufficient time to reach MODE 2 without challenging plant systems.

L6 The design details in CTS Tables 4.1-1 and 4.1-2 that identify the reliability group (A, B or C) to which each instrument belongs for functional testing, are proposed to be deleted. This design information is not necessary to be included in the Technical Specifications to ensure Operability of these RPS instruments. The requirements in ITS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 (continued)

3.3.1.1 are sufficient to ensure that these RPS instruments are maintained Operable. This change is consistent with NUREG-1433, Revision 1.

L7 The details in CTS Tables 4.1-1, that identify those portions of the instrument channel which require functional testing and the details in CTS Table 4.1-2 that identify the type of test equipment used to perform a channel calibration, are proposed to be deleted. These details are not necessary because the proposed definitions for Channel Functional Test and Channel Calibration provide the necessary guidance. This change is consistent with NUREG-1433, Revision 1.

L8 The details contained in CTS Table 4.1-1, Note 1, concerning testing the automatic scram contactors after maintenance, is proposed to be deleted. Any time the Operability of a system or component has been or could be affected by repair, maintenance, or replacement of a component, post-maintenance testing is required to demonstrate Operability of the system or component. SR 3.0.1 requires the appropriate SRs (in this case, SR 3.3.1.1.4) to be performed to demonstrate Operability of the affected components after work which could affect Operability. Therefore, explicit post maintenance Surveillance Requirements are not required and are proposed to be deleted from the Technical Specifications. Deletion of these details constitutes a less restrictive change. This change is consistent with NUREG-1433, Revision 1.

L9 Not Used.

L10 This change proposes to add a Note (ITS SR 3.3.1.1.3) to the 7 day Channel Functional Test Surveillance Requirement in CTS Table 4.1-1 for the IRM High Flux, IRM Inop, APRM Neutron Flux—High (Startup) Functions. The Note will allow the plant to enter MODE 2 from MODE 1 without performing the required Surveillance. The Surveillance, however, must be performed within 12 hours after entering MODE 2. This is allowed because the testing of the MODE 2 required IRM and APRM Functions cannot be performed in MODE 1 without utilizing jumpers or lifted leads. Twelve hours is based on operating experience and providing a reasonable time in which to complete the Surveillance Requirement. This change is consistent with NUREG-1433, Revision 1.

L11 The details relating to the Instrument I.D. numbers for the RPS Instrumentation in CTS 4.1.A are proposed to be deleted. These details are not necessary to ensure the RPS instrumentation is maintained Operable. The requirements of ITS 3.3.1.1 (which describes the

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L11 (continued)

instrumentation) and the associated Surveillance Requirements are adequate to ensure the required instrumentation is maintained Operable. The Bases also provide a description of the type of instrumentation required by the specification.

L12 This change adds a note to the APRM heat balance calibration of CTS Table 4.1-2 associated with the APRM High Flux output signal (SR 3.3.1.1.2) which states that the Surveillance is not required to be performed until 12 hours after Thermal Power ≥ 25% RTP. This is allowed because it is difficult to accurately determine core Thermal Power from a heat balance when < 25% RTP. Since the APRM Neutron Flux–High (Startup) Function is only required to be Operable in MODE 2 and since the Allowable Value is ≤ 15% RTP, this surveillance is not associated with this Function (ITS 3.3.1.1 Function 2.a). However, the Operability of this Function is assured since an additional surveillance was added to calibrate the entire channel (M11) every 6 months. At low power levels, a high degree of accuracy is unnecessary because of the large inherent margin to power distribution (thermal) limits (MCPR, LHGR, and APLHGR). The 12 hour time limit for performing the surveillance is based on operating experience and providing a reasonable time in which to complete the SR. This change is consistent with NUREG-1433, Revision 1.

L13 The proposed change decreases the Surveillance Frequency for performance of the APRM Heat balance calibration from once per day to once per 7 days. This Surveillance requirement ensures that the APRMs are accurately indicating the true core power which is affected by the LPRM sensitivity. The 7 day Surveillance Frequency is acceptable, based on operating experience and the fact that only minor changes in LPRM sensitivity occur during this time frame. In addition, a review of Surveillance test data during four separate time periods, each in excess of one week, showed that the largest cumulative adjustment was less than 2%. This change is consistent with NUREG-1433, Revision 1. I

L14 The Trip Setting/Trip Level Setting (Allowable Value (A19)) in CTS 2.1.A.3 and CTS Table 3.1-1, Trip Function 15, Turbine Stop Valve Closure is changed from ≤ 10% valve closure to ≤ 15% valve closure (ITS Table 3.3.1.1-1, Function 8, Turbine Stop Valve–Closure) and the Trip Setting/Trip Level Setting (Allowable Value (A19)) in CTS 2.1.A.4 and CTS Table 3.1-1, Trip Function 14, Turbine Control Valve Fast Closure is changed from > 500 psig and < 850 psig to ≥ 500 psig and ≤ 850 psig (ITS Table 3.3.1.1-1, Function 9, Turbine Control Valve Fast Closure, EHC Oil Pressure–Low). The Allowable Values (to be included in the Technical

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L14 (continued)

Specifications) and the Trip Setpoints (to be included in plant procedures) have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the "Allowable Values" are consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." Any changes to the safety analysis limits, applied in the methodologies, were evaluated and confirmed as ensuring safety analysis licensing acceptance limits are maintained. All design limits, applied in the methodologies, were confirmed as ensuring that applicable design requirements of the associated systems are maintained. The use of this methodology for establishing Allowable Values and Trip Setpoints ensures design or safety analysis limits are not exceeded in the event of transients or accidents and accounts for uncertainties and environmental conditions.

TECHNICAL CHANGES - RELOCATIONS

None

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L5 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

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

   The proposed change will relax the current Required Actions for the Main Steam Isolation Valve Closure Function whenever an inoperable channel or trip system cannot be placed in trip within the required Completion Time. The current Actions require the rods to be inserted within 4 hours. The proposed change will require the plant to be brought to MODE 2 within 6 hours. The probability of an accident is not increased by this change because the change does not involve activities assumed to be initiators of any analyzed event. The consequences of an accident will not be increased because: the MSIV Closure Function is only required in MODE 1 when, with the MSIVs open and the heat generation rate high, a pressurization transient can occur if the MSIVs close. In MODE 2, the heat generation rate is low enough so that the other diverse RPS functions provide sufficient protection. Therefore, this change will not involve a significant increase in 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?

   This proposed change will not involve any physical changes to plant systems, structures, or components (SSC), or the manner in which these SSC are operated, maintained, modified, tested, or inspected. Therefore, this change will not create the possibility of a new or different kind of accident previously evaluated.

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

   The proposed change does not result in a significant reduction in the margin of safety because: the change does not involve changes to any plant hardware or plant operating procedures; the change in the proposed Required Actions does not involve activities assumed to be initiators of any analyzed event; placing the reactor in MODE 2 versus inserting all control rods is sufficient to ensure that the heat generation rate is

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L5 CHANGE

3. (continued)

low enough that the other diverse RPS functions provide adequate protection; and, the change will not allow continuous operation with plant conditions such that a single failure will preclude the scram function from being performed. In addition, the Completion Time of 6 hours to be in MODE 2 is acceptable due to the low probability of an event requiring this Function during the extended period. The 6 hour Completion Time also provides sufficient time to reach MODE 2 without challenging plant systems. Therefore, this change will not involve a significant reduction in a margin of safety.

ACTIONS (continued)

	CONDITION		REQUIRED ACTION	COMPLETION TIME
[T3.1-1 nt 1.b]	D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
[T3.1-1 nt 3.c]	E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1	Reduce THERMAL POWER to < [30]% RTP. 29 DB1	4 hours
[T3.1-1 nt 3.B] [L5] [7]	F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1	Be in MODE 2.	6 hours
[T3.1-1 nt 3.A]	G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1	Be in MODE 3.	12 hours
[L3]	H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

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Revision I

SURVEILLANCE REQUIREMENTS (continued)

		SURVEILLANCE	FREQUENCY
[T. 4.1-1]	SR 3.3.1.1.~~5~~ 4 CLB3 CLB2	Perform ~~CHANNEL FUNCTIONAL TEST~~. a functional test of each RPS automatic scram contactor	7 days
[M7]	SR 3.3.1.1.~~6~~ 5	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
[T 4.1-2] [M14]	SR 3.3.1.1.~~7~~ 6 CLB2	------------------NOTE------------------ Only required to be met during entry into MODE 2 from MODE 1. -- Verify the IRM and APRM channels overlap.	 7 days
[T. 4.1.2]	SR 3.3.1.1.~~8~~ 7 CLB2	Calibrate the local power range monitors.	1000 MWD/T average core exposure
[T. 4.1-1]	SR 3.3.1.1.~~9~~ 8 CLB2	Perform CHANNEL FUNCTIONAL TEST.	{92} days CLB4
[T 4.1-2, Note 6]	SR 3.3.1.1.10	Calibrate the trip units.	[92] 184 days CLB5

(continued)

Insert SR 3.3.1.1.9 from next page DB7

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
[Table 4.1-2] [A20] SR 3.3.1.1.~~10~~ 9	---NOTES--- 1. Neutron detectors are excluded. 2. For Function ~~2.a~~ 1.a and 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Function 2.b, the recirculation loop flow signal portion of the channel is excluded. --- Perform CHANNEL CALIBRATION.	move to prev. page DB7 ~~[184]~~ 92 days CLB2
[T. 4.1-1] SR 3.3.1.1.~~12~~ 11 DB7	Perform CHANNEL FUNCTIONAL TEST.	~~[18]~~ 24 months CLB6
[4.1-2] SR 3.3.1.1.~~13~~ 12 DB7	---NOTES--- DB7 ~~1. Neutron detectors are excluded.~~ ~~2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.~~ For Function 2.b, all portions of the channel except the recirculation loop flow signal portion are excluded. --- CLB2 Perform CHANNEL CALIBRATION.	DB7 ~~[18]~~ 24 months DB8
DB2 ~~SR 3.3.1.1.14~~	~~Verify the APRM Flow Biased Simulated Thermal Power—High time constant is ≤ [7] seconds.~~	~~[18] months~~
[M4] SR 3.3.1.1.~~15~~ 13 DB2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	~~[18]~~ 24 months X1

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(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
DB2 SR 3.3.1.1.~~16~~ 14	Verify Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, ~~Trip~~ EHC Oil Pressure—Low Functions are not bypassed when THERMAL POWER is ≥ [~~30~~ 29]% RTP. DB1	[~~18~~] 24 months X2 PA1
DB2 SR 3.3.1.1.~~17~~ 15	---NOTES--- 1. Neutron detectors are excluded. 2. For Function 5 "n" equals ~~4~~ 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. --- Verify the RPS RESPONSE TIME is within limits.	CLB10 [~~18~~] 24 months on a STAGGERED TEST BASIS

[M13]

[L1.1.A]
[MB]

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Revision I

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

PA2

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors PA3					
[2.1.A.1.a] [T. 3.3-1(3)] [T.4.1-1(4)] [T.4.1-2(1)] a. Neutron Flux – High	2	~~3~~ 3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.4	≤ 120/125 divisions of full scale DB9
	5(a)	~~3~~ CLB3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 120/125 divisions of full scale
[Table 3.3-1(4)] [T. 4.1-1(5)] b. Inop	2	~~3~~	G	SR 3.3.1.1.3 SR 3.3.1.1.13	NA
	5(a)	~~3~~	H	SR 3.3.1.1.3 SR 3.3.2.2.13	NA
2. Average Power Range Monitors PA1					
[2.1.A.1.b] [T. 3.3-1(5)] [T.4.1.2(4)] [T. 4.1-1(9)] [T.4.1-2(2)] a. Neutron Flux – High, ~~Setdown~~ (Startup)	2	~~2~~ CLB3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.4	≤ [illegible]% RTP 15 DB9
[T.4.1-2(3)] [T.4.1.2(4)] [2.1.A.1.c.(1)] [Table 3.3-1(6)] [T.4.1-1(8)] b. ~~Flow Biased Simulated Thermal Power – High~~ Neutron Flux - High (Flow Biased) DB2 [T3.1-1 Notes 12 & 13] [4.1.A.8]	1	~~2~~ DB3	F	SR 3.3.1.1.1 SR 3.3.1.1.2 ~~SR 3.3.1.1.~~ SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	~~≤ 0.58 W + 62% RTP and ≤ 115.5% RTP(b)~~ 117 As specified in the COLR DB9

(continued)

[T3.1-1 Note 7.D.] [LI]

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

~~(b) [0.58 W + 62% - 0.58 ΔW] RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."~~ DB9

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Revision I

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS (PA2)	ALLOWABLE VALUE
[T. 4.1-1(6)] [T. 3.3-1(7)] [2.1.A.1.c(2)] [4.1.A.7] [T.4.1-2(4)] 2. Average Power Range Monitors (continued)		(DB3)			(CLB2) (DB9)
c. ~~Fixed~~ Neutron Flux – High (PA1)	1	~~[2]~~	F (CLB3)	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.[illegible] 7 SR 3.3.1.1.[illegible] 9 SR 3.3.1.1.[illegible] 11 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 15 SR 3.3.1.1.4	≤ ~~[120]~~% RTP
~~d. Downscale~~ (CLB8)	~~1~~	~~[2]~~	~~F~~	~~SR 3.3.1.1.8~~ ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.15~~	~~≥ [3]% RTP~~
[T.4.1-1(7)] [T 3.3-1(8)] (d) ~~e.~~ Inop (CLB8) (PA1)	1,2	~~[2]~~	G	SR 3.3.1.1.[illegible] 7 SR 3.3.1.1.[illegible] 8 SR 3.3.1.1.[illegible] 11	NA
[2.2.1.A] [M6] [4.1.A.1] [T. 3.3-1(9)] [T.4.1-1(10)] [T.4.1-2(5)] 3. Reactor ~~Vessel Steam Dome~~ Pressure – High	1,2	~~[2]~~	G	SR 3.3.1.1.1 SR 3.3.1.1.[illegible] 8 SR 3.3.1.1.10 12 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 15	≤ ~~[1054]~~ 1080 psig (DB9)
[2.1.A.2] [4.1.A.3] [T.4.1-2(7)] [T. 3.3-1(11)] [T.4.1-1(12)] 4. Reactor Vessel Water Level – Low, Level 3	1,2	[2]	G	SR 3.3.1.1.1 8 SR 3.3.1.1.[illegible] SR 3.3.1.1.10 12 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 15	≥ ~~[10]~~ 177 inches (DB9)
[T.4.1-1(15)] [2.1.A.5] [4.1.A.4] [T. 3.3-1(13)] [T 4.1-2(10)] 5. Main Steam Isolation Valve – Closure	1	~~[15]~~ 8	F	SR 3.3.1.1.[illegible] 8 SR 3.3.1.1.[illegible] 11 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 15	≤ ~~[10]~~ 15% closed (DB9)
[4.1.A.2] [T. 3.3-1(10)] [T.4.1-1(6)] [T.4.1-2(6)] 6. Drywell Pressure – High	1,2	~~[2]~~ (DB3)	G	SR 3.3.1.1.1 SR 3.3.1.1.[illegible] 8 SR 3.3.1.1.10 12 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.[illegible] 13 SR 3.3.1.1.15 (CLB9)	≤ ~~[1.92]~~ 2.7 psig (DB9)

(continued)

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Revision I

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Scram Discharge Volume Water Level — High [T.3.3-1(12)] [T.4.1-1(14)] [T.4.1-2(9)]					
a. ~~Resistance Temperature Detector~~ Differential Pressure Transmitter / Trip unit	1,2	~~[2]~~	G	SR 3.3.1.1.1 SR 3.3.1.1.9 ~~SR 3.3.1.1.10~~ ~~SR 3.3.1.1.12~~ SR 3.3.1.1.13	≤ ~~[57.15]~~ 34.5 gallons
	5(a)	~~[2]~~	H	SR 3.3.1.1.1 ~~SR 3.3.1.1.9~~ ~~SR 3.3.1.1.10~~ ~~SR 3.3.1.1.12~~ SR 3.3.1.1.13 SR 3.3.1.1.4	≤ ~~[57.15]~~ gallons
b. ~~Float~~ Level Switch [T.4.1-2(8)] [T.3.3-1(12)] [T.4.1-1(13)]	1,2	[2]	G	SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ ~~[57.15]~~ 34.5 gallons
	5(a)	[2]	H	SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ ~~[57.15]~~ gallons
8. Turbine Stop Valve — Closure [T.4.1-1(17)+(18)] [T.4.1-2(11)+(13)] [T.3.3-1(15)] [2.1.A.3] [4.1.A.5] [L14]	≥ ~~[30]~~ 29% RTP	[4]	E	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ ~~[10]~~ 15% closed
9. Turbine Control Valve Fast Closure, ~~[Trip]~~ EHC Oil Pressure — Low [T.4.1-1(16)+(17)] [T.4.1-2(11)+12] [T.3.3-1(14)] [2.1.A.4] [4.1.A.6] [L14]	≥ ~~[30]~~ 29% RTP	[2]	E	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ ~~[600]~~ 500 psig and ≤ 850 psig
10. Reactor Mode Switch — Shutdown Position [T.3.3-1(1)] [T.4.1-1(1)]	1,2	~~[2]~~ 1	G	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
	5(a)	~~[2]~~ 1	H	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
11. Manual Scram [T.3.3-1(2)] [T.4.1-1(2)]	1,2	~~[2]~~ 1	G	SR 3.3.1.1.8 SR 3.3.1.1.13	NA
	5(a)	~~[2]~~ 1	H	SR 3.3.1.1.8 SR 3.3.1.1.13	NA

PA1 PA2 DB1 DB3 DB4 DB5 DB6 DB9 CLB3 Instrument

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

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Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.1.1 - REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION

<u>RETENTION OF EXISTING REQUIREMENT</u> (CLB)

CLB1 The brackets in SR 3.3.1.1.2 have been removed and the plant specific requirements included in accordance with CTS 4.1.B.

CLB2 ISTS SR 3.3.1.1.3, the requirement to adjust the channels to conform to a calibrated signal every 7 days has been deleted since this requirement is currently being performed along with the 92 day channel functional test. This adjustment will be performed in accordance with SR 3.3.1.1.8, the 92 day CHANNEL FUNCTIONAL TEST. This is reflected in the Bases of SR 3.3.1.1.8. Subsequent SRs have been renumbered, as applicable.

CTS 4.1.2 "Flow Biased Signal" requires an "internal power and flow test with standard pressure source" calibration on a "refueling interval," which has been translated into ITS SR 3.3.1.1.12. This calibration of the flow signal is at a frequency that is consistent with the current licensing basis. The Functional Test of the APRMs (ITS SR 3.3.1.1.8) is consistent with CTS Table 4.1-1, which ensures the APRM circuitry responds appropriately to this calibrated flow signal. As such, the proposed ITS adequately translates the current licensing basis for testing the APRM Flow Biased Function without adopting the ISTS SR 3.3.1.1.3. In addition, since ITS SR 3.3.1.1.9, the 92 day SR, also applies to the Neutron Flux–High (Flow Biased) Function, Notes have been added to ensure SR 3.3.1.1.12 only applies to the recirculation loop flow signal portion of the channel and SR 3.3.1.1.9 applies to the remaining portions of the channel.

CLB3 SR 3.3.1.1.4 has been revised in accordance with CTS Table 4.1-1 and Note 1. This functional test was added to allow surveillance test interval extensions of the automatic RPS Functions per NEDC-30851-P-A, Technical Specification Improvement Analyses for BWR Reactor Protection System, since the JAFNPP design is different than the generic BWR model used in NEDC-30851-P-A. Therefore, it is associated with each automatic RPS Function in Table 3.3.1.1-1.

CLB4 The brackets have been removed for the Frequency of ISTS SR 3.3.1.1.9 (ITS SR 3.3.1.1.8) and the 92 day Frequency retained consistent with CTS Table 4.1-1 and with the reliability analysis of NEDC-30851-P-A.

CLB5 SR 3.3.1.1.10 Surveillance Frequency has been modified to be consistent with the frequency in CTS Table 4.1-2 Note 6 and approved in JAFNPP Technical Specification Amendment No. 89.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB6 The brackets have been removed from the CHANNEL FUNCTIONAL TEST Frequency in ITS SR 3.3.1.1.11 and extended from 18 months to 24 months consistent with the Channel Functional Test frequencies of CTS Table 4.1-1. The Frequency is consistent with the JAFNPP fuel cycle. I

CLB7 Not Used.

CLB8 Table 3.3.1.1-1 Function 2.d has been deleted, since the Downscale trip has been removed from the CTS as documented in JAFNPP License Amendment 227. The following Function has been renumbered as required.

CLB9 Table 3.3.1.1-1 Function 6, SR 3.3.1.1.16 RPS Response Time Surveillance requirements have been added consistent with CTS 4.1.A.2.

CLB10 Note 3 of ITS SR 3.3.1.1.15 has been changed to ensure that all channels are tested within two surveillance intervals consistent with the current licensing basis. In addition, the bracketed SR Frequency has been changed from 18 to 24 months consistent with the current Frequency in CTS 4.1.A. I

CLB11 Not used. I

CLB12 The Allowable Value for Function 2.b, APRM Neutron Flux—High (Flow Biased) is specified in the COLR.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 The Specification has been modified to reflect plant specific nomenclature.

PA2 The SRs associated with each Function in Table 3.3.1.1-1 have been renumbered as required, consistent with changes to the ITS 3.3.1.1 SURVEILLANCE REQUIREMENTS Table. Any specific change not reflected in the SURVEILLANCE REQUIREMENTS Table is identified with a specific JFD.

PA3 Editorial correction made to be consistent with the format requirements of the ISTS.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The brackets have been removed and the proper plant specific THERMAL POWER level has been included consistent with the analysis assumptions.

DB2 ISTS SR 3.3.1.1.14 has been deleted because the JAFNPP RPS design does not include the APRM Flow Biased Simulated Thermal Power-High Function (time constant). Subsequent SRs have been renumbered, where applicable. In addition, Function 2.b has been renamed accordingly.

DB3 The brackets have been removed and the proper number of channels included for each Function in Table 3.3.1.1-1. The values are consistent with the current requirements in CTS Table 3.1-1 except for Functions 7.a, 7.b and 5. The number of channels for Functions 7.a, 7.b and 5 have been changed consistent with the plant design and justified in M2 and M3.

DB4 The plant specific device has been included for Function 7.a consistent with the current design.

DB5 For Function 7.a, ITS SR 3.3.1.1.10, the calibration of the trip unit, and ITS SR 3.3.1.1.12, the CHANNEL CALIBRATION test every 18 months, has been deleted since this Function is calibrated in accordance with ITS SR 3.3.1.1.9 every 92 days. Since this calibration includes the entire channel this specific requirement to calibrate the trip units, is not necessary. The 92 day CHANNEL CALIBRATION Frequency is consistent with the methodology for the setpoint calculation of this Function. I

DB6 SR 3.3.1.1.1 has been included in Table 3.3.1.1-1 for Functions 8 and 9, to verify the turbine first stage pressure signal consistent with CTS Table 4.1-1.

DB7 ITS SR 3.3.1.1.9 has been added to perform a CHANNEL CALIBRATION every 92 days for Function 7.a (Scram Discharge Instrument Volume Water Level – High, Differential Pressure Transmitter/Trip Unit) consistent with CTS Table 4.1-2. The Frequency is consistent with the setpoint calculation methodology for this Function. In addition, the Frequency for ISTS SR 3.3.1.1.11, the 184 day CHANNEL CALIBRATION requirement for the APRM Functions, has been changed to 92 days (ITS SR 3.3.1.1.9), consistent with the CTS. Also, the IRMs are currently required to be tested every 92 days. Therefore, the Note to ISTS SR 3.3.1.1.13 has been incorporated into ITS SR 3.3.1.1.9, the 92 day CHANNEL CALIBRATION requirement. I

DB8 The brackets have been removed from the Surveillance Frequency in ITS SR 3.3.1.1.12 (CHANNEL CALIBRATION) and extended from 18 months to 24 months consistent with the frequencies in CTS Table 4.1-2 and as I

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB8 (continued)

justified in M9 for the IRM High Flux channels. The Frequency is consistent with the setpoint calculation methodology for the associated Functions.

DB9 The brackets have been removed and the proper plant specific "Allowable Value" has been included consistent with the current value in CTS Table 3.1-1, and the JAFNPP plant specific setpoints methodology. Footnote b of ITS Table 3.3.1.1-1 has been deleted since the Flow Biased Setpoint is included in the COLR.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 332, Revision 1 have been incorporated into the revised Improved Technical Specifications.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 The brackets have been removed from the Frequency in ITS SR 3.3.1.1.13 (the LOGIC SYSTEM FUNCTIONAL TEST) and the 18 month surveillance extended to 24 months as justified in M4. This Frequency is consistent with the JAFNPP fuel cycle. I

X2 The brackets have been removed from the Frequency in ITS SR 3.3.1.1.14 (the verification bypass feature) and the 18 month surveillance extended to 24 months as justified in M13. This Frequency is consistent with the JAFNPP fuel cycle. I

TA4

INSERT BKGD-2

Technical Specifications are required by 10 CFR 50.36 to contain LSSS defined by the regulation as "...settings for automatic protective devices...so chosen that automatic protective action will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytic Limit is the limit of the process variable at which a safety action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytic Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protective devices must be chosen to be more conservative than the Analytic Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur.

The Trip Setpoint is a predetermined setting for a protective device chosen to ensure automatic actuation prior to the process variable reaching the Analytic Limit and thus ensuring the SL would not be exceeded. As such, the Trip Setpoint accounts for uncertainties in setting the device (e.g., calibration), uncertainties in how the device might actually perform (e.g., repeatability), changes in the point of action of the device over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the Trip Setpoint plays an important role in ensuring that SLs are not exceeded. As such, the Trip Setpoint meets the definition of an LSSS ~~(Ref. 12)~~ and could be used to meet the requirement that they be contained in the Technical Specifications. I PA3

Technical Specifications contain values related to the OPERABILITY of equipment required for the safe operation of the facility. Operable is defined in Technical Specifications as "...being capable of performing its safety function(s)." For automatic protective devices, the required safety function is to ensure that a SL is not exceeded and therefore the LSSS as defined by 10 CFR 50.36 is the same as the OPERABILITY limit for those devices. However, use of the Trip Setpoint to define OPERABILITY in Technical Specifications and its corresponding designation as the LSSS required by 10 CFR 50.36 would be an overly restrictive requirement if it were applied as an OPERABILITY limit for the "as found" value of a protective device setting during a surveillance. This would result in Technical Specification compliance problems, as well as reports and corrective actions required by the rule which are not necessary to ensure safety. For example, an automatic protective device with a setting that has been found to be different from the Trip Setpoint due to some drift of the setting may still be OPERABLE since drift is to be expected. This expected drift would have been specifically accounted for in the setpoint methodology for calculating the Trip Setpoint and thus the automatic protective action would still have ensured that the SL would not be exceeded with the "as found" setting of the protective device. Therefore, the device would still be OPERABLE since it would have performed its safety function and the only corrective action required would be to reset the device to the Trip Setpoint to account for further drift during the next surveillance interval.

DB5

INSERT ASA

The trip setpoints are derived from the analytic limits and account for all worst case instrumentation uncertainties as appropriate (e.g., drift, process effects, calibration uncertainties, and severe environmental errors (for channels that must function in harsh environments as defined by 10 CFR 50.49)). The trip setpoints derived in this manner provide adequate protection because all expected uncertainties are accounted for. The Allowable Values are then derived from the trip setpoints by accounting for normal effects that would be seen during periodic surveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties). 1 I

PA1

(Startup)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.a. Average Power Range Monitor Neutron Flux—High, ~~Setdown~~ (continued) (Fixed) PA1

In MODE 1, the Average Power Range Monitor Neutron Flux—High Function provides protection against reactivity transients and the RWM and rod block monitor protect against control rod withdrawal error events.

The APRM Neutron Flux—High (Startup) Function bypassed when the reactor mode switch is in the run position. DB1

PA1 DB3 PA1

2.b. Average Power Range Monitor (Flow Biased) ~~Simulated Thermal Power—High~~ Neutron Flux-High

The Average Power Range Monitor (Flow Biased) ~~Simulated Thermal Power—High~~ Function monitors neutron flux ~~to~~ and approximates the THERMAL POWER being transferred to the reactor coolant. The APRM neutron flux is electronically filtered with a time constant representative of the fuel heat transfer dynamics to generate a signal proportional to the THERMAL POWER in the reactor. The trip level is varied as a function of recirculation drive flow (i.e., at lower core flows, the setpoint is reduced proportional to the reduction in power experienced as core flow is reduced with a fixed control rod pattern) but is clamped at an upper limit that is ~~always~~ lower than the Average Power Range Monitor (Fixed) Neutron Flux—High Function Allowable Value. The Average Power Range Monitor (Flow Biased) ~~Simulated Thermal Power—High~~ Function provides protection against transients where THERMAL POWER increases slowly (such as the loss of feedwater heating event) and protects the fuel cladding integrity by ensuring that the MCPR SL is not exceeded. During these events, the THERMAL POWER increase does not significantly lag the neutron flux response and, because of a lower trip setpoint, will initiate a scram before the high neutron flux scram. For rapid neutron flux increase events, the THERMAL POWER lags the neutron flux and the Average Power Range Monitor Fixed Neutron Flux—High Function will provide a scram signal before the Average Power Range Monitor Flow Biased Simulated Thermal Power—High Function setpoint is exceeded.

I

DB3 PA2 , Function 2.c PA1 DB3

DB3 Insert Function 2.b-1

The APRM System is divided into two groups of channels with ~~four~~ three APRM channels providing inputs to each trip system. The system is designed to allow one channel in each trip system to be bypassed. Any one APRM channel in a trip system can cause the associated trip system to trip. Four channels of

DB1

(continued)

Revision I

DB3

INSERT . FUNCTION 2.b-1

however, no credit is taken for this Function in the safety analyses except in the case of the thermal-hydraulic instability analysis. This protection is primarily achieved by the clamped portion of the Allowable Value. The APRM Neutron Flux - High (Flow Biased) Function will suppress power oscillations prior to exceeding the fuel safety limit (MCPR) caused by thermal hydraulic instability. As described in References 5 and 6, this protection is provided at a high statistical confidence level for core-wide mode oscillations and at a nominal statistical confidence level for regional mode oscillations. References 5 and 6 also show that the core-wide mode of oscillation is more likely to occur due to the large single-phase channel pressure drop associated with the small fuel inlet orifice diameters. This protection for power oscillations is achieved by that portion of the Allowable Value which varies as a function of the recirculation drive flow. I

CLB5

BASES

5 6

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.6 and SR 3.3.1.1.7 (continued)

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

SR 3.3.1.1.8 7 CLB5

LPRM gain settings are determined from the local flux profiles measured by the Traversing Incore Probe (TIP) System. This establishes the relative local flux profile for appropriate representative input to the APRM System. The 1000 MWD/T Frequency is based on operating experience with LPRM sensitivity changes.

I CLB6 INSERT SR 3.3.1.1.8

TA2 CLB5 8 CLB5 11 DB9

SR 3.3.1.1.9 and SR 3.3.1.1.10

Insert SR 3.3.1.1.8a

Insert from pages B 3.3-26 and B.3.3-27

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the ~~entire~~ channel will perform the intended function. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. The 92 day Frequency of SR 3.3.1.1.9 8 is based on the reliability analysis of Reference 9. 18 DB7 of SR 3.3.1.1.11 PA2

I

24 CLB7

The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

24 CLB7

Insert from Page B3.3-30

DB9

SR 3.3.1.1.10

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

(continued)

Revision I

PA2

BASES

Insert SR 3.3.1.1.10

DB9

Move to Pg. B.3.3-29 as indicated

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.10 (continued)

readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology.

CLB8 CLB8

The Frequency of ~~92~~ 184 days is based on the reliability ~~analysis of Reference 9~~, accuracy and lower failure rates of the solid-state electronic Analog Transmitter/Trip System components

I

DB9 SR 3.3.1.1.~~11~~ 9 and SR 3.3.1.1.~~13~~ 12

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

I

INSERT SR 3.3.1.1-12-1

CLB6 PA2

SR 3.3.1.1.9 has been modified by three Notes.

PA2

Note 1 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration (SR 3.3.1.1.2) and the 1000 MWD/T LPRM calibration against the TIPs (SR 3.3.1.1.~~8~~ 7). A second Note is provided that requires the APRM and IRM SRs to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 APRM and IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

CLB5

CLB9

I

INSERT SR 3.3.1.1-12-2

DB9

INSERT SR 3.3.1.1.9

~~The Frequency of SR 3.3.1.1.11 is based upon the assumption of a 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.~~

I

The Frequency of SR 3.3.1.1.~~13~~ 12 is based upon the assumption of an ~~18~~ 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

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DB8 DB9

(continued)

Revision I

PA2

INSERT SR 3.3.1.1.10

For Functions 8 and 9, this SR is associated with the enabling circuit sensing first stage turbine pressure.

PA2 CLB6

INSERT SR 3.3.1.1.12-1

Physical inspection of the position switches is performed in conjunction with SR 3.3.1.1.12 for Function 5 and 8 to ensure that the switches are not corroded or otherwise degraded. For Function 7.b, the CHANNEL CALIBRATION must be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected. For Functions 8 and 9, SR 3.3.1.1.12 is associated with the enabling circuit sensing first stage turbine pressure as well as the trip function.

CLB9

INSERT SR 3.3.1.1.12-2

Note 3 to SR 3.3.1.1.9 and the Note to SR 3.3.1.1.12 concerns the Neutron Flux – High (Flow Biased) Function (Function 2). Note 3 to SR 3.3.1.1.9 excludes the recirculation loop flow signal portion of the channel, since this portion of the channel is calibrated by SR 3.3.1.1.12. Similarly, the Note to SR 3.3.1.1.12 excludes all portions of the channel except the recirculation loop flow signal portion, since they are covered by SR 3.3.1.1.9.

Reactor Pressure – High and Reactor Vessel Water Level – Low (Level 3) Function sensors (Functions 3 and 4, respectively) are excluded from the RPS RESPONSE TIME testing (Ref. 19). However, prior to the CHANNEL CALIBRATION of these sensors a response check must be performed to ensure adequate response. This testing is required by Reference 20. Personnel involved in this testing must have been trained in response to Reference 21 to ensure they are aware of the consequences of instrument response time degradation. This response check must be performed by placing a fast ramp or a step change into the input of each required sensor. The personnel, must monitor the input and output of the associated sensor so that simultaneous monitoring and verification may be accomplished.

DB9

INSERT SR 3.3.1.1.9

The Frequency of SR 3.3.1.1.9 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.14

DB3

~~The Average Power Range Monitor Flow Biased Simulated Thermal Power—High Function uses an electronic filter circuit to generate a signal proportional to the core THERMAL POWER from the APRM neutron flux signal. This filter circuit is representative of the fuel heat transfer dynamics that produce the relationship between the neutron flux and the core THERMAL POWER. The Surveillance filter time constant must be verified to be ≤ 7 seconds to ensure that the channel is accurately reflecting the desired parameter.~~

~~The Frequency of 18 months is based on engineering judgment considering the reliability of the components.~~

SR 3.3.1.1.~~15~~ 13 DB3

I

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

24 X2

The ~~18~~ 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the ~~18~~ 24 month Frequency. X2

I

SR 3.3.1.1.~~16~~ 14 DB3

PA1

DB7 29

This SR ensures that scrams initiated from the Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, ~~Trip~~ EHC Oil Pressure—Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ ~~30~~ 29% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine

(continued)

Revision I

BASES

DB3

1A

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.~~16~~ (continued) during an inservice calibration

1 I

bypass valves must remain closed at THERMAL POWER ≥ ~~30%~~ RTP to ensure that the calibration ~~remains~~ is valid. 29

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ ~~30%~~ RTP, either due to open main turbine bypass valve(s) or other reasons), then the affected Turbine Stop Valve—Closure and Turbine Control Valve Fast Closure, ~~Trip~~ EHC Oil Pressure—Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If placed in the nonbypass condition, this SR is met and the channel is considered OPERABLE.

The Frequency of ~~18~~ 24 months is based on engineering judgment and reliability of the components. X2

1 I

SR 3.3.1.1.~~17~~ 15 DB3

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. This test may be performed in one measurement or in overlapping segments, with verification that all components are tested. TA1 The RPS RESPONSE TIME acceptance criteria are included in Reference ~~10~~ 22. X1 DB3

PA2

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

CLB3

INSERT SR 3.3.1.1.15-1

TA1 DB6

CLB4 I

RPS RESPONSE TIME tests are conducted on an ~~18~~ 24 month STAGGERED TEST BASIS. Note ~~2~~ requires STAGGERED TEST BASIS Frequency to be determined based on 4 channels per trip system, in lieu of the 8 channels specified in Table 3.3.1.1-1 for the MSIV Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. The ~~18~~ 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

CLB3 3 2 CLB4

CLB4

INSERT SR 3.3.1.1.15-2

CLB4

I

(continued)

Revision I

TA1 CLB3

INSERT SR 3.3.1.1.15-1

19 DB6

1 I

RPS RESPONSE TIME may be verified by acutal response time measurements in any series of sequential, overlapping, or total channel measurements. However, the sensors for Functions 3 and 4 are allowed to be excluded from specific RPS RESPONSE TIME measurement if the conditions of Reference 11 are satisfied. If these conditions are satisfied, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design reponse time. When the requirements of Reference 11 are not satisfied, sensor response time must be measured. Furthermore, measurement of the instrument loops response times for Functions 3 and 4 is not required if the conditions of Reference 12 are satisfied.

CLB4

INSERT SR 3.3.1.1.15-2

1 I

This ensures all required channels are tested during two Surveillance Frequency intervals. For Functions 2.b, 2.c, 3, 4, 6, and 9, two channels must be tested during each test interval; while for Functions 5 and 8, eight and four channels must be tested, respectively.

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 Function 2.d has been deleted. The Downscale trip has been removed from the CTS as documented in License Amendment 227. The following Functions have been renumbered as required.

CLB2 SR 3.3.1.1.4 has been added (a functional test of each RPS automatic scram contactor) consistent with current requirements. This Surveillance was added to allow the Surveillance Frequency extensions of the automatic RPS Functions per NEDC-30851-P-A, Technical Specification Improvement Analyses for BWR Reactor Protection System, since the JAFNPP design is different than the generic BWR model used in NEDC-30851-P-A. Therefore, the Bases description in ISTS SR 3.3.1.1.5 of the CHANNEL FUNCTIONAL TEST of the manual scram function has been deleted and replaced with the description of the RPS channel test switches.

CLB3 Consistent with CTS 4.1.A, the measurement of the sensor during response time testing is not required. Appropriate Bases as well as references have been included consistent with TSTF 322 R1.

CLB4 The Bases of ITS SR 3.3.1.1.15 has been modified, to require RPS RESPONSE TIME TESTING consistent with the current licensing basis, and as modified in M8. I

CLB5 ISTS SR 3.3.1.1.3, the requirement to adjust the channels to conform to a calibrated signal every 7 days has been deleted since this requirement is currently being performed along with the 92 day channel functional test. This adjustment will be performed in accordance with SR 3.3.1.1.8, the 92 day CHANNEL FUNCTIONAL TEST. This is reflected in the Bases of SR 3.3.1.1.8. Subsequent SRs have been renumbered, as applicable. In addition, the recirculation loop flow signal portion of Function 2.b is calibrated by SR 3.3.1.1.12. Thus, Notes have been added to SR 3.3.1.1.9 and SR 3.3.1.1.12 for clarity. I

CLB6 These requirements have been added in accordance with CTS Table 4.1-1 Note 6 and Table 4.1-2 Note 5, as documented in LA11.

CLB7 The Channel Functional Test Frequency of SR 3.3.1.1.11 has been increased from 18 months to 24 months in accordance with CTS Table 4.1-1. The Frequency is consistent with the JAFNPP fuel cycle. I

CLB8 SR 3.3.1.1.10 Surveillance Frequency has been modified to be consistent with the frequency in CTS Table 4.1-1 Note 6 and approved in License Amendment No. 89.

CLB9 The specific details concerning response checks have been added to the Bases of SR 3.3.1.1.12 in accordance with License Amendment No. 235. I

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB5 The description of the setpoint calculation methodology has been revised to reflect the plant specific methodology.

DB6 The Bases has been revised to reflect the appropriate references.

DB7 The Bases has been revised to reflect the safety analysis. At low powers (e.g., < 29% RTP) the scram from the TSV and TCV is not required; however, the turbine generator can remain online (and trip with resultant pressure transient) below this power level. The TSV and TCV Fast Closure (turbine trip or main generator trip) provide a direct reactor scram when ≥ 29% RTP. When < 29% RTP, a turbine or main generator trip will not result in a direct scram, but should the pressure transient reach the setpoint for the Reactor High Pressure trip, a scram would occur (i.e., is credited to occur from the Reactor High Pressure trip). Since turbine operation below 29% RTP includes MODE 1 and MODE 2, the necessary applicability of the Reactor High Pressure trip is consistent with specifying MODE 1 and 2. References have been included as applicable. Subsequent references have been renumbered as required.

DB8 The Bases has been revised to reflect the setpoint calculation methodology assumptions.

DB9 SR 3.3.1.1.9 has been added to perform a CHANNEL CALIBRATION every 92 days for Function 7.a (Scram Discharge Instrument Volume Water Level — High, Differential Pressure Transmitter/Trip Unit) consistent with CTS Table 4.1-2. The Frequency is consistent with the setpoint calculation methodology for this Function. In addition, the Frequency for ISTS SR 3.3.1.1.11, the 184 day CHANNEL CALIBRATION requirement for the APRM Functions, has been changed to 92 days (ITS SR 3.3.1.1.9), consistent with the CTS. The Bases description has been reordered and renumbered as required. I

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 332, Revision 1 have been incorporated into the revised Improved Technical Specifications. However, NEDO-32291-A, Supplement 1 has not yet been adopted by JAFNPP. Therefore, this portion of the TSTF has not been incorporated.

TA2 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 205, Revision 3 have been incorporated into the revised Improved Technical Specifications.

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.1.1 - REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA3 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 231, Revision 1 have been incorporated into the revised Improved Technical Specifications.

TA4 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 355, Revision 0, as modified by WOG-ED-25, have been incorporated into the revised Improved Technical Specifications.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases reference to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995. Subsequent References have been renumbered, as applicable.

X2 The SR 3.3.1.1.13 and SR 3.3.1.1.14 Frequencies have been modified from 18 months to 24 months consistent with the JAFNPP fuel cycle. I

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more Functions with RPS trip capability not maintained.	C.1	Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1	Reduce THERMAL POWER to < 29% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1	Be in MODE 2.	6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1	Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

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SURVEILLANCE REQUIREMENTS

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

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

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

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.1.2	-----------------NOTE----------------- Not required to be performed until 12 hours after THERMAL POWER ≥ 25% RTP. -------------------------------------- Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is ≤ 2% RTP plus any gain adjustment required by LCO 3.2.4, "Average Power Range Monitor (APRM) Gain and Setpoint" while operating at ≥ 25% RTP.	7 days
SR 3.3.1.1.3	-----------------NOTE----------------- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	7 days
SR 3.3.1.1.4	Perform a functional test of each RPS automatic scram contactor.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.5	Verify the source range monitor (SRM) and intermediate range monitor (IRM) channels overlap.	Prior to withdrawing SRMs from the fully inserted position
SR 3.3.1.1.6	------------------NOTE------------------ Only required to be met during entry into MODE 2 from MODE 1. --- Verify the IRM and APRM channels overlap.	7 days
SR 3.3.1.1.7	Calibrate the local power range monitors.	1000 MWD/T average core exposure
SR 3.3.1.1.8	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.1.1.9	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. For Functions 1.a and 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. 3. For Function 2.b, the recirculation loop flow signal portion of the channel is excluded. --- Perform CHANNEL CALIBRATION.	92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Calibrate the trip units.	184 days
SR 3.3.1.1.11	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.1.1.12	-----NOTE----- For Function 2.b, all portions of the channel except the recirculation loop flow signal portion are excluded. ---------- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.1.13	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.1.1.14	Verify Turbine Stop Valve–Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure–Low Functions are not bypassed when THERMAL POWER is ≥ 29% RTP.	24 months
SR 3.3.1.1.15	-----NOTES----- 1. Neutron detectors are excluded. 2. "n" equals 2 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. ---------- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux – High	2	3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 120/125 divisions of full scale
	5(a)	3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 120/125 divisions of full scale
b. Inop	2	3	G	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
	5(a)	3	H	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
2. Average Power Range Monitors					
a. Neutron Flux – High, (Startup)	2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 15% RTP
b. Neutron Flux-High (Flow Biased)	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	As specified in the COLR and ≤ 117% RTP

(continued)

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

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Neutron Flux – High (Fixed)	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 120% RTP
d. Inop	1,2	2	G	SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.13	NA
3. Reactor Pressure – High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1080 psig
4. Reactor Vessel Water Level – Low (Level 3)	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≥ 177 inches
5. Main Steam Isolation Valve – Closure	1	8	F	SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 15% closed
6. Drywell Pressure – High	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 2.7 psig

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Scram Discharge Instrument Volume Water Level – High					
a. Differential Pressure Transmitter/Trip Unit	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 34.5 gallons
	5(a)	2	H	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.13	≤ 34.5 gallons
b. Level Switch	1,2	2	G	SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 34.5 gallons
	5(a)	2	H	SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 34.5 gallons
8. Turbine Stop Valve – Closure	≥ 29% RTP	4	E	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 15% closed
9. Turbine Control Valve Fast Closure, EHC Oil Pressure – Low	≥ 29% RTP	2	E	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 500 psig and ≤ 850 psig
10. Reactor Mode Switch – Shutdown Position	1,2	1	G	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
	5(a)	1	H	SR 3.3.1.1.11 SR 3.3.1.1.13	NA
11. Manual Scram	1,2	1	G	SR 3.3.1.1.8 SR 3.3.1.1.13	NA
	5(a)	1	H	SR 3.3.1.1.8 SR 3.3.1.1.13	NA

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

B 3.3 INSTRUMENTATION

B 3.3.1.1 Reactor Protection System (RPS) Instrumentation

BASES

BACKGROUND

The RPS initiates a reactor scram when one or more monitored parameters exceed their specified limits, to preserve the integrity of the fuel cladding and the reactor coolant pressure boundary (RCPB) and minimize the energy that must be absorbed following a loss of coolant accident (LOCA). This can be accomplished either automatically or manually.

The protection and monitoring functions of the RPS have been designed to ensure safe operation of the reactor. This is achieved by specifying limiting safety system settings (LSSS) in terms of parameters directly monitored by the RPS, as well as LCOs on other reactor system parameters and equipment performance.

Technical Specifications are required by 10 CFR 50.36 to contain LSSS defined by the regulation as "...settings for automatic protective devices...so chosen that automatic protective action will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytic Limit is the limit of the process variable at which a safety action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytic Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protective devices must be chosen to be more conservative than the Analytic Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur.

The Trip Setpoint is a predetermined setting for a protective device chosen to ensure automatic actuation prior to the process variable reaching the Analytic Limit and thus ensuring the SL would not be exceeded. As such, the Trip Setpoint accounts for uncertainties in setting the device (e.g., calibration), uncertainties in how the device might actually perform (e.g., repeatability), changes in the point of action of the device over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident

(continued)

BASES

APPLICABLE SAFETY ANALYSES LCO, and APPLICABILITY (continued)

vessel water level), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis or other appropriate documents. The trip setpoints are derived from the analytic limits and account for all worst case instrumentation uncertainties as appropriate (e.g., drift, process effects, calibration uncertainties, and severe environmental errors (for channels that must function in harsh environments as defined by 10 CFR 50.49)). The trip setpoints derived in this manner provide adequate protection because all expected uncertainties are accounted for. The Allowable Values are then derived from the trip setpoints by accounting for normal effects that would be seen during periodic surveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties). I

The OPERABILITY of scram pilot valves and associated solenoids, backup scram valves, and SDV valves, described in the Background section, are not addressed by this LCO.

The individual Functions are required to be OPERABLE in the MODES or other conditions specified in the table, which may require an RPS trip to mitigate the consequences of a design basis accident or transient. To ensure a reliable scram function, a combination of Functions are required in each MODE to provide primary and diverse initiation signals.

The only MODES specified in Table 3.3.1.1-1 are MODES 1 and 2 and MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies. No RPS Function is required in MODES 3 and 4, since all control rods are fully inserted and the Reactor Mode Switch Shutdown Position control rod withdrawal block (LCO 3.3.2.1) does not allow any control rod to be withdrawn. In MODE 5, control rods withdrawn from a core cell containing no fuel assemblies do not affect the reactivity of the core and, therefore, are not required to have the capability to scram. Provided all other control rods remain inserted, no RPS function is required. In this condition, the required SDM (LCO 3.1.1) and refuel position one-rod-out interlock (LCO 3.9.2) ensure that no event requiring RPS will occur.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.a. Average Power Range Monitor Neutron Flux-High (Startup) (continued)

levels at which the LPRMs are located.

The Allowable Value is based on preventing significant increases in power when THERMAL POWER is < 25% RTP.

The Average Power Range Monitor Neutron Flux-High (Startup) Function must be OPERABLE during MODE 2 when control rods may be withdrawn since the potential for criticality exists.

In MODE 1, the Average Power Range Monitor Neutron Flux-High (Fixed) Function provides protection against reactivity transients and the RWM and rod block monitor protect against control rod withdrawal error events. The APRM Neutron Flux-High (Startup) Function is bypassed when the reactor mode switch is in the run position.

2.b. Average Power Range Monitor Neutron Flux-High (Flow Biased)

The Average Power Range Monitor Neutron Flux-High (Flow Biased) Function monitors neutron flux and approximates the THERMAL POWER being transferred to the reactor coolant. The APRM neutron flux trip level is varied as a function of recirculation drive flow but is clamped at an upper limit that is lower than the Average Power Range Monitor Neutron Flux-High (Fixed) Function, Function 2.c, Allowable Value. The Average Power Range Monitor Neutron Flux-High (Flow Biased) Function provides protection against transients where THERMAL POWER increases slowly (such as the loss of feedwater heating event), however, no credit is taken for this Function in the safety analyses except in the case of the thermal-hydraulic instability analysis. This protection is primarily achieved by the clamped portion of the Allowable Value. The APRM Neutron Flux-High (Flow Biased) Function will suppress power oscillations prior to exceeding the fuel safety limit (MCPR) caused by thermal hydraulic instability. As described in References 5 and 6, this protection is provided at a high statistical confidence level for core-wide mode oscillations and at a nominal statistical confidence level for regional mode oscillations. References 5 and 6 also show that the core-wide mode

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.7 (continued)

System. This establishes the relative local flux profile for appropriate representative input to the APRM System. The 1000 MWD/T Frequency is based on operating experience with LPRM sensitivity changes.

SR 3.3.1.1.8 and SR 3.3.1.1.11

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contacts(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with the applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. For Function 2.b, the CHANNEL FUNCTIONAL TEST includes the adjustment of the APRM channel to conform to the calibrated flow signal. This ensures that the total loop drive flow signals from the flow units used to vary the setpoint is appropriately compared to a valid core flow signal to verify the flow signal trip setpoint and, therefore, the APRM Function accurately reflects the required setpoint as a function of flow. If the flow unit signal is not within the appropriate flow limit, one required APRM that receives an input from the inoperable flow unit must be declared inoperable. For Function 7.b, the CHANNEL FUNCTIONAL Test must be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected.

The 92 day Frequency of SR 3.3.1.1.8 is based on the reliability analysis of Reference 18.

The 24 month Frequency of SR 3.3.1.1.11 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.8 and SR 3.3.1.1.11 (continued)

reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency.

SR 3.3.1.1.9 and SR 3.3.1.1.12

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. Physical inspection of the position switches is performed inconjunction with SR 3.3.1.1.12 for Functions 5 and 8 to ensure that the switches are not corroded or otherwise degraded. For Function 7.b, the CHANNEL CALIBRATION must be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected. For Functions 8 and 9, SR 3.3.1.1.12 is associated with the enabling circuit sensing first stage turbine pressure as well as the trip function.

SR 3.3.1.1.9 has been modified by three Notes. Note 1 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration (SR 3.3.1.1.2) and the 1000 MWD/T LPRM calibration against the TIPs (SR 3.3.1.1.7). A second Note is provided that requires the APRM and IRM SRs to be performed within 12 hours of entering MODE 2 from MODE 1. Testing of the MODE 2 APRM and IRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This Note allows entry into MODE 2 from MODE 1 if the associated Frequency is not met per SR 3.0.2. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR. Note 3 to SR 3.3.1.1.9 and the Note to SR 3.3.1.1.12 concerns the Neutron Flux—High (Flow Biased) Function (Function 2). Note 3 to SR 3.3.1.1.9 excludes the recirculation loop flow signal portion of the channel, since

(continued)

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SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.9 and SR 3.3.1.1.12 (continued)

this portion of the channel is calibrated by SR 3.3.1.1.12. Similarly, the Note to SR 3.3.1.1.12 excludes all portions of the channel except the recirculation loop flow signal portion, since they are covered by SR 3.3.1.1.9.

Reactor Pressure - High and Reactor Vessel Water Level - Low (Level 3) Function sensors (Functions 3 and 4, respectively) are excluded from the RPS RESPONSE TIME testing (Ref. 19). However, prior to the CHANNEL CALIBRATION of these sensors a response check must be performed to ensure adequate response. This testing is required by Reference 20. Personnel involved in this testing must have been trained in response to Reference 21 to ensure they are aware of the consequences of instrument response time degradation. This response check must be performed by placing a fast ramp or a step change into the input of each required sensor. The personnel, must monitor the input and output of the associated sensor so that simultaneous monitoring and verification may be accomplished.

The Frequency of SR 3.3.1.1.9 is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. The Frequency of SR 3.3.1.1.12 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.1.1.10

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.1.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology. For Functions 8 and 9, this SR is associated with the enabling circuit sensory first stage turbine pressure.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.10 (continued)

The Frequency of 184 days is based on the reliability, accuracy, and lower failure rates of the solid-state electronic Analog Transmitter/Trip System components.

SR 3.3.1.1.13 | I

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

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

SR 3.3.1.1.14 | I

This SR ensures that scrams initiated from the Turbine Stop Valve-Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure-Low Functions will not be inadvertently bypassed when THERMAL POWER is ≥ 29% RTP. This involves calibration of the bypass channels. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. Because main turbine bypass flow can affect this setpoint nonconservatively (THERMAL POWER is derived from turbine first stage pressure), the main turbine bypass valves must remain closed during an inservice calibration at THERMAL POWER ≥ 29% RTP to ensure that the calibration is valid.

If any bypass channel's setpoint is nonconservative (i.e., the Functions are bypassed at ≥ 29% RTP, either due to open main turbine bypass valve(s) or other reasons), then the affected Turbine Stop Valve-Closure and Turbine Control Valve Fast Closure, EHC Oil Pressure-Low Functions are considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (nonbypass). If

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.14 (continued)

placed in the nonbypass condition, this SR is met and the channel is considered OPERABLE.

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

SR 3.3.1.1.15

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The RPS RESPONSE TIME acceptance criteria are included in Reference 22.

RPS RESPONSE TIME may be verified by actual response time measurements in any series of sequential, overlapping, or total channel measurements. However, the sensors for Functions 3 and 4 are allowed to be excluded from specific RPS RESPONSE TIME measurement if the conditions of Reference 19 are satisfied. If these conditions are satisfied, sensor response time may be allocated based on either assumed design sensor response time or the manufacturer's stated design reponse time. When the requirements of Reference 19 are not satisfied, sensor response time must be measured.

Note 1 excludes neutron detectors from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

RPS RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. Note 2 requires STAGGERED TEST BASIS Frequency to be determined based on 2 channels. This ensures all required channels are tested during two Surveillance Frequency intervals. For Functions 2.b, 2.c, 3, 4, 6, and 9, two channels must be tested during each test; while for Functions 5 and 8, eight and four channels must be tested. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.15 (continued)

random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

REFERENCES

1. UFSAR, Section 7.2.
2. UFSAR, Section 14.5.4.2.
3. NEDO-23842, Continuous Control Rod Withdrawal Transient In The Startup Range, April 18, 1978.
4. 10 CFR 50.36(c)(2)(ii).
5. NEDO-31960-A, BWR Owners' Group Long Term Stability Solutions Licensing Methodology, June 1991.
6. NEDO-31960-A, Supplement 1, BWR Owners' Group Long Term Stability Solutions Licensing Methodology, Supplement 1, March 1992.
7. UFSAR, Section 14.5.1.2.
8. UFSAR, Section 14.6.1.2.
9. UFSAR, Section 14.5.2.1.
10. UFSAR, Section 14.5.2.2.
11. UFSAR, Section 6.3.
12. Drawing 11825-5.01-15D, Rev. D, Reactor Assembly Nuclear Boiler, (GE Drawing 919D690BD).
13. UFSAR, Section 14.5.5.1.
14. UFSAR, Section 14.5.2.3.
15. UFSAR, Section 14.6.1.5.
16. P. Check (NRC) letter to G. Lainas (NRC), BWR Scram Discharge System Safety Evaluation, December 1, 1980.

(continued)

BASES

REFERENCES (continued)

17. UFSAR, Section 14.5.9.

18. NEDC-30851P-A, Technical Specification Improvement Analyses for BWR Reactor Protection System, March 1988.

19. NEDO-32291-A System Analyses For the Elimination of Selected Response Time Testing Requirements, October 1995.

20. NRC letter dated October 28, 1996, Issuance of Amendment 235 to Facility Operating License DPR-59 for James A. FitzPatrick Nuclear Power Plant.

21. NRC Bulletin 90-01, Supplement 1, Loss of Fill-Oil in Transmitters Manufactured by Rosemount, December 1992.

22. UFSAR, Table 7.2-5.

A1

JAFNPP

[Applicability MODE 2 & 5]

M1

three for MODE 2

3.3.B (cont'd)

[LCO 3.3.1.2]
[Table 3.3.1.2-1]

4. Control rods shall not be withdrawn for startup or during refueling unless at least two source range channels have an observed count rate equal to or greater than three counts per second ~~except as permitted by Specifications 3.10.B.3 and 3.10.B.4.~~

A2

5. During operation with limiting control rod patterns, as determined by the reactor engineer, either:

a. Both RBM channels shall be operable, or

b. Control rod withdrawal shall be blocked, or

c. The operating power level shall be limited so the MCPR will remain above the Safety Limit assuming a single error that results in complete withdrawal of any single operable control rod.

[Applicability MODE 2 & 5]

M1

three for MODE 2

M3

4.3.B (cont'd)

[SR 3.3.1.2.4]

4. Prior to control rod withdrawal for startup or during refueling, verify that at least two source range channels have an observed count rate of at least three counts per second ~~except as permitted by Specifications 3.10.B.3 and 3.10.B.4.~~

every 24 hours and 12 hours during CORE ALTERATIONS

5. When a limiting control rod pattern exists, an instrument functional test of the RBM shall be performed prior to withdrawal of the designated rod(s).

See ITS: 3.3.2.1

M2

add MODE 3 & 4 SRM LCO Table 3.3.1.2-1 requirements

add proposed ACTIONS A, B for MODE 2 operations

L1

add ACTION C for MODE 2 operations

M5

L4

M2

add ACTION D

add SRs for MODE 3 & 4:
SR 3.3.1.2.3
SR 3.3.1.2.4
SR 3.3.1.2.6
SR 3.3.1.2.7

M2

add SRs 3.3.1.2.1 3.3.1.2.6 for MODE 2

M4

add SR 3.3.1.2.7 for MODE 2

A3

I

add Table 3.3.1.2-1, Note (a)

M1

DISCUSSION OF CHANGES
ITS: 3.3.1.2 - SOURCE RANGE MONITOR (SRM) INSTRUMENTATION

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS), certain wording preferences or conventions are adopted that do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 The current requirement for SRM response of 3 cps is based upon a signal to noise ratio of ≥ 3:1. This is implicit in CTS 4.3.B.4. Thus, the explicit requirement in ITS SR 3.3.1.2.4 to verify 3.0 cps with a signal to noise ratio ≥ 3:1 is considered an administrative change.

A3 The CTS does not have a specific CHANNEL CALIBRATION requirement for the SRM indication. However, the CTS does have a 92 day CHANNEL CALIBRATION for the MODE 2 SRM Control Rod Block Function. Therefore, consistent with this CTS requirement and with current practice, a Surveillance Requirement is included as ITS SR 3.3.1.2.7 to perform a CHANNEL CALIBRATION every 92 days. I

TECHNICAL CHANGES - MORE RESTRICTIVE

M1 CTS 3.3.B.4 and 4.3.B.4 require two Source Range Monitors (SRMs) to be Operable whenever control rods are withdrawn for startup or during refueling. ITS LCO 3.3.1.2 (Table 3.3.1.2-1) will require three SRMs to be Operable at all times in MODE 2 prior to and during control rod withdrawal until the flux level is sufficient to maintain the Intermediate Range Monitor (IRM) on Range 3 or above in MODE 2 (Table 3.3.1.2-1 Footnote a). This requirement for an additional SRM to be Operable is more restrictive change and will ensure adequate SRMs are Operable during reactor startup. This is consistent with NUREG-1433, Revision 1.

M2 CTS 3.3.B.4 and 4.3.B.4 require that SRMs be Operable when control rods are withdrawn for startup or during refueling. CTS 3.10.B and 4.10.B require the SRMs to be Operable during "Core Alterations." There are no requirements for SRM Operability during MODE 3 and MODE 4. ITS LCO 3.3.1.2 (Table 3.3.1.2-1) will require 2 SRM channels to be Operable at all times in MODE 3 and MODE 4 because the SRMs are the primary indication of neutron flux levels in these MODES. Additionally, SRM Operability in MODES 3 and 4 must be demonstrated by the performance of ITS SR 3.3.1.2.3 (CHANNEL CHECK), SR 3.3.1.2.4 (count rate verification), SR 3.3.1.2.6, (CHANNEL FUNCTIONAL TEST), and SR 3.3.1.2.7

TECHNICAL CHANGES - MORE RESTRICTIVE

M2 (continued)

(channel calibration). ITS LCO 3.3.1.2, ACTION D, will require that all insertable control rods be fully inserted and the reactor mode switch be in the shutdown position within 1 hour if less than the two required SRM channels are Operable. The requirements for SRM Operability in MODE 3 and MODE 4 and the associated SRs and ACTION are required to ensure the SRMs are Operable in MODE 3 and MODE 4 or proper actions are taken. This is consistent with NUREG-1433, Revision 1.

M3 CTS 4.3.B.4 requires verification "prior to control rod withdrawal for startup or during refueling" and CTS 4.10.B requires verification "prior to making alterations to the core" and daily while the SRMs are required to be Operable, that SRMs have an observable count rate. ITS SR 3.3.1.2.4 will now require periodic verification of the SRM count rate at least once per 24 hours while in MODE 2 when IRMs are on Range 2 or below. Periodic verification of SRM count rate will be required every 12 hours during CORE ALTERATIONS. This change represents an additional restriction on plant operation necessary to help ensure the SRMs are maintained Operable.

M4 ITS LCO 3.3.1.2 will require two additional Surveillance Tests to demonstrate SRM Operability when the IRMs are on Range 2 or below in MODE 2. The proposed Surveillances are: SR 3.3.1.2.1 which will require performance of an SRM Channel Check every 12 hours; and SR 3.3.1.2.6 which will require an SRM Channel Functional Test and determination of signal to noise ratios every 31 days. SR 3.3.1.2.6 will be modified by a Note that will allow deferral of these Surveillances until 12 hours after the IRMs are on Range 2 or below when the reactor is being shutdown. These additional requirements for testing of SRMs help ensure the SRMs are maintained Operable.

M5 With the requirements of CTS 3.3.B.4 not met, LCO 3.0.C must be entered and cold shutdown must be achieved within 24 hours. The time to reach a non-applicable condition has been reduced from 24 hours in CTS LCO 3.0.C to 12 hours in ITS 3.3.1.2 ACTION C. This change is more restrictive because all rods must be fully inserted within 12 hours rather than the currently allowed 24 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

M6 CTS 3.10.B establishes requirements for the location of SRMs during Core Alterations and during core unloading and reloading. ITS SR 3.3.1.2.2 will set similar requirements for SRM location during CORE ALTERATIONS

TECHNICAL CHANGES - MORE RESTRICTIVE

M6 (continued)

which because of a change in the Definition of Core Alteration will include core loading and unloading. ITS SR 3.3.1.2.2 will add a new requirement to verify every 12 hours during CORE ALTERATIONS that the SRMs are properly located. The proposed change is necessary to periodically ensure the SRMs are in the proper location. This change is consistent with NUREG-1433, Revision 1.

M7 ITS SR 3.3.1.2.4 adds the requirement that for a minimum count rate of 3 cps, the signal to noise ratio is within the acceptance criteria stipulated in the SR. The addition of this new signal to noise ratio requirement (Surveillance) to the current Technical Specifications constitutes a more restrictive change necessary to ensure the SRMs are maintained Operable when required to be Operable. Specifically, as stated in the Bases of ITS SRs 3.3.1.2.5 & 3.3.1.2.6, the signal to noise ratio is verified to ensure that the detectors are inserted to an acceptable operating level to enable the SRMs to detect and measure the neutron count rate in the fueled region of the core. Therefore, this change is not considered to result in any reduction to safety. This change is consistent with NUREG-1433, Revision 1.

M8 CTS 3.10.B does not identify Required Actions if SRM Operability requirements in MODE 5 are not satisfied. ITS LCO 3.3.1.2 will add Required Actions if less than the required number of SRMs are Operable in MODE 5. If one or more required SRMs are inoperable when in MODE 5, ITS LCO 3.3.1.2 ACTION E will require that CORE ALTERATIONS be terminated and action be taken immediately to fully insert all control rods in core cells containing one or more fuel assemblies. The proposed changes are necessary to prevent the two most probable causes of reactivity change in this MODE, fuel loading and control rod withdrawal, and are consistent with NUREG-1433, Revision 1.

M9 ITS SR 3.3.1.2.7 has been added to CTS 4.10.B to perform a Channel Calibration every 92 days to verify the performance of the SRM detectors and associated circuitry during MODE 5. The Frequency is consistent with the current SRM Control Rod Block Function Channel Calibration Requirement. SR 3.3.1.2.7 has been modified by a Note that excludes the neutron detectors from calibration requirements because the detectors are fission chambers that are designed to have a relatively constant sensitivity over the range, with an accuracy specified for a fixed useful life and cannot readily be adjusted. The proposed change is necessary to help ensure the SRMs are maintained Operable. I

TECHNICAL CHANGES - MORE RESTRICTIVE

M10 CTS 4.10.B requires the SRMs to be functionally tested prior to making Core Alterations. ITS LCO 3.3.1.2 (Table 3.3.1.2-1) requires that a CHANNEL FUNCTIONAL TEST (ITS SR 3.3.1.2.5) be performed every 7 days when in MODE 5. SR 3.3.1.2.5 also requires the determination of the signal to noise ratio (as modified by the SR 3.3.1.2.5 Note). Since entry into MODE 5 will always occur prior to Core Alterations, the CTS requirements will be satisfied in the ITS. The added requirements to periodically perform this CHANNEL FUNCTIONAL TESTS and to determine the signal to noise ratio (as modified by the SR 3.3.1.2.5 Note) are more restrictive but are necessary to ensure the SRMs remain OPERABLE. The verification of the signal to noise ratio (as modified by the SR 3.3.1.2.5 Note) also ensures the SRM detectors are inserted to an acceptable level.

M11 CTS 4.10.B requires the SRMs to be checked for neutron response prior to Core Alterations and checked daily thereafter. ITS SR 3.3.1.2.1 requires the performance of a CHANNEL CHECK every 12 hours during MODE 5 operations. Since entry into MODE 5 will always occur prior to any Core Alterations, the CTS requirement will be satisfied in the ITS requirement. The requirement to perform the response or CHANNEL CHECK every 12 hours instead of every day (24 hours) is more restrictive since the surveillance interval is more frequent but necessary to detect gross channels failures. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 CTS 3.10 B.1 requires that SRMs be inserted to the normal operating level during Core Alterations. Proposed specifications have requirements for minimum SRM count rate during CORE ALTERATIONS but do not require that the SRMs be fully inserted. This existing requirement is being relocated to the Bases. The details for system Operability are not necessary to ensure the SRMs are Operable. The requirements of ITS 3.3.1.2 which require the SRMs to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
[4.3.B.4/M3/A2] [3.10.B.2] [M2] [M7] SR 3.3.1.2.4	------------------NOTE------------------ Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. -- Verify count rate is: a. ≥ [3.0] cps with a signal to noise ratio ≥ [2:1] 3 ~~or~~ ~~b. ≥ [0.7] cps with a signal to noise ratio ≥ [20:1].~~	12 hours during CORE ALTERATIONS AND 24 hours CLB1
[4.10.B] [M10] SR 3.3.1.2.5	Perform CHANNEL FUNCTIONAL TEST ~~[and determination of signal to noise ratio]~~. DB2	7 days
[M4] [M2] SR 3.3.1.2.6	------------------NOTE------------------ Not required to be performed until 12 hours after IRMs on Range 2 or below. -- Perform CHANNEL FUNCTIONAL TEST ~~[and determination of signal to noise ratio]~~.	31 days
[M2] [M9] [A3] SR 3.3.1.2.7	------------------NOTES------------------ 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. -- Perform CHANNEL CALIBRATION.	92 days CLB2 ~~[18] months~~ I

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

The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant.

X1 I

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

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
[3.3.B.V] [4.3.B.4] [M1] [A3]	1. Source Range Monitor	2(a)	~~3~~ DB1	SR 3.3.1.2.1 SR 3.3.1.2.4 SR 3.3.1.2.6 SR 3.3.1.2.7
[M2]		3,4	2	SR 3.3.1.2.3 SR 3.3.1.2.4 SR 3.3.1.2.6 SR 3.3.1.2.7
[3.3.B.4] [4.3.B.4] [4.10.B] [M9] [3.10.B.2]		5	2(b)(c)	SR 3.3.1.2.1 SR 3.3.1.2.2 SR 3.3.1.2.4 SR 3.3.1.2.5 SR 3.3.1.2.7

[M1] (a) With IRMs on Range 2 or below.

[L2] (b) Only one SRM channel is required to be OPERABLE during spiral offload or reload when the fueled region includes only that SRM detector.

[3.10.B.1] (c) Special movable detectors may be used in place of SRMs if connected to normal SRM circuits.

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JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.1.2 - SOURCE RANGE MONITOR (SRM) INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The JAFNPP is not licensed with the option for utilizing a lower count rate. Therefore, this option in ISTS SR 3.3.1.2.4.b has not been used in the JAFNPP ITS. In addition, the current licensed count rate and signal to noise ratio has been included in the SR as specified in UFSAR Section 7.5.4.1.

CLB2 The bracketed Frequency of 18 months in SR 3.3.1.2.7 has been changed to 92 days consistent with the SRM Control Rod Block Function Channel Calibration Frequency in the CTS. I

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Typographical/grammatical correction made.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The brackets have been removed and the number of required SRM channels during MODE 2 operations of the three (3) has been included consistent with the values in ITS ACTION B and in Table 3.3.1.2-1 for MODE 2 operations. JAFNPP design is consistent with the Standard and this requirement has been added in accordance with M1.

DB2 The brackets have been removed in ITS SR 3.3.1.2.5 and SR 3.3.1.2.6 and the requirement to perform the determination of the signal to noise ratio along with the CHANNEL FUNCTIONAL TEST maintained since it is an important requirement for SRM OPERABILITY as discussed in the Bases.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 A new Note has been added to ISTS SR 3.3.1.2.5 to state that the determination of the signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and I

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 (continued)

no other fuel in the associated core quadrant. When starting to load fuel from the defueled condition, SR 3.3.1.2.5 must be current prior to the start of fuel load. However, with no fuel in the core, a signal to noise ratio cannot be determined. Therefore, this Note has been added similar to the Note in the count rate Surveillance (ISTS SR 3.3.1.2.4), which is for the same reason as this proposed Note. This change has been approved for the most recent BWR ITS amendments (NMP2, Quad Cities 1 and 2, Dresden 2 and 3, and LaSalle 1 and 2). I

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SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

CHANNEL CHECK) that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.

Verification of the signal to noise ratio also ensures that the detectors are inserted to an acceptable operating level. In a fully withdrawn condition, the detectors are sufficiently removed from the fueled region of the core to essentially eliminate neutrons from reaching the detector. Any count rate obtained while the detectors are fully withdrawn is assumed to be "noise" only. I PA3

Insert SR PA1

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

CLB1

SR 3.3.1.2.7

Performance of a CHANNEL CALIBRATION at a Frequency of ~~18 months~~ 92 days verifies the performance of the SRM detectors and associated circuitry. The Frequency considers the plant conditions required to perform the test, the ease of performing the test, and the likelihood of a change in the system or component status. The neutron detectors are excluded from the CHANNEL CALIBRATION ~~because they cannot readily be adjusted~~. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range and with an accuracy specified for a fixed useful life. I PA3 (Note 1)

(continued)

Revision I

Insert SR

With few fuel assemblies loaded, the SRMs will not have a high enough count rate to determine the signal to noise ratio. Therefore, allowances are made for loading sufficient "source" material, in the form of irradiated fuel assemblies, to establish the conditions necessary to determine the signal to noise ratio. To accomplish this, SR 3.3.1.2.5 is modified by a Note that states that the determination of signal to noise ratio is not required to be met on an SRM that has less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies are in the associated core quadrant. With four or less fuel assemblies loaded around each SRM and no other fuel assemblies in the associated quadrant, even with a control rod withdrawn the configuration will not be critical.

I

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.7 (continued)

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the ~~12 month~~ 92 day Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

CLB1 / $\boxed{I}$

REFERENCES

None.

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.1.2 - SOURCE RANGE MONITOR (SRM) INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The bracketed Frequency of 18 months in SR 3.3.1.2.7 has been changed to 92 days consistent with the SRM Control Rod Block Function Channel Calibration Frequency in the CTS. The Bases has been modified to be consistent with the Specification. I

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 The Bases have been revised to reflect changes made to the Specifications.

PA2 The Bases have been revised to reflect the proper JAFNPP nomenclature.

PA3 The Bases have been revised for clarity or accuracy, with no change in intent.

PA4 Typographical error corrected.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

None

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler Number 205, Revision 3 have been incorporated into the revised Improved Technical Specifications (TSTF 205, R3)

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases reference to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.4	-----------------NOTES----------------- Not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. --------------------------------------- Verify count rate is ≥ 3.0 cps with a signal to noise ratio ≥ 3:1.	12 hours during CORE ALTERATIONS <u>AND</u> 24 hours
SR 3.3.1.2.5	-----------------NOTE----------------- The determination of signal to noise ratio is not required to be met with less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies in the associated core quadrant. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	7 days
SR 3.3.1.2.6	-----------------NOTE----------------- Not required to be performed until 12 hours after IRMs on Range 2 or below. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST and determination of signal to noise ratio.	31 days

(continued)

I

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.7	-----NOTES----- 1. Neutron detectors are excluded. 2. Not required to be performed until 12 hours after IRMs on Range 2 or below. ---------- Perform CHANNEL CALIBRATION.	92 days

| I

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

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

(a) With IRMs on Range 2 or below.

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

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

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. A successful test of the required contacts(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with the applicable extensions. SR 3.3.1.2.5 is required in MODE 5, and the 7 day Frequency ensures that the channels are OPERABLE while core reactivity changes could be in progress. This Frequency is reasonable, based on operating experience and on other Surveillances (such as a CHANNEL CHECK), that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.

SR 3.3.1.2.6 is required in MODE 2 with IRMs on Range 2 or below, and in MODES 3 and 4. Since core reactivity changes do not normally take place in MODES 3 and 4, and core reactivity changes are due only to control rod movement in MODE 2, the Frequency has been extended from 7 days to 31 days. The 31 day Frequency is based on operating experience and on other Surveillances (such as CHANNEL CHECK) that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.

Verification of the signal to noise ratio also ensures that the detectors are inserted to an acceptable operating level. In a fully withdrawn condition, the detectors are sufficiently removed from the fueled region of the core to essentially eliminate neutrons from reaching the detector. Any count rate obtained while the detectors are fully withdrawn is assumed to be "noise" only.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.5 and SR 3.3.1.2.6 (continued)

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

I

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

SR 3.3.1.2.7

Performance of a CHANNEL CALIBRATION at a Frequency of 92 days verifies the performance of the SRM detectors and associated circuitry. The Frequency considers the plant conditions required to perform the test, the ease of performing the test, and the likelihood of a change in the system or component status. The neutron detectors are excluded from the CHANNEL CALIBRATION (Note 1) because they cannot readily be adjusted. The detectors are fission chambers that are designed to have a relatively constant sensitivity over the range and with an accuracy specified for a fixed useful life. I

Note 2 to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability. The SR must be performed in MODE 2 within 12 hours of entering MODE 2 with IRMs on Range 2 or below. The allowance to enter the Applicability with the 92 day I

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.2.7 (continued)

Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

REFERENCES

None.

[Applicability]

3.3.B (cont'd)	4.3.B (cont'd)
[LCO 3.3.2.1] [Table 3.3.2.1-1 Function 2] 3. Whenever the reactor is below 10% rated thermal power the Rod Worth Minimizer (RWM) shall be operable except as follows:	L4 3. The capability of the Rod Worth Minimizer to properly fulfill its function shall be demonstrated by the following checks:
	a. During startup, prior to the start of control rod withdrawal:
[RA C.2.1.1] [RA C.2.2] [ACTION D] a. Should the RWM become inoperable during a reactor startup after the first twelve control rods have been withdrawn, or during a reactor shutdown, control rod movement may continue provided that a second licensed reactor operator, licensed senior operator, or reactor engineer independently verifies that the control rods are being positioned in accordance with the RWM program sequence. LA6 other qualified member of the technical staff	L4 [SR 3.3.2.1.8] (1) The correctness of the RWM program sequence shall be verified.
	LA2 (2) ~~The RWM computer on line diagnostic test shall be successfully performed.~~
	(3) ~~Proper annunciation of the selection error of at least one out-of-sequence control rod in each fully inserted group shall be demonstrated.~~
[Required Action C.2.1.2] b. Should the RWM be inoperable before a startup is begun, or become inoperable during the withdrawal of the first twelve control rods, the startup may continue provided that a reactor engineer independently verifies that the control rods are being positioned in accordance with the RWM program sequence. [RA C.2.2] After twelve control rods have been fully withdrawn, startup may continue in accordance with Specification 3.3.B.3.a above.	L3 add SR 3.3.2.1.2 Note [SR 3.3.2.1.2] (4) The rod block function of the RWM shall be demonstrated by withdrawing an out-of-sequence control rod no more than to the block point, then reinserting the subject rod. LA3 every 92 days L3
	L4 b. During shutdown, prior to attaining 10% rated power during rod insertion, except by scram:
	L4 [SR 3.3.2.1.8] (1) The correctness of the RWM program sequence shall be verified.
	LA2 (2) ~~The RWM computer on line diagnostic test shall be successfully performed.~~

M5 add SR 3.3.2.1.3

M6 add proposed SR 3.3.2.1.6

I

A1

3.3.B.3 (cont'd)

4.3.B (cont'd)

I

other qualified member of the technical staff

LA6

[C.2.2]

c. When required by Specifications 3.3.B.3.a or b, the second licensed reactor operator, licensed senior operator, or ~~the reactor engineer~~ must be present at the reactor console during rod movements to verify compliance with the prescribed rod pattern. ~~This individual shall have no other concurrent duties during the rod withdrawal or insertion.~~

LA6

[Required Action C.2.1.2]

d. Plant startup under Specification 3.3.B.3.b is only permitted once per calendar year. ~~Any startup conducted without the RWM as described in Specification 3.3.B.3.b shall be reported to the NRC within 30 days of the startup. This special report shall state the reason for the RWM inoperability, the action taken to restore it, and the schedule for returning the RWM to an operable status.~~

L8

e. Control rod patterns shall be equivalent to those prescribed by the Banked Position Withdrawal Sequence (BPWS) such that the drop of any in-sequence control rod would not result in a peak fuel enthalpy greater than 280 calories/gm.

See ITS: 3.1.6

[Required Action C.1]

f. If Specifications 3.3.B.3.a through e cannot be met, the reactor shall not be restarted, or if the reactor is in the run or startup modes at less than 10% rated thermal power, no rod movement is permitted except by scram.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA5 (continued)

Function is sufficient to ensure the instrumentation remains OPERABLE. The Bases describes the design of the instrumentation channel. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA6 The requirement in CTS 3.3.B.3.a and CTS 3.3.B.3.c that the second individual be a "reactor" or "senior" operator or a "reactor engineer" is proposed to be relocated to the Bases. In addition, the requirement in CTS 3.3.B.3.c that the individuals shall have no other concurrent duties during rod withdrawal or insertion (when the rod worth minimizer is inoperable and a control rod is being moved) is also proposed to be relocated to the Bases. If the rod worth minimizer is inoperable during a reactor startup, ITS 3.3.2.1 Required Actions C.2.2 and D.1 require the verification of movement of control rods is in compliance with bank position withdrawal sequence (BPWS) by a second licensed operator or by another qualified member of the technical staff during control rod movement. The Bases identifies these individuals and, for Required Action C.2.2 only, states that these individuals shall have no other concurrent duties. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 The requirements in Table 3.2-3 (Note 2, Action B), and CTS 3.3.B.5 concerning operations on a limiting control rod pattern have been deleted. Since a limiting control rod pattern is defined as operating on a power distribution limit (such as APLHGR or MCPR), the condition is extremely unlikely. The status of power distribution limits does not affect the OPERABILITY of the RBM and therefore, no additional requirements on the RBM System are required (e.g., that it be tripped immediately with a channel inoperable while on a limiting control rod pattern). Adequate requirements on power distribution limits are specified in the LCOs in ITS Section 3.2. Furthermore, due to the improbability of operating on or above a limiting control rod pattern, the ACTIONS would almost never be required. Therefore, the current Actions in Table 3.2-3 Action B as modified by M3 are acceptable for all inoperabilities of the RBM and are included as ITS 3.3.2.1 ACTIONS and B.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L8 (continued)

the RWM Special Report is not required to be in the current Technical Specifications nor the ITS. This change is consistent with NUREG-1433.

TECHNICAL CHANGES - RELOCATIONS

R1 CTS 2.1.A.1.d, Tables 3.2-3 and 4.2-3 and the Notes to these Tables include the Safety Limits, LCOs and SRs for Rod Block functions associated with the APRMs, IRMs, SRMs, and Scram Discharge Volume Level. These requirements are being relocated to the Technical Requirements Manual (TRM). The APRM, IRM, SRM, and Scram Discharge Volume (SDV) rod blocks are intended to prevent control rod withdrawal when plant conditions make such withdrawal imprudent. However, there are no safety analyses that depend upon these rod blocks to prevent, mitigate or establish initial conditions for design basis accidents or transients. The evaluation summarized in NEDO-31466 determined that the loss of the APRM, IRM, SRM, and Scram Discharge Volume rod blocks would be a non-significant risk contributor to core damage frequency and offsite releases. The results of this evaluation have been determined to be applicable to JAFNPP. Therefore, this instrumentation does not satisfy 10 CFR 50.36(c)(2)(ii) for inclusion in the Technical Specifications as documented in the Application of Selection Criteria to the JAFNPP Technical Specifications. The TRM will be incorporated by reference into the UFSAR at ITS implementation. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. I

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued) [3.3.B.3.a] [3.3.B.3.b] [3.3.B.3.d]	C.2.1.1 Verify ≥ 12 rods withdrawn.	Immediately
	OR	
	C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last current CLB3 calendar year.	Immediately
	AND	
[3.3.B.3.a] [3.3.B.3.b] [3.3.B.3.c]	C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown. [3.3.B.3.a]	D.1 Verify movement of control rods is in accordance compliance TA1 with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement

(continued)

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.2.1 - CONTROL ROD BLOCK INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 Not used.

CLB2 The Allowable Value of the RBM upscale is located in the COLR. This was accepted in JAFNPP Technical Specification Amendment No.162. This allowance is consistent with the guidance in Generic Letter 88-16 for the removal of cycle-specific parameter limits from the Technical Specifications to the COLR.

CLB3 The CTS allows only one startup with the RWM inoperable (i.e., inoperable prior to withdrawal of the first 12 control rods) per calendar year. The words in ISTS Required Action C.2.1.2, "performed in the last calendar year" could allow multiple startups with the RWM inoperable in the current calendar year, since the check only looks at the last (i.e., previous) calendar year. Therefore, consistent with the current licensing basis, the word "last" has been changed to "current."

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 The RWM is required to be Operable at ≤ 10% RTP as specified in CTS 4.3.B.3.a.4. This requirement is consistent with the design bases analysis assumptions. Therefore, the bracketed value of 10% has been retained in the ITS throughout the Specification.

DB2 The brackets have been removed and the Surveillance Frequency of 92 days is retained in ITS SR 3.3.2.1.2 and SR 3.3.2.1.3. This Frequency is justified in DOC L3.

DB3 ITS SR 3.3.2.1.4 has been added in accordance with M4. The bracketed Frequency of 18 months has been changed to 92 days and the bracketed Surveillance Note (Neutron detectors are excluded) retained. The surveillance has been re-written to conform to the JAFNPP plant design. The Surveillance ensures the RBM is Operable when required.

DB4 ISTS SR 3.3.2.1.7, (Channel Calibration of RBM Upscale & Downscale channels) is currently performed every 92 days therefore the surveillance has been placed in its appropriate location and renumbered as SR 3.3.2.1.5. Subsequent surveillances have been renumbered, where applicable. This Surveillance Frequency is consistent with methodology in determining the associated Allowable Values for these Functions.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB4 (continued)

Since the Calibration is performed every 92 days there is no need for a CHANNEL FUNCTIONAL TEST, therefore SR 3.3.2.1.1 has been removed from these Functions in the Table.

DB5 SR 3.3.2.1.1, a CHANNEL FUNCTIONAL TEST, has been added in accordance with M1 for the RBM Inop function. The bracketed Frequency of 92 days is retained since it is consistent with NEDC-30851-P-A.

DB6 The bracketed Surveillance Frequency of ITS SR 3.3.2.1.6 is changed from 18 months to 24 months as justified in the associated Bases for this surveillance. The trip setpoint methodology assumes a Frequency of 24 months between calibrations.

DB7 The bracketed Surveillance Frequency of ITS SR 3.3.2.1.7 has been changed from 18 to 24 months since the test should be performed during a plant outage to minimize any unplanned transients as described in the Bases for this SR.

DB8 The brackets have been removed and the proper number of channels included for each Function in Table 3.3.2.1-1. The values are consistent with the current requirements in CTS Table 3.2.3 for Functions 1.a, 1.c, and CTS 3.3.B.3 for the Rod Worth Minimizer. The requirements for Function 1.b (RBM-Inop) and Function 3 (Reactor Mode Switch-Shutdown) have been added in accordance with M1 and M2. The specified number of channels are consistent with the plant design.

DB9 Table 3.3.2.1-1 Functions 1.b, 1.c and 1.f are not applicable to JAFNPP. Therefore these Functions have been removed from the Table. Subsequent Functions have been renumbered, where applicable.

DB10 The Table 3.3.2.1-1 Applicability for the RBM Functions have been revised to be consistent with the JAFNPP plant design. The RBM setpoint includes three different curves which vary as a Function of recirculation flow. The Allowable Values for these Functions are included in the COLR since they vary depending on the cycle. All three curves must be Functioning properly whenever Thermal Power is ≥ 30% RTP and when no peripheral control rod is selected. Therefore Table Footnotes b, c, d, and e have been deleted and (a) revised to meet the specific JAFNPP Applicability. Subsequent Applicability Footnotes have been revised, as required.

DB11 The brackets have been removed and the "Allowable Value" included consistent with the requirements in CTS Table 3.2-3.

DBf

INSERT BKGD

. One RBM channel averages the signals of the LPRM detectors from the A and C level of the assigned LPRM assemblies, while the other RBM channel averages the signals of the LPRM detectors at the B and D level. Assignment of LPRM assemblies to be used in RBM averaging is controlled by the selection of control rods. If any LPRM detector assigned to an RBM is bypassed, the computed average signal is automatically adjusted to compensate for the number of LPRM input signals. The minimum number of LPRM inputs required for each RBM channel to prevent an instrument inoperative alarm is four when using four LPRM assemblies, three when using three LPRM assemblies, and two when using two LPRM assemblies. Each RBM also receives a recirculation loop flow signal. The RBM is automatically bypassed and the output set to zero if a peripheral rod is selected or the APRM used to normalize the RBM reading is < 30% RTP (Ref. 1). In addition, one of the two RBM channels can be manually bypassed.

When a control rod is selected, the gain of each RBM channel output is normalized to the assigned APRM channel. The assigned APRM channel is on the same RPS trip system as the RBM channel. The gain setting is held constant during the movement of the selected control rod to provide an indication of the change in the relative local power level. If the indicated local power level increases above the preset limit, a rod block will occur. There are three parallel rod block setpoint lines which have an adjustable slope. These setpoint lines provide a setpoint that is a function of the recirculation loop flow signal. Intercepts of these setpoint lines with rated recirculation loop flow are adjustable. Lights in the control room indicate which rod block setpoint line is active. Two percent of RTP below the intermediate and lower rod block setpoint are the setup permissive and setdown lines. These lines, on increasing power, light a setup permissive indicator so that the operator can evaluate the conditions and manually change the setpoint to the next higher rod block setpoint line. On decreasing power these lines provide automatic setdown. In addition, to preclude rod movement with an inoperable RBM (if not bypassed), a downscale trip and an inoperable trip are provided. A rod block signal is generated if an RBM downscale trip or an inoperable trip occurs, since this could indicate a problem with the RBM channel. The downscale trip will occur if the RBM channel signal decreases below the downscale trip setpoint after the RBM channel signal has been normalized. The inoperable trip will occur during the nulling (normalization) sequence, if the RBM channel fails to null, too few LPRM inputs are available, a module is not plugged in, or the function switch is moved to any position other than "Operate". 1 I

BASES

ACTIONS

A.1 (continued)

reason, Required Action A.1 requires restoration of the inoperable channel to OPERABLE status. The Completion Time of 24 hours is based on the low probability of an event occurring coincident with a failure in the remaining OPERABLE channel.

B.1

If Required Action A.1 is not met and the associated Completion Time has expired, the inoperable channel must be placed in trip within 1 hour. If both RBM channels are inoperable, the RBM is not capable of performing its intended function; thus, one channel must also be placed in trip. This initiates a control rod withdrawal block, thereby ensuring that the RBM function is met.

The 1 hour Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities and is acceptable because it minimizes risk while allowing time for restoration or tripping of inoperable channels.

PA1

These requirements minimize the number of reactor startups initiated with RWM inoperable.

C.1, C.2.1.1, C.2.1.2, and C.2.2

With the RWM inoperable during a reactor startup, the operator is still capable of enforcing the prescribed control rod sequence. However, the overall reliability is reduced because a single operator error can result in violating the control rod sequence. Therefore, control rod movement must be immediately suspended except by scram. Alternatively, startup may continue if at least 12 control rods have already been withdrawn, or a reactor startup with an inoperable RWM was not performed in the last 12 months. Required Actions C.2.1.1 and C.2.1.2 require verification of these conditions by review of plant logs and control room indications. Once Required Action C.2.1.1 or C.2.1.2 is satisfactorily completed, control rod withdrawal may proceed in accordance with the restrictions imposed by Required Action C.2.2. Required Action C.2.2 allows for the RWM Function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff

PA4

been

has

during withdrawal of one or more of the first 12 control rods

PA4

current calendar year

(i.e., reactor engineer)

CLB1

I

I

I

(continued)

other

Plant Procedures prohibit this individual from having concurrent duties during rod withdrawal or insertion.

PA1

I

Revision I

BASES

ACTIONS

C.1, C.2.1.1, C.2.1.2, and C.2.2 (continued)

The RWM may be bypassed under these conditions to allow continued operations. In addition, Required Actions of LCO 3.1.3 and LCO 3.1.6 may require bypassing the RWM, during which time the RWM must be considered inoperable with Condition C entered and its Required Actions taken.

D.1

With the RWM inoperable during a reactor shutdown, the operator is still capable of enforcing the prescribed control rod sequence. Required Action D.1 allows for the RWM Function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff (i.e., reactor engineer). The RWM may be bypassed under these conditions to allow the reactor shutdown to continue.

CLB1

I

E.1 and E.2

With one Reactor Mode Switch—Shutdown Position control rod withdrawal block channel inoperable, the remaining OPERABLE channel is adequate to perform the control rod withdrawal block function. However, since the Required Actions are consistent with the normal action of an OPERABLE Reactor Mode Switch—Shutdown Position Function (i.e., maintaining all control rods inserted), there is no distinction between having one or two channels inoperable.

In both cases (one or both channels inoperable), suspending all control rod withdrawal and initiating action to fully insert all insertable control rods in core cells containing one or more fuel assemblies will ensure that the core is subcritical with adequate SDM ~~ensured by~~ (LCO 3.1.1, SHUTDOWN MARGIN (SDM)). Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and are therefore not required to be inserted. Action must continue until all insertable control rods in core cells containing one or more fuel assemblies are fully inserted.

PA1

(continued)

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.2.1 - CONTROL ROD BLOCK INSTRUMENTATION

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The reactor engineers are the only other persons qualified at JAFNPP to verify movement of control rods therefore the phrase "(i.e., reactor engineer)" has been added to describe the "other qualified member of the technical staff" in ITS 3.3.2.1 Required Actions C.2.2 and D.1 Bases. I

CLB2 This requirement to prepare a report is consistent with the current requirements in CTS 3.3.B.3.d.

CLB3 The Allowable Value of the RBM upscale is located in the COLR. This was accepted in JAFNPP Technical Specification Amendment No.162. This allowance is consistent with the guidance in Generic Letter 88-16 for the removal of cycle-specific parameter limits from the Technical Specifications to the COLR.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 The Bases have been revised for clarity or accuracy.

PA2 The Bases have been revised to be consistent with the other places in the Bases.

PA3 The Reviewer's Note has been deleted.

PA4 The Bases has been revised to be consistent with the Specification.

PA5 The appropriate Surveillance has been included as a result of changes made to the Surveillances of ITS 3.3.1.1.

PA6 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature.

PA7 The quotations used in the Bases References have been removed. The Writer's Guide does not require the use of quotations.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific design.

DB2 The appropriate references have been included. Subsequent References have been renumbered, as applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1.1 Verify ≥ 12 rods withdrawn.	Immediately
	OR	
	C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the current calendar year.	Immediately
	AND	
	C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement

(continued)

BASES

BACKGROUND (continued)

LPRM assemblies, and two when using two LPRM assemblies. Each RBM also receives a recirculation loop flow signal. The RBM is automatically bypassed and the output set to zero if a peripheral rod is selected or the APRM used to normalize the RBM reading is < 30% RTP (Ref. 1). In addition, one of the two RBM channels can be manually bypassed.

When a control rod is selected, the gain of each RBM channel output is normalized to the assigned APRM channel. The assigned APRM channel is on the same RPS trip system as the RBM channel. The gain setting is held constant during the movement of the selected control rod to provide an indication of the change in the relative local power level. If the indicated local power level increases above the preset limit, a rod block will occur. There are three parallel rod block setpoint lines which have an adjustable slope. These setpoint lines provide a setpoint that is a function of the recirculation loop flow signal. Intercepts of these setpoint lines with rated recirculation loop flow are adjustable. Lights in the control room indicate which rod block setpoint line is active. Two percent of RTP below the intermediate and lower rod block setpoint are the setup permissive and setdown lines. These lines, on increasing power, light a setup permissive indicator so that the operator can evaluate the conditions and manually change the setpoint to the next higher rod block setpoint line. On decreasing power these lines provide automatic setdown. In addition, to preclude rod movement with an inoperable RBM (if not bypassed), a downscale trip and an inoperable trip are provided. A rod block signal is generated if an RBM downscale trip or an inoperable trip occurs, since this could indicate a problem with the RBM channel. The downscale trip will occur if the RBM channel signal decreases below the downscale trip setpoint after the RBM channel signal has been normalized. The inoperable trip will occur during the nulling (normalization) sequence, if the RBM channel fails to null, too few LPRM inputs are available, a module is not plugged in, or the function switch is moved to any position other than "Operate". I

The purpose of the RWM is to control rod patterns during startup and shutdown, such that only specified control rod sequences and relative positions are allowed over the operating range from all control rods inserted to 10% RTP.

(continued)

BASES

ACTIONS (continued)

B.1

If Required Action A.1 is not met and the associated Completion Time has expired, the inoperable channel must be placed in trip within 1 hour. If both RBM channels are inoperable, the RBM is not capable of performing its intended function; thus, one channel must also be placed in trip. This initiates a control rod withdrawal block, thereby ensuring that the RBM function is met.

The 1 hour Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities and is acceptable because it minimizes risk while allowing time for restoration or tripping of inoperable channels.

C.1, C.2.1.1, C.2.1.2, and C.2.2

With the RWM inoperable during a reactor startup, the operator is still capable of enforcing the prescribed control rod sequence. However, the overall reliability is reduced because a single operator error can result in violating the control rod sequence. Therefore, control rod movement must be immediately suspended except by scram. Alternatively, startup may continue if at least 12 control rods have already been withdrawn, or a reactor startup with an inoperable RWM during withdrawal of one or more of the first 12 control rods has not been performed in the current calendar year. These requirements minimize the number of reactor startups initiated with RWM inoperable. Required Actions C.2.1.1 and C.2.1.2 require verification of these conditions by review of plant logs and control room indications. Once Required Action C.2.1.1 or C.2.1.2 is satisfactorily completed, control rod withdrawal may proceed in accordance with the restrictions imposed by Required Action C.2.2. Required Action C.2.2 allows for the RWM Function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff (i.e., reactor engineer). Plant procedures prohibit this individual from having other concurrent duties during rod withdrawal or insertion.

(continued)

BASES

ACTIONS

<u>C.1, C.2.1.1, C.2.1.2, and C.2.2</u> (continued)

The RWM may be bypassed under these conditions to allow continued operations. In addition, Required Actions of LCO 3.1.3 and LCO 3.1.6 may require bypassing the RWM, during which time the RWM must be considered inoperable with Condition C entered and its Required Actions taken.

<u>D.1</u>

With the RWM inoperable during a reactor shutdown, the operator is still capable of enforcing the prescribed control rod sequence. Required Action D.1 allows for the RWM Function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff (i.e., reactor engineer). The RWM may be bypassed under these conditions to allow the reactor shutdown to continue.

<u>E.1 and E.2</u>

With one Reactor Mode Switch – Shutdown Position control rod withdrawal block channel inoperable, the remaining OPERABLE channel is adequate to perform the control rod withdrawal block function. However, since the Required Actions are consistent with the normal action of an OPERABLE Reactor Mode Switch – Shutdown Position Function (i.e., maintaining all control rods inserted), there is no distinction between having one or two channels inoperable.

In both cases (one or both channels inoperable), suspending all control rod withdrawal and initiating action to fully insert all insertable control rods in core cells containing one or more fuel assemblies will ensure that the core is subcritical with adequate SDM, (LCO 3.1.1, SHUTDOWN MARGIN (SDM)). Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and are therefore not required to be inserted. Action must continue until all insertable control rods in core cells containing one or more fuel assemblies are fully inserted.

(continued)

(A1)

JAFNPP

TABLE 3.2-6

~~FEEDWATER PUMP TURBINE AND MAIN TURBINE TRIP INSTRUMENTATION REQUIREMENTS~~ (A5)

Minimum Number of Operable Instrument Channels (Notes 1 & 2)	Trip Function	Trip Level Setting (A6)	Applicable Modes
[LCO 3.3.2.2] 3	Reactor Vessel Water Level - High	[SR 3.3.2.2.3] ≤ 222.5 inches above TAF (LA1)	Thermal Power ≥ 25% RTP [Applicability]

1(I)

1(I)

~~NOTES FOR TABLE 3.2-6~~

[LCO 3.3.2.2] 1. There shall be three operable instrument channels, except as provided for below:

[ACTION A] a. With one less than the required minimum number of operable instrument channels, either restore the inoperable instrument channel to operable status (A2) or place the inoperable instrument channel in the tripped condition, within 7 days. Otherwise, [ACTION C] reduce reactor power to less than 25% rated thermal power within the next 4 hours.

[ACTION B] b. With two or more channels less than the required minimum number of operable instrument channels, restore the feedwater pump turbine and main turbine trip capability within 2 hours. Otherwise, reduce reactor power to less than 25% rated thermal [ACTION C] power within the next 4 hours.

[SR NOTE] 2. When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions for Operation and required actions may be delayed for up to 6 hours provided the associated Trip Function maintains feedwater pump turbine and main turbine trip capability.

add ACTIONS NOTE (A3)

add Required Action C.1 and associated Note (L2)

TSTF-297

DISCUSSION OF CHANGES
ITS: 3.3.2.2 - FEEDWATER AND MAIN TURBINE HIGH WATER LEVEL TRIP INSTRUMENTATION

ADMINISTRATIVE CHANGES

A1 In the conversion of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Current Technical Specification (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes. Editorial changes, reformatting, and revised numbering are adopted to make the ITS consistent with the conventions in NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4", Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)).

A2 CTS Table 3.2-6 Note 1.a gives the option of either restoring the inoperable instrument channel to operable status, or placing the inoperable channel in the tripped condition within 7 days when there is one of the required feedwater pump turbine and main turbine trip instruments inoperable. ITS 3.3.2.2 Required Action A.1 requires that the channel be tripped within 7 days. The option of restoring inoperable instruments to an operable condition is always permitted in the Technical Specifications. ITS LCO 3.0.2 states that if the LCO is met prior to expiration of the specified Completion Time(s), completion of the Required Actions is not required, unless otherwise stated. Therefore, it is acceptable to restore the feedwater pump turbine and main turbine trip instrument to an operable status within 7 days and the Required Action of placing the channel in trip would not be required. Therefore the proposed change to remove this statement from the Technical specifications is considered an administrative change, and is consistent with NUREG-1433, Revision 1.

A3 This change proposes to add a Note to CTS Table 3.2-6 which allows separate Condition entry for each channel. The Note is reflected in Table 3.3.2.2-1 ACTIONS Table. This change provides explicit instructions for proper application of the Actions for Technical Specification compliance. In conjunction with the proposed Specification 1.3 - "Completion Times," the Note ("Separate condition entry...") and the Conditions of ITS 3.3.2.2 provide more explicit direction of the current interpretation of the existing Specifications. This change in presentation method provides instructions, in a manner more explicit for proper application of the Actions for Technical Specification compliance, consistent with the format and requirements of NUREG-1433, Revision 1. Therefore, this change is considered administrative.

ADMINISTRATIVE CHANGES

A4 CTS Table 4.2-6 Note 2 provides an allowance to inject a simulated electrical signal into the measurement channel as close to the sensor as practicable to satisfy the requirements of the Instrument Channel Functional Test. This explicit allowance is not retained in ITS 3.3.2.2 since it is duplicative of the current Instrument Channel Functional Test definition in CTS 1.0.F.5 and the proposed CHANNEL FUNCTIONAL TEST definition in ITS Chapter 1.0. Since the current allowance is retained in the ITS CHANNEL FUNCTIONAL TEST definition in ITS Chapter 1.0, this change is considered administrative.

A5 CTS 3.2.F specifies that the limiting condition for operation for the instrumentation that provide a feedwater pump trip and main turbine trip are given in Table 3.2-6. CTS 4.2.F requires the feedwater pump turbine and main turbine trip instrumentation to be calibrated in accordance with CTS Table 4.2-6. This cross-reference to the Tables has been deleted since ITS 3.3.2.2 does not include a Table. All of the technical requirements of CTS Tables 3.2-6 and 4.2-6 are included in the proposed ITS 3.3.2.2 LCO and Surveillances. Since this change simply deletes this cross-reference, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1.

A6 CTS Table 3.2-6 includes a "Trip Level Setting" column. The setting for the Reactor Vessel Water Level – High Function is listed in this column. In ITS SR 3.3.2.2.3, the "Allowable Value" is specified. The CTS "trip level setting" is considered the "Allowable Value" as described in the ITS since the instrumentation is considered inoperable if the value is exceeded when either the CTS or the ITS is applicable. A detailed explanation of trip setpoints, allowable values and analytical limits as they relate to instrumentation uncertainties is provided below.

Trip setpoints are those predetermined values of output at which an action is expected to take place. The setpoints are compared to the actual process parameter and when the measured output value of the process parameter exceeds the setpoint in either the increasing or decreasing direction, the associated device (e.g., trip unit) changes state.

The trip setpoints are specified in the setpoint calculations, are derived from the analytical limits, and account for all worst case applicable instrumentation uncertainties (e.g., drift, process effects, calibration uncertainties, and severe environmental effects as

ADMINISTRATIVE CHANGES

A6 (continued)

appropriate). The trip setpoints derived in this manner provide adequate protection because all expected uncertainties are accounted for in the setpoint calculations.

The setpoints specified in the setpoint calculations are selected to ensure that the actual field trip setpoints do not exceed the ITS Allowable Values (i.e., the CTS "trip level setting") between successive CHANNEL CALIBRATIONS. The CTS "trip level setting" and the "ITS Allowable Value" are both the TS limit value that is placed on the actual field setpoint. The Allowable Values is derived from the trip setpoint by accounting for normal effects that would be seen during periodic surveillance or calibration. These effects are instrumentation uncertainties observed during normal operation (e.g., drift and calibration uncertainties). Accordingly, the ITS Allowable Value includes all applicable instrument channel and measurement uncertainties. A channel is inoperable if its actual field trip setpoint is not within its required ITS Allowable Value.

The analytical limit is derived from the limiting value of the process parameter obtained from the safety analysis or other appropriate documents.

The "Trip Level Setting" or "Allowable Value" has been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the "Allowable Value" is consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." This change revises the terminology used in the CTS from "Trip Level Setting" to "Allowable Values". Since the instrumentation will be declared inoperable at the same numerical value, this change is considered administrative. This change is consistent with NUREG-1433, Revision 1.

TECHNICAL CHANGES - MORE RESTRICTIVE

None

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The detail in CTS Table 3.2-6 that the Trip Level Setting of the Reactor Vessel Water Level Trip Function is referenced from the Top of Active Fuel (TAF) is proposed to be relocated to the Bases. CTS 1.0.Z definition specifies that the Top of Active Fuel, corresponding to the top of the enriched fuel column of each fuel bundle, is located 352.5 inches above vessel zero, which is the lowest point in the inside bottom of the reactor pressure vessel. (See General Electric drawing No. 919D690BD). These details are also proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.2.2 that the ECCS instrumentation for each Function in Table 3.3.2.2-1 shall be OPERABLE, the specified Allowable Value in SR 3.3.2.2.3, the definition of Operability, the proposed Actions, and Surveillance Requirements are adequate to ensure the instrumentation is properly maintained. In addition, the Bases includes a statement that the Allowable Value corresponds to a level of water 352.56 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 The explicit requirement in CTS Table 4.2-6 Note 1.a to perform an Instrument Functional Test once every 24 months during each refueling outage has been deleted. This requirement to specifically perform a CHANNEL FUNCTIONAL TEST during the refueling outage is not necessary since a calibration is required to be performed every 24 months as indicated in Channel Calibration Frequency Column for the Reactor Vessel Water Level - High Function. A CHANNEL CALIBRATION will satisfy all the requirements of a CHANNEL FUNCTION TEST and therefore this explicit requirement is not necessary to ensure the associated channels remain Operable. This CHANNEL CALIBRATION is retained in ITS SR 3.3.2.2.3 and is necessary to ensure the reactor vessel water level instrumentation channels remain Operable. The Calibration Surveillance Frequency of 24 months is consistent with the methodology used to determine the Allowable values and associated Setpoints for this Function and therefore is sufficient to ensure the channels remain Operable. A

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

Channel Check (ITS SR 3.3.2.2.1) is required to be performed every 24 hours to detect any gross failures in the instrument channels. In addition, ITS SR 3.3.2.2.2 will require a CHANNEL FUNCTIONAL TEST to be performed every 92 days, if in MODE 4 for more than 24 hours consistent with the current requirements in Table 4.2-6 Note 1.b. The current requirement to perform a CHANNEL FUNCTIONAL TEST every 24 months during the refueling outage does not normally require any additional testing since the CHANNEL CALIBRATIONS are usually scheduled at the same time. Therefore the elimination of this explicit requirement is acceptable.

L2 CTS Table 3.2-6, Note 1 requires reduction in Thermal Power if the Feedwater System and Main Turbine High Water Level Trip Instrumentation is not restored to Operable Status. The purpose of the instrumentation is to ensure MCPR limits are not exceeded during a feedwater controller failure, maximum demand event. This is accomplished by tripping the feedwater pumps and main turbine, with the main turbine trip resulting in a subsequent reactor scram. When this trip function is inoperable solely due to an inoperable feedwater pump turbine stop valve or main turbine stop valve, the unit can continue to operate with the affected stop valve(s) removed from service. Therefore, an additional Required Action is proposed, ITS 3.3.2.2, Required Action C.1, to allow removal of the associated stop valve(s) from service in lieu of reducing Thermal Power. This Required Action will only be used if the instrumentation is inoperable solely due to inoperable feedwater pump turbine stop valve or main turbine stop valve as stated in the Note to ITS 3.3.2.2 Required Action C.1. Since this Required Action accomplishes the functional purpose of the Feedwater System and Main Turbine High Water Level Trip Instrumentation, enables continued operation in a previously approved condition, and still ensures that a MCPR limit will not be exceeded (since the reactor scram is the result of a turbine trip signal, which is not impacted by this change), this change does not have a significant effect on safe operation.

TECHNICAL CHANGES - RELOCATIONS

None

SURVEILLANCE REQUIREMENTS

Table 3.2-6 Note 2

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

	SURVEILLANCE		FREQUENCY
Table 4.2-6	SR 3.3.2.2.1	Perform CHANNEL CHECK.	24 hours DB3
Table 4.2-6 & Note 1	SR 3.3.2.2.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days CLB1
Table 4.2-6 Table 3.2-6	SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ ~~[58.0]~~ 222.5 inches. DB5	24 ~~[18]~~ months DB4
Table 4.2-6	SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including [valve] actuation. CLB2	24 ~~[18]~~ months CLB2

1 I

------NOTE------
Only required to be performed when in MODE 4 for > 24 hours. CLB1

Revision I

B 3.3 INSTRUMENTATION

B 3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

BASES

BACKGROUND

The feedwater and main turbine high water level trip instrumentation is designed to detect a potential failure of the Feedwater Level Control System that causes excessive feedwater flow.

With excessive feedwater flow, the water level in the reactor vessel rises toward the high water level, Level 8 reference point, causing the trip of the two feedwater pump turbines and the main turbine. ( )

Reactor Vessel Water Level—High, Level 8 signals are provided by level sensors that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level in the reactor vessel (variable leg). ~~Three channels of Reactor Vessel Water Level—High, Level 8 instrumentation are provided as input to~~ a two-out-of-three initiation logic ~~that~~ trips ~~the two~~ feedwater pump turbines ~~and~~ the main turbine. The channels include electronic equipment (e.g., ~~trip~~ units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a ~~main~~ feedwater and turbine trip signal to the trip logic.

PAI I DBI

DBI

each of three trip systems. Each trip system is arranged with

DBI one alarm

A trip of the feedwater pump turbines limits further increase in reactor vessel water level by limiting further addition of feedwater to the reactor vessel. A trip of the main turbine and closure of the stop valves protects the main turbine from damage due to water entering the turbine.

PAI

APPLICABLE SAFETY ANALYSES

The feedwater and main turbine high water level trip instrumentation is assumed to be capable of providing a turbine trip in the design basis transient analysis for a feedwater controller failure, maximum demand event (Ref. 1). The Level 8 trip indirectly initiates a reactor scram from the main turbine trip (above 30% RTP) and trips the feedwater pumps, thereby terminating the event. The reactor scram mitigates the reduction in MCPR.

such that two high water level trip signals are necessary for the trip system to actuate. One trip system

DBI

; another trip system trips the other feedwater pump turbine, and the third trip system trips

I

(continued)

{TA2}

INSERT SR 3.3.2.2-1

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

{CLB1}

INSERT SR 3.3.2.2.2-2

As noted, the CHANNEL FUNCTIONAL TEST is only required to be performed when in MODE 4 for > 24 hours. In MODE 4, the plant is in a condition where a loss of a feedwater pump turbine or a main turbine trip will not jeopardize steady state power operation. The design of the trip systems do not permit functional testing of this trip function without lifting electrical leads. Consequently, testing the trip systems on-line poses an unacceptable risk of an inadvertent trip of the feedwater pump turbines and main turbine, resulting in a plant transient. The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling a proper performance of the Surveillance.

The 92 day Frequency and the Note to this Surveillance are based on Reference 5. | I

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE		FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.2.2.2	-----------------NOTE----------------- Only required to be performed when in MODE 4 for > 24 hours. --------------------------------------- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 222.5 inches.	24 months
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	24 months

B 3.3 INSTRUMENTATION

B 3.3.2.2 Feedwater and Main Turbine High Water Level Trip Instrumentation

BASES

BACKGROUND

The feedwater and main turbine high water level trip instrumentation is designed to detect a potential failure of the Feedwater Level Control System that causes excessive feedwater flow.

With excessive feedwater flow, the water level in the reactor vessel rises toward the high water level, Level 8 reference point, causing the trip of the two feedwater pump turbines and the main turbine.

Reactor Vessel Water Level – High (Level 8) signals are provided by level sensors that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level in the reactor vessel (variable leg). Three channels of Reactor Vessel Water Level – High (Level 8) instrumentation are provided as input to each of three trip systems. Each trip system is arranged with a two-out-of-three initiation logic such that two high water level trip signals are necessary for the trip system to actuate. One trip system trips one feedwater pump turbine, another trip system trips the other feedwater pump turbine, and the third trip system trips the main turbine. The channels include electronic equipment (e.g., alarm units) that compares measured input signals with pre- established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a feedwater and main turbine trip signal to the trip logic.

A trip of the feedwater pump turbines limits further increase in reactor vessel water level by limiting further addition of feedwater to the reactor vessel. A trip of the main turbine and closure of the stop valves protects the turbine from damage due to water entering the turbine.

APPLICABLE SAFETY ANALYSES

The feedwater and main turbine high water level trip instrumentation is assumed to be capable of providing a turbine trip in the design basis transient analysis for a feedwater controller failure, maximum demand event (Ref. 1).

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The Level 8 trip indirectly initiates a reactor scram from the main turbine trip (above 30% RTP) and trips the feedwater pumps, thereby terminating the event. The reactor scram mitigates the reduction in MCPR.

Feedwater and main turbine high water level trip instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 2).

LCO

The LCO requires three channels of the Reactor Vessel Water Level – High (Level 8) instrumentation to be OPERABLE to ensure that no single instrument failure will prevent the feedwater pump turbines and main turbine trip on a valid Level 8 signal. Two of the three channels are needed to provide trip signals in order for the feedwater and main turbine trips to occur. Each channel must have its setpoint set within the specified Allowable Value of SR 3.3.2.2.3. The Allowable Value is set to ensure that the thermal limits are not exceeded during the event. The Allowable Value is referenced from a level of water 352.56 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column (Ref. 3). The actual setpoint is calibrated to be consistent with the applicable setpoint methodology assumptions. Nominal trip setpoints are specified in the setpoint calculations. The nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Value between successive CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value.

Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., reactor vessel water level), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., alarm unit) changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis. The trip setpoints are derived from the analytic limits and account for all worst case instrumentation uncertainties as appropriate (e.g., drift, process affects, calibration

(continued)

BASES

LCO (continued)

uncertainties, and severe environmental errors (for channels that must function in harsh environments as defined by 10 CFR 50.49)). The trip setpoints derived in this manner provide adequate protection because all expected uncertainties are accounted for. The Allowable Values are then derived from the trip setpoints by accounting for normal effects that would be seen during periodic surveillance or calibration. These affects are instrumentation uncertainties during normal operation (e.g., drift and calibration uncertainties).

APPLICABILITY

The feedwater and main turbine high water level trip instrumentation is required to be OPERABLE at ≥ 25% RTP to ensure that the fuel cladding integrity Safety Limit and the cladding 1% plastic strain limit are not violated during the feedwater controller failure, maximum demand event. As discussed in the Bases for LCO 3.2.1, "Average Planar Linear Heat Generation Rate (APLHGR)," and LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," sufficient margin to these limits exists below 25% RTP; therefore, these requirements are only necessary when operating at or above this power level.

ACTIONS

A Note has been provided to modify the ACTIONS related to feedwater and main turbine high water level trip instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable feedwater and main turbine high water level trip instrumentation channels provide appropriate compensatory measures for separate inoperable channels. As such, a Note has been provided that allows separate Condition entry for each inoperable feedwater and main turbine high water level trip instrumentation channel.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.2.2 (continued)

As noted, the CHANNEL FUNCTIONAL TEST is only required to be performed when in MODE 4 for > 24 hours. In MODE 4, while the plant is in a condition where a loss of a feedwater pump turbine or a main turbine trip will not jeopardize steady state power operation. The design of the trip systems do not permit functional testing of this trip function without lifting electrical leads. Consequently, testing the trip systems on-line poses an unacceptable risk of an inadvertent trip of the feedwater pump turbines and main turbine, resulting in a plant transient. The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling a proper performance of the Surveillance.

The 92 day Frequency and the Note to this Surveillance are based on Reference 5. I

SR 3.3.2.2.3

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

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

SR 3.3.2.2.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The system functional test of the feedwater and main turbine valves is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if a valve is incapable of operating, the associated instrumentation would also be inoperable. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency.

(continued)

Specification 3.3.3.1

A1

3.2 (cont'd)

E. Drywell Leak Detection

The limiting conditions for operation for the instrumentation that monitors drywell leak detection are given in Table 3.2-5.

F. Feedwater Pump Turbine and Main Turbine Trip

The limiting conditions for operation for the instrumentation that provides a feedwater pump turbine and main turbine trip are given in Table 3.2-6.

G. Recirculation Pump Trip

The limiting conditions for operation for the instrumentation that trip(s) the recirculation pumps as a means of limiting the consequences of a failure to scram during an anticipated transient are given in Table 3.2-7.

[3.3.3.1] H. Post Accident Monitoring (PAM) Instrumentation

[LCO 3.3.3.1] The limiting conditions for operation for the instrumentation that provides accident monitoring are given in Table ~~3.2-8~~ 3.3.3.1-1.

A2 add Applicability

I. 4kv Emergency Bus Undervoltage Trip

The limiting conditions for operation for the instrumentation that prevents damage to electrical equipment or circuits as a result of either a degraded or loss-of-voltage condition on the emergency electrical buses are given in Table 3.2-2.

4.2 (cont'd)

E. Drywell Leak Detection

See ITS: 3.4.5

Instrumentation shall be calibrated and checked as indicated in Table 4.2-5.

see ITS: 3.3.2.2

F. Feedwater Pump Turbine and Main Turbine Trip

Instrumentation shall be tested and calibrated as indicated in Table 4.2-6.

See ITS: 3.3.4.1

G. Recirculation Pump Trip

Instrumentation shall be functionally tested and calibrated as indicated in Table 4.2-7.

System logic shall be functionally tested as indicated in Table 4.2-7.

[3.3.3.1] H. Post Accident Monitoring (PAM) Instrumentation

SR 3.3.3.1.1, SR 3.3.3.1.2, SR 3.3.3.1.3

add Note to SRs

L7

Instrumentation shall be demonstrated operable by performance of a channel check, channel calibration and functional test as indicated in ~~Table 4.2-8~~ 3.3.3.1-1, as applicable.

I. Not Used

See ITS: 3.3.8.1

Amendment No. ~~93, 216, 221,~~ 225

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Specification 3.3.3.1

A1

JAFNPP

[3.3.3.1-1]

TABLE ~~4.2-8~~ (cont'd)

Post Accident Monitoring Instrumentation

~~MINIMUM TEST AND CALIBRATION FREQUENCY FOR ACCIDENT MONITORING INSTRUMENTATION~~

[SR 3.3.3.1.1]

Function ~~Instrument~~	A6 ~~Instrument Functional Test~~	[SR 3.3.3.1.3] Calibration Frequency	Channel ~~Instrument~~ Check R2
~~15. Core Spray Flow~~	~~N/A~~	~~R~~	D
~~16. Core Spray Discharge Pressure~~	~~N/A~~	~~R~~	D
~~17. LPCI (RHR) Flow~~	~~N/A~~	~~R~~	D
~~18. RHR Service Water Flow~~	~~N/A~~	~~R~~	D
~~19. Safety/Relief Valve Position Indicator (Primary and Secondary)~~	~~R~~	~~N/A~~	M
~~20. Torus Water Level (narrow range)~~	~~N/A~~	~~R~~	D
~~21. Drywell/Torus Differential Pressure~~	~~N/A~~	~~R~~	D

R1

RAI 3.3.3.1-9 & BSI 20

RAI 3.3.3.1-11 BSI 21

M3 add SR 3.3.3.1.1 SR 3.3.3.1.3 for Function 7

M4 add SR 3.3.3.1.1 and SR 3.3.3.1.3 for Function 11

Amendment No. ~~130, 181, 220,~~ 233

REVISION ~~F~~ I

I

TECHNICAL CHANGES - MORE RESTRICTIVE

M4 An additional instrument requirement is proposed to be added for the CTS Table 3.2-8, Drywell Water Level. There is no requirement for Drywell Water Level in the CTS. Two Drywell level channels are proposed to be added for the Drywell Water Level Function (ITS 3.3.3.1 Function 11). In the NYPA response to Regulatory Guide 1.97, NYPA specified that the Drywell Water Level instrument was Category 1 per the criteria provided in Regulatory Guide 1.97. Therefore, consistent with the NYPA response to Regulatory Guide 1.97 and with the provisions of NUREG-1433, Revision 1, this instrument and new Function is proposed to be added to the ITS as Function 11, Table 3.3.3.1-1. Appropriate ACTIONS to take if the new instruments are inoperable, and Surveillances to demonstrate operability, have been added. The addition of new instruments to Technical Specifications constitutes a more restrictive change.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details relating to system design, in CTS Table 3.2-8 that provide the "No. of Channels Provided by Design" of the PAM Instrumentation are proposed to be relocated to the Bases of ITS 3.3.3.1. Placing these details in the Bases provides assurance they will be maintained. The details for system design are not necessary to ensure the PAM instruments are Operable. The requirements of ITS 3.3.3.1 which require the PAM instruments to be OPERABLE and the definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the Technical Specifications.

LA2 The details relating to plant operation, in CTS Table 3.2-8 Note F, which requires monitoring and logging the parameters using 27PCX-101A,B or having a grab sample analyzed are being relocated to the Technical Requirements Manual (TRM). Placing these details in the TRM provides assurance they will be maintained. The remedial action of CTS Table 3.2-8, Note F, requires monitoring during normal plant operation, while the safety function for the PAM instrument is to provide information in a post-accident condition. Additional monitoring during normal operations does not provide an increase level of safety for the post-accident function. The increased monitoring during normal operations is appropriate, and may provide additional assurance of meeting SR 3.6.3.1.1 (primary containment oxygen concentration), but since this monitoring is not a compensatory measure for the PAM safety function, its relocation will not have any negative safety impact. As such, these details are not required to be in the ITS to provide 1 I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 (continued)

function of the PAM instruments, the operator's ability to diagnose an accident using alternative instruments, and the low probability of an event requiring this system.

L4 CTS Table 3.2-8 Note A requirement to be in cold shutdown within 24 hours, when Item 4 (containment high radiation monitor) PAM channel has not been restored to operable status within 30 days, is being relaxed. ITS 3.3.3.1 ACTION F specifies initiating action in accordance with ITS 5.6.6. The action to submit a report is appropriate for the containment high radiation monitors since alternate means of monitoring primary containment area radiation have been developed and tested. Therefore, it is also appropriate to initiate action to submit a report in accordance with ITS 5.6.6.

L5 Not Used.

L6 CTS Table 4.2-8 Frequency, of daily, for the Channel Check,is being decreased. ITS SR 3.3.3.1.1 specifies a Frequency of 31 days. These instruments (including recorders) are highly reliable, and provide indication only. No automatic actions, relative to PAM, are performed by this instrumentation. The proposed Frequency is appropriate given the passive nature of these devices and the fact that the most common outcome of the performance of the surveillance is demonstrating theacceptance criteria are satisfied. These Frequencies are also consistent with NUREG 1433, Revision 1.

L7 A Note has been added to CTS 4.2.H (ITS 3.3.3.1 Note to the Surveillance Requirements) to allow a channel to be inoperable for up to 6 hours solely for performance of required Surveillances provided the other channel in the associated Function is OPERABLE. The 6 hour testing allowance has been granted by the NRC in TS amendments for Hatch Unit 1 (amendment 185) and Unit 2 (amendment 125), WNP-2 (amendment 149, the ITS amendment), Nine Mile Point Unit 2 (amendment 91, the ITS amendment), and LaSalle Units 1 and 2 (amendments 147/133, respectively, the ITS amendments). The NRC has also granted this allowance in other topical reports for the Reactor Protection System, Emergency Core Cooling System, and isolation equipment. The 6 hour testing allowance does not significantly reduce the probability of properly monitoring post-accident parameters, when necessary, since the other channel must be OPERABLE for this allowance to be used. 1

TECHNICAL CHANGES - RELOCATIONS

R1 These instruments in CTS 3.2-8 and 4.2-8 (as listed below) are not credited as Category 1 or Type A variables. This evaluation was summarized in the NRC SER, dated March 14, 1988. Further, the loss of these instruments is a non-significant risk contributor to core damage frequency and offsite release. Therefore, the requirements specified for these Functions in CTS 3.2-8 and 4.2-8, including the applicable actions did not satisfy 10 CFR 50.36(c)(2)(ii) as documented in the Application or Selection Criteria to the JAFNPP Technical Specifications and are proposed to be relocated to the Technical Requirements Manual (TRM), the TRM will be incorporated by reference in the UFSAR at ITS implementation. Changes to the UFSAR will be controlled by the provisions of 10 CFR 50.59.

1. Stack High Range Effluent Monitor
2. Turbine Building Vent High Range Effluent Monitor
3 Radwaste Building Vent High Range Effluent Monitor
4. Safety/Relief Valve Position Indicator
5. Torus Water Level (narrow range)
6. Drywell-Torus Differential Pressure

R2 The NRC issued its SER on March 14, 1988, titled "Conformance to Regulatory Guide (R.G.) 1.97, Revision 2," for the JAFNPP. This SER identified the following Variables as Type A:

1. Residual heat removal system flow
2. Residual heat removal service water system flow
3. Core spray system flow
4. Core spray system pressure

The identification of these variables as Type A by the NRC in its SER was based on the Licensee identifying them as such to the NRC. Consistent with the Staff's SER, the CTS also identifies these four variables as Type A (i.e., CTS Table 3.2-8, items 15, 16, 17 and 18). Furthermore, the UFSAR also identifies these 4 variables as Type A (i.e., UFSAR Table 7.19-1, items A6, A9, A12, and A13).

After further review of this matter, the Licensee has concluded that these four variables can be reclassified from Type A and Category 1 to Type D and Category 2. This reclassification is consistent with the guidance provided by R.G. 1.97, Revision 2. The reclassification of these 4 variables is based on the following:

TECHNICAL CHANGES - RELOCATIONS

R2 (continued)

1. These four variables provide information which is not required to permit the control room operator to take specific manually controlled actions for which no automatic control is provided and thereby enable safety systems to accomplish their safety functions for design basis accidents.

2. These four variables do not provide primary information that is essential for the direct accomplishment of certain specified safety functions.

3. These four variables provide information which indicates the operation of individual safety systems.

4. These four variables provide information which helps the operator make appropriate decisions in using the individual systems important to safety in mitigating the consequences of an accident.

This reclassification is based on a review of the JAFNPP EOPs, the BWROG Emergency Procedure Guidelines and RG 1.97. Accordingly, these variables are reclassified as Type D and Category 2. As such, the reclassification of these variables results in them being a non-significant risk contributor to core damage frequency and offsite release.

The NRC position on application of the screening criteria to post-accident monitoring instrumentation is documented in a letter dated May 7, 1988 from T.E. Murley (NRC) to R.F. Janecek (BWROG). The position was that the post-accident monitoring instrumentation table list should contain, on a plant specific basis, all Regulatory Guide 1.97 Type A instruments specified in the plant's SER on RG 1.97, and all RG 1.97 Category 1 instruments.

Consistent with the NRC's guidance on this matter, and the Licensee's reclassification of these four variables, these variables are relocated to the Technical Requirements Manual (TRM). The TRM will be incorporated by reference in the UFSAR at ITS implementation. Changes to the UFSAR will be controlled by the provisions of 10 CFR 50.59.

TECHNICAL CHANGE - LESS RESTRICTIVE (SPECIFIC)

L7 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

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

   The change modifies the Surveillance to indicate when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required channel in the associated Function is OPERABLE. The PAMs are not considered as an initiator for any accidents previously analyzed. Therefore, this change does not significantly increase the probability of a previously analyzed accident. Also, this change does not further degrade the capability of the monitors to perform their required function under these circumstances since one channel is still OPERABLE. In addition, if an accident should occur while the Surveillance is being performed, the instrument can be restored to OPERABLE status in a short period of time. Therefore, this change does not significantly increase the consequences of a previously analyzed accident. I

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 introduce a new mode of plant operation and does not involve physical modification to the plant. Therefore, it 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?

   This change does not involve a significant reduction in a margin of safety since the monitors are not required to provide automatic response to any design basis accident. The additional time does not significantly affect the contribution of the monitors to risk reduction since the Function is still being monitored by the other OPERABLE channel.

[L1] When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel in the associated Function is OPERABLE. X4

SURVEILLANCE REQUIREMENTS

-----NOTE-----
~~These SRs apply to each Function in Table 3.3.3.1-1.~~ CLB1

SURVEILLANCE	FREQUENCY CLB1
[Table 4.2-8] SR 3.3.3.1.1 Perform CHANNEL CHECK of each required PAM Instrumentation channel.	31 days
[T.4.2-8] SR 3.3.3.1.~~2~~ 3 CLB1 Perform CHANNEL CALIBRATION of each required PAM instrumentation channel except for the Primary Containment H_2 and O_2 Concentration Function Channels. CLB1	[~~18~~] 24 CLB4 months
[Table 4.2-8] SR 3.3.3.1.2 Perform CHANNEL CALIBRATION of each required PAM Primary Containment H_2 and O_2 Concentration Function channel. CLB1	92 days

Revision I

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X2 (continued)

concentration more frequently in the TRM will ensure the limits of oxygen are maintained within limits between the required Surveillances. In addition, the requirements have been renumbered, where applicable, to reflect this deletion.

X3 The brackets from ITS 3.3.3.1 ACTION F have been removed and the ACTION retained in the ITS in accordance with the argument provided by L4.

X4 A Note has been added to the Surveillance Requirements to allow a channel to be inoperable for up to 6 hours solely for performance of required Surveillances provided the other channel in the associated Function is OPERABLE. The 6 hour testing allowance has been granted by the NRC in Technical Specification amendments for Hatch Unit 1 (amendment 185) and Unit 2 (amendment 125), WNP-2 (amendment 149, the ITS amendment), Nine Mile Point Unit 2 (amendment 91, the ITS amendment), and LaSalle Units 1 and 2 (amendments 147/133, respectively, the ITS amendments). The NRC has also granted this allowance in other topical reports for the RPS, ECCS, and isolation instrumentation. I

BASES X3

ACTIONS (continued)

E.1

For the majority of is Functions in Table 3.3.3.1-1, if any Required Action and associated Completion Time of Condition C ~~or D are~~ not met, the plant must be brought to a MODE in which the LCO not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. X3

X3

F.1

Since alternate means of monitoring primary containment area radiation have been developed and tested, the Required Action is not to shut down the plant, but rather to follow the directions of Specification 5.6.~~8~~. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels. 6 PA4

SURVEILLANCE REQUIREMENTS

Insert SR NOTE

XC

The following SRs apply to each PAM instrumentation Function in Table 3.~~3~~.3.1-1.

LLB2

I

SR 3.3.3.1.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel against a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect

(continued)

Revision I

Insert SR NOTE

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required channel in the associated Function is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the probability of properly monitoring post-accident parameters, when necessary.

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X3 The ISTS 3.3.3.1 Condition C Note and ACTION D, special Conditions for hydrogen monitor channels, have been deleted. The CTS requirements only require one Operable Primary Containment H_2 and O_2 monitor channel. Therefore operation is allowed at all times in the Applicable Modes with one of the two channels inoperable. With both channels inoperable, operation is allowed for 30 days as long as the parameter is monitored once each 24 hours or a grab sample is obtained. This requirement has been relocated to the Technical Requirements Manual to ensure the oxygen concentration is maintained within the limits of LCO 3.6.3.1 between Surveillance intervals. The deletion of ISTS 3.3.3.1 Condition C Note and ACTION D will allow a 7 day Completion Time to restore one oxygen and hydrogen monitor channels when both are inoperable, as shown in ITS 3.3.3.1 ACTION C. There is no difference, with respect to their importance during an accident, between the H_2 and O_2 channels and other PAM instrumentation. The requirement to monitor H_2 and O_2 concentration more frequently in the TRM will ensure the limits of oxygen are maintained within limits between the required Surveillances. Therefore, the discussion in the Bases for ACTION C has been revised to not include any reference to a Note, ACTION D has been deleted and the wording in the subsequent ACTION has been revised to reflect this deletion. In addition, the subsequent requirements have been renumbered, where applicable, to reflect this deletion.

X4 The details in the Bases of SR 3.3.3.1 on the specific method to perform the CHANNEL CHECK on high radiation equipment has been deleted since this SR is currently performed by comparing the two Containment High Range Radiation channels. In addition, appropriate methods for performing the CHANNEL CHECKS and CALIBRATIONS on PCIV indication channels have been included since the methods are different than the typical methods.

X5 The LCO Bases description for primary containment isolation valve position indication has been revised to reflect the Bases for allowing some penetrations to not have position indication. This modification is consistent with the details provided in footnote (a) of ITS Table 3.3.3.1-1. In addition, reference to Note (b) has been changed to footnote (b) to be consistent with other places in the Bases.

X6 The Bases have been modified to describe a Note added to the actual Specifications. I

SURVEILLANCE REQUIREMENTS

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

I

SURVEILLANCE		FREQUENCY
SR 3.3.3.1.1	Perform CHANNEL CHECK of each required PAM instrument channel.	31 days
SR 3.3.3.1.2	Perform CHANNEL CALIBRATION of each required PAM Primary Containment H_2 and O_2 Concentration Function channel.	92 days
SR 3.3.3.1.3	Perform CHANNEL CALIBRATION of each required PAM instrumentation channel except for the Primary Containment H_2 and O_2 Concentration Function channels.	24 months

BASES

ACTIONS (continued)

F.1

Since alternate means of monitoring primary containment area radiation have been developed and tested, the Required Action is not to shut down the plant, but rather to follow the directions of Specification 5.6.6. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the other required channel in the associated Function is OPERABLE. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the probability of properly monitoring post-accident parameters, when necessary.

I

SR 3.3.3.1.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel against a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. For the PCIV Position Function, the CHANNEL CHECK consists of verifying the remote indication conforms to expected valve position.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1.1 (continued)

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

The Frequency of 31 days is based upon plant operating experience, with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given Function in any 31 day interval is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of those displays associated with the channels required by the LCO.

SR 3.3.3.1.2 and SR 3.3.3.1.3

These SRs require a CHANNEL CALIBRATION to be performed. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies the channel responds to measured parameter with the necessary range and accuracy. For PCIV Position Function, the CHANNEL CALIBRATION consists of verifying the remote indication conforms to actual valve position.

The 92 day Frequency for CHANNEL CALIBRATION of the Primary Containment Hydrogen and Oxygen Concentration channels is based on vendor recommendations. The 24 month Frequency for CHANNEL CALIBRATION of all other PAM instrumentation of Table 3.3.3.1-1 is based on operating experience and consistency with the typical industry refueling cycles.

REFERENCES

1. Regulatory Guide 1.97, Revision 3, Instrumentation For Light-Water-Cooled Nuclear Power Plants To Assess Plant And Environs Conditions During And Following An Accident, May 1983.

2. NRC letter, H. I. Abelson to J. C. Brons dated March 14, 1988, regarding conformance to Regulatory Guide 1.97, Rev. 2. Includes NRR Safety Evaluation Report for Regulatory Guide 1.97 and James A. FitzPatrick Nuclear Power Plant.

(continued)

BASES

REFERENCES (continued)	3.	10 CFR 50.36(c)(2)(ii).
	4.	UFSAR, Section 9.14.4.
	5.	DRF-T23-6681-1, Error in FitzPatrick Temperature Measurement Based on Monticello In-plant S/RV Test Data.

Specification 3.3.3.2

A1

L1 I

3.2 (cont'd)	4.2 (cont'd)
[3.3.3.2] ~~J.~~ **Remote Shutdown ~~Capability~~** System	[3.3.3.2] ~~J.~~ **Remote Shutdown Capability** System — add SR Note
[LCO 3.3.3.2] ~~1.~~ The remote shutdown instrument and control circuits in Table 3.2-10 shall be operable in the ~~Run and Startup/Hot Standby modes~~. [APPLICABILITY] MODES 1 and 2 M1	[SR 3.3.3.2.1] [SR 3.3.3.2.2] [SR 3.3.3.2.3] Instruments and controls shall be tested and calibrated as indicated in Table 3.2-10.

add proposed Note 2 to ACTIONS A2

ACTION A

2. With one or more required instrument circuits inoperable:

   a. restore the required instrument circuit to operable status within 30 days, or

   b. ~~establish an alternate method of monitoring the parameter within 30 days and restore the required instrument circuit to operable status within 90 days, or~~ M3

[ACTION B]

   c. be in hot shutdown within the next 12 hours.

ACTION A

3. With one or more required control circuits inoperable:

   a. ~~place the component actuated by that control circuit in the safe shutdown configuration, or~~ M3

   b. restore the required control circuit to operable status within 30 days, or

[ACTION B]

   c. be in hot shutdown within the next 12 hours.

4. ~~Specification 3.2.J does not apply if the component actuated by a required control circuit is inoperable.~~ M2

[Note 1 to ACTIONS] 5. The provisions of Specification ~~3.0.D~~ 3.0.4 are not applicable.

TECHNICAL CHANGES - MORE RESTRICTIVE

M3 (continued)

instrument or control circuit to operable status within 30 days have been incorporated in proposed ITS 3.3.3.2 Required Action A.1. The 30 day Completion Time in the current and proposed Specification is sufficient to restore the required channel to Operable status. Since the option has been deleted this change is considered more restrictive.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 Not Used.

LA2 Details in CTS Table 3.2-10 relating to the Instrument or Control Functions of the Remote Shutdown System (including number of channels and divisions) are unnecessary in the LCO and are proposed to be relocated to the Technical Requirements Manual (TRM). ITS 3.3.3.2 requires the Remote Shutdown System Functions to be OPERABLE. The details for system Operability are not necessary to ensure the Remote Shutdown System is Operable. The requirements of ITS 3.3.3.2 which requires the Remote Shutdown System Functions to be OPERABLE, the Surveillances, and the definition of OPERABILITY suffice. The Bases describes the safety functions which must be met by the Remote Shutdown System Instrumentation and also identifies that the instruments are listed in the Technical Requirements Manual. This change is consistent with guidelines in Generic Letter 91-08 (Removal of Component Lists From Technical Specifications), May 6, 1991, for removal of component lists from Technical Specifications. The TRM will be revised, such that the component lists are updated promptly after any approved safety evaluation which results in any modifications to the listing to ensure compliance with ITS 3.3.3.2 at all times. The removal of this list from the Technical Specifications into the TRM has been recently approved for the Washington Public Power Supply System (WNP2), Nine Mile Point Unit 2, and LaSalle County Station Units 1 and 2, on the same basis. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. At ITS implementation, the relocated requirements in the TRM will be incorporated by reference into the UFSAR. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 A Note has been added to CTS 4.2.J (ITS 3.3.3.2 Surveillance Requirements Note) to allow a channel to be inoperable for up to 6 hours

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 (continued)

solely for performance of required Surveillances. The 6 hour testing allowance has been granted by the NRC in TS amendments for Hatch Unit 1 (amendment 185) and Unit 2 (amendment 125), WNP-2 (amendment 149, the ITS amendment), Nine Mile Point Unit 2 (amendment 91, the ITS amendment), and LaSalle Units 1 and 2 (amendments 147/133, respectively, the ITS amendments). The NRC has also granted this allowance in other topical reports for the Reactor Protection System, Emergency Core Cooling System, and isolation equipment. The 6 hour testing allowance does not significantly reduce the probability of properly monitoring Remote Shutdown System parameters, when necessary. I

L2 The requirement in CTS 4.2.J and Table 3.2-10 to perform a Functional Test is proposed to be changed to the requirements in ITS SR 3.3.3.2.2 to verify each required Remote Shutdown System transfer switch and control switch performs the intended function. This change includes changing the manner of performance of this SR from operating each actuated component from the associated control panel (e.g., Remote Shutdown Panel) to allowing performance of a continuity check to confirm Operability. I

A continuity check is considered to be adequate to ensure that each transfer switch and control circuit performs its intended function. Direct cycling of switches and actuation of components can result in unnecessary wear and tear on vital plant components. Performance of continuity checks ensures that the required Remote Shutdown System Functions remain Operable without necessitating component actuation.

TECHNICAL CHANGES - RELOCATIONS

None

NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS: 3.3.3.2 - REMOTE SHUTDOWN SYSTEM

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 CHANGE

The Licensee has evaluated the proposed Technical Specification change identified as "Technical Changes - Less Restrictive" and has determined that it does not involve a significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10 CFR 50.92. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

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

   The change modifies the Surveillance to indicate when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. The Remote Shutdown System is not considered as an initiator for any accidents previously analyzed. Therefore, this change does not significantly increase the probability of a previously analyzed accident. In addition, if an accident should occur while the Surveillance is being performed, the instrument can be restored to OPERABLE status in a short period of time. Therefore, this change does not significantly increase the consequences of a previously analyzed 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 introduce a new mode of plant operation and does not involve physical modification to the plant. Therefore, it 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?

   This change does not involve a significant reduction in a margin of safety since the instruments are not required to provide automatic response to any design basis accident. The additional time does not significantly affect the contribution of the instruments to risk reduction since the function can be restored in a short period of time.

3.3 INSTRUMENTATION

3.3.3.2 Remote Shutdown System

[3.2J.1] LCO 3.3.3.2 The Remote Shutdown System Functions ~~in Table 3.3.3.2-1~~ (X1) shall be OPERABLE.

[3.2.J.1] APPLICABILITY: MODES 1 and 2.

ACTIONS

-----NOTES-----

[3.2.J.5] 1. LCO 3.0.4 is not applicable.

[A2] 2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable. [3.2J.2.a] [3.2.J.3.b]	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met. [3.2.J.2.c] [3.2.J.3.c]	B.1 Be in MODE 3.	12 hours

[L1] (X2) NOTE When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. (I)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
[Table 3.2-10] SR 3.3.3.2.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days (CLB2)

(continued)

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS: 3.3.3.2 - REMOTE SHUTDOWN SYSTEM

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The SR Frequency of SR 3.3.3.2.2 and SR 3.3.3.2.3 have been modified from 18 months to 24 months, which is consistent with CTS Table 3.2-10. The Bases provides sufficient justification for this Frequency.

CLB2 ISTS SR 3.3.3.2.1 has been retained in the ITS since the CHANNEL CHECKS can be performed and is consistent with the current requirements in CTS Table 3.2-10.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 The brackets have been removed and the proper plant specific value/nomenclature has been provided.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

None

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

None

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 The Remote Shutdown Table (Table 3.3.3.2-1) has been relocated to the Technical Requirements Manual. This change is consistent with the provisions of Generic Letter 91-08 for the removal of lists and has been recently approved for Washington Public Power Supply System (WNP2), Nine Mile Point Unit 2, and LaSalle County Station Units 1 and 2, on that basis.

X2 A Note has been added to the Surveillance Requirements (Note for ITS 3.3.3.2) to allow a channel to be inoperable for up to 6 hours solely for performance of required Surveillances. The 6 hour testing allowance has been granted by the NRC in Technical Specification amendments for Hatch Unit 1 (amendment 185) and Unit 2 (amendment 125), WNP-2 (amendment 149, the ITS amendment), Nine Mile Point Unit 2 (amendment I

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X2 (continued)

91, the ITS amendment), and LaSalle Units 1 and 2 (amendments 147/133, respectively, the ITS amendments). The NRC has also granted this allowance in other topical reports for the RPS, ECCS, and isolation instrumentation.

B 3.3 INSTRUMENTATION

DBI all changes except as indicated

B 3.3.3.2 Remote Shutdown System

BASES

BACKGROUND

The Remote Shutdown System provides the control room operator with sufficient instrumentation and controls to place and maintain the plant in a safe shutdown condition from a location other than the control room. This capability is necessary to protect against the possibility of the control room becoming inaccessible. A safe shutdown condition is defined as MODE 3. With the plant in MODE 3, the Reactor Core Isolation Cooling (RCIC) System, the safety/relief valves, and the Residual Heat Removal Shutdown Cooling System can be used to remove core decay heat and meet all safety requirements. The long term supply of water for the RCIC and the ability to operate shutdown cooling from outside the control room allow extended operation in MODE 3.

INSERT BKGD-3

S PA1 (S/RVS) RHR DBI PA1 I I

In the event that the control room becomes inaccessible, the operators can establish control at the remote shutdown panel and place and maintain the plant in MODE 3. Not all controls and necessary transfer switches are located at the remote shutdown panel. Some controls and transfer switches will have to be operated locally at the switchgear, motor control panels, or other local stations. The plant automatically reaches MODE 3 following a plant shutdown and can be maintained safely in MODE 3 for an extended period of time.

INSERT BKGD-5

is in

I I

The OPERABILITY of the Remote Shutdown System control and instrumentation Functions ensures that there is sufficient information available on selected plant parameters to place and maintain the plant in MODE 3 should the control room become inaccessible.

I

APPLICABLE SAFETY ANALYSES

The Remote Shutdown System is required to provide equipment at appropriate locations outside the control room with a design capability to promptly shut down the reactor to MODE 3, including the necessary instrumentation and controls, to maintain the plant in a safe condition in MODE 3.

I

(continued)

Revision I

DB1

INSERT BKGD-3

This is accomplished by depressurizing the reactor pressure vessel (RPV) with the use of seven S/RVs and establishing a long term cooling path. Water is pumped from the suppression pool by an RHR pump, through an RHR heat exchanger and to the RPV via the low pressure coolant injection (LPCI) pathway. As reactor water level increases and the main steam lines become flooded, water is recirculated to the suppression pool through the S/RV discharge piping. The long term supply of water from the suppression pool and the ability to operate the RHR System in this closed loop configuration from outside the control room allows operation in a safe shutdown condition for an extended period of time.

DB1

INSERT BKGD-5

Other major controls are located at the Automatic Depressurization System (ADS) panel and auxiliary shutdown panels.

DB2 2 and 3

BASES

DB2

APPLICABLE SAFETY ANALYSES (continued)

The criteria governing the design and the specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1). the UFSAR

DB2 3

The Remote Shutdown System ~~is considered an important contributor to reducing the risk of accidents; as such, it has been retained in the Technical Specifications (TS) as indicated in the NRC Policy Statement.~~ TA1

Satisfies Criterion 4 of the NRC Policy Statement

I

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the plant in MODE 3 from a location other than the control room. The instrumentation and controls ~~typically~~ required are listed in ~~Table 3.3.3.2-1 in the accompanying LCO.~~ PA1

PA1 5 X2

10 CFR 50.36(c)(2)(ii) (Ref. 4)

X1 X2

the Technical Requirements Manual (Reference 5). In addition, as stated in the Technical Requirements Manual, this portion of the Technical Requirements Manual is considered part of these Bases. Thus, changes to the instrumentation and controls listed in the Technical Requirements Manual are controlled by the Technical Specifications Bases Control Program.

PA2

~~Reviewer's Note: For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends upon the plant's licensing basis as described in the NRC plant specific Safety Evaluation Report (SER). Generally, two divisions are required to be OPERABLE. However, only one channel per given Function is required if the plant has justified such a design and the NRC SER has accepted the justification.~~

The controls, instrumentation, and transfer switches are those required for:

- Reactor pressure vessel (RPV) pressure control;
- Decay heat removal;
- RPV inventory control; and
- Safety support systems for the above functions, including Emergency service water, ~~component cooling~~ RHR Service water, Crescent area unit coolers and onsite power, including the emergency diesel generators.

PA3 PA3 DB1 PA3

The Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown function are OPERABLE. In some cases, ~~Table 3.3.3.2-1 may indicate that~~ the required information or control capability is available from several alternate sources. In these cases, the Remote Shutdown System is OPERABLE as long as one

(continued)

BASES

LCO (continued)

channel of any of the alternate information or control sources for each Function is OPERABLE.

The Remote Shutdown System instruments and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instruments and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1 and 2. This is required so that the plant can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

1 I

This LCO is not applicable in MODES 3, 4, and 5. In these MODES, the plant is already subcritical and in a condition of reduced Reactor Coolant System energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control becomes unavailable. Consequently, the LCO TS do not require OPERABILITY in MODES 3, 4, and 5. es

PAI

ACTIONS

A Note (Note 1) is included that excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a plant shutdown. This exception is acceptable due to the low probability of an event requiring this system.

PAI

Note 2 has been provided to modify the ACTIONS related to Remote Shutdown System Functions. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable Remote Shutdown System Functions provide appropriate compensatory measures for separate Functions.

(continued)

Revision I

BASES

ACTIONS (continued)

As such, a Note has been provided that allows separate Condition entry for each inoperable Remote Shutdown System Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System is inoperable. This includes any Function listed in Table 3.3.3.2-1, as well as the control and transfer switches.

Reference 5

The Required Action is to restore the Function (both divisions, if applicable) to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1

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

SURVEILLANCE REQUIREMENTS

Insert SR Note

X3

SR 3.3.3.2.1

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

I

(continued)

Revision I

Insert SR NOTE

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the probability of properly monitoring remote shutdown parameters, when necessary.

I

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.1 (continued)

the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Channel

PA1

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency is based upon plant operating experience that demonstrates channel failure is rare. 1 I

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel , auxiliary shutdown panels and the local control stations. ~~However, this Surveillance is not required to be performed only during a plant outage.~~ The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience demonstrates that Remote Shutdown System control channels usually pass the Surveillance when performed at the ~~18~~ 24 month Frequency. 1 I PA1

CLB1

PA1

SR 3.3.3.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies the channel responds to measured parameter values with the necessary range and accuracy.

The ~~18~~ 24 month Frequency is based upon operating experience and consistency with the typical industry refueling cycle.

CLB1

(continued)

Revision I

BASES (continued)

REFERENCES

1. ~~10 CFR 50, Appendix A, GDC 19.~~

UFSAR, Section 16.6 DB2

2. UFSAR, Section 14.5.12.
3. UFSAR, Section 7.2.3.6.j.
4. 10 CFR 50.36 (c)(2)(ii).

DB2

5 Technical Requirements Manual, Appendix D.

X2

I

Revision I

JUSTIFICATION FOR DIFFERENCES FROM NUREG-1433, REVISION 1
ITS BASES: 3.3.3.2 - REMOTE SHUTDOWN SYSTEM

RETENTION OF EXISTING REQUIREMENT (CLB)

CLB1 The SR Frequency of ITS SR 3.3.3.2.2 and SR 3.3.3.2.3 have been modified from 18 months to 24 months, which is consistent with CTS Table 3.2-10. The Bases provides sufficient justification for this Frequency.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT (PA)

PA1 Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

PA2 Reviewer's note deleted.

PA3 Changes have been made to reflect the plant specific nomenclature.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN (DB)

DB1 Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific design.

DB2 The appropriate references have been included.

DIFFERENCE BASED ON AN APPROVED TRAVELER (TA)

TA1 The changes presented in Technical Specification Task Force (TSTF) Technical Specification Change Traveler number 367, Revision 0 have been incorporated into the revised Improved Technical Specifications.

DIFFERENCE BASED ON A SUBMITTED, BUT PENDING TRAVELER (TP)

None

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X1 NUREG-1433, Revision 1, Bases reference to "the NRC Policy Statement" has been replaced with 10 CFR 50.36(c)(2)(ii), in accordance with 60 FR 36953 effective August 18, 1995.

X2 The Remote Shutdown Table (Table 3.3.3.2-1) has been relocated to the Technical Requirements Manual (TRM). This change is consistent with the provisions of Generic Letter 91-08 for the removal of lists and has recently been approved for Washington Public Power Supply System (WNP2), Nine Mile Point Unit 2, and LaSalle County Station Units 1 and 2. In

DIFFERENCE FOR ANY REASON OTHER THAN THE ABOVE (X)

X2 (continued)

addition, since this Table is still considered part of the Bases via reference, changes to the Table in the TRM are controlled by the Technical Specifications Bases Control Program. I

X3 The Bases have been modified to describe a Note added to the actual Specification. I

SURVEILLANCE REQUIREMENTS

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

I

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

B 3.3 INSTRUMENTATION

B 3.3.3.2 Remote Shutdown System

BASES

BACKGROUND

The Remote Shutdown System provides the control room operator with sufficient instrumentation and controls to place and maintain the plant in a safe shutdown condition from locations other than the control room. This capability is necessary to protect against the possibility of the control room becoming inaccessible. A safe shutdown condition is defined as MODE 3. With the plant in MODE 3, the safety/relief valves (S/RVs) and the Residual Heat Removal (RHR) System can be used to remove core decay heat and meet all safety requirements. This is accomplished by depressurizing the reactor pressure vessel (RPV) with the use of seven S/RVs and establishing a long term cooling path. Water is pumped from the suppression pool by an RHR pump, through an RHR heat exchanger and to the RPV via the low pressure coolant injection (LPCI) pathway. As reactor water level increases and the main steam lines become flooded, water is recirculated to the suppression pool through the S/RV discharge piping. The long term supply of water from the suppression pool and the ability to operate the RHR System in this closed loop configuration from outside the control room allows operation in a safe shutdown condition for an extended period of time.

In the event that the control room becomes inaccessible, the operators can establish control at the remote shutdown panel and place and maintain the plant in MODE 3. Not all controls and necessary transfer switches are located at the remote shutdown panel. Other major controls are located at the Automatic Depressurization System (ADS) panel and auxiliary shutdown panels. Some controls and transfer switches will have to be operated locally at the switchgear, motor control panels, or other local stations. The plant is in MODE 3 following a plant shutdown and can be maintained safely in MODE 3 for an extended period of time.

The OPERABILITY of the Remote Shutdown System control and instrumentation Functions ensures that there is sufficient information available on selected plant parameters to place and maintain the plant in MODE 3 should the control room become inaccessible.

(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES

The Remote Shutdown System is required to provide equipment at appropriate locations outside the control room with a design capability to promptly shut down the reactor to MODE 3, including the necessary instrumentation and controls, to maintain the plant in a safe condition in MODE 3.

The criteria governing the design and the specific system requirements of the Remote Shutdown System are located in the UFSAR (Refs. 1, 2 and 3).

The Remote Shutdown System satisfies Criterion 4 of 10 CFR 50.36 (c)(2)(ii)(Ref.4).

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the instrumentation and controls necessary to place and maintain the plant in MODE 3 from locations other than the control room. The instrumentation and controls required are listed in the Technical Requirements Manual (Reference 5). In addition, as stated in the Technical Requirements Manual, this portion of the Technical Requirements Manual is considered part of these Bases. Thus, changes to the instrumentation and controls listed in the Technical Requirements Manual are controlled by the Technical Specifications Bases Control Program.

The controls, instrumentation, and transfer switches are those required for:

- Reactor pressure vessel (RPV) pressure control;
- Decay heat removal;
- RPV inventory control; and
- Safety support systems for the above functions, including Emergency Service water, RHR Service water, cresent area unit coolers and onsite power, including the emergency diesel generators.

The Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the remote shutdown function are OPERABLE. In some cases, the required

(continued)

BASES

LCO (continued)

information or control capability may be available from several alternate sources. In these cases, the Remote Shutdown System is OPERABLE as long as one channel of any of the alternate information or control sources for each Function is OPERABLE.

The Remote Shutdown System instruments and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure that the instruments and control circuits will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1 and 2. This is required so that the plant can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODES 3, 4, and 5. In these MODES, the plant is already subcritical and in a condition of reduced Reactor Coolant System energy. Under these conditions, considerable time is available to restore necessary instrument control Functions if control room instruments or control becomes unavailable. Consequently, the LCO does not require OPERABILITY in MODES 3, 4, and 5.

ACTIONS

A Note (Note 1) is included that excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a plant shutdown. This exception is acceptable due to the low probability of an event requiring this system.

Note 2 has been provided to modify the ACTIONS related to Remote Shutdown System Functions. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial

(continued)

BASES

ACTIONS (continued)

entry into the Condition. However, the Required Actions for inoperable Remote Shutdown System Functions provide appropriate compensatory measures for separate Functions.

As such, a Note has been provided that allows separate Condition entry for each inoperable Remote Shutdown System Function.

A.1

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System is inoperable. This includes any function listed in Reference 5, as well as the control and transfer switches.

The Required Action is to restore the Function (both divisions, if applicable) to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1

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

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. The 6 hour testing allowance is acceptable since it does not significantly reduce the

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

probability of properly monitoring remote shutdown parameters, when necessary.

SR 3.3.3.2.1

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

Channel agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. As specified in the Surveillance, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency is based upon plant operating experience that demonstrates channel failure is rare.

SR 3.3.3.2.2

SR 3.3.3.2.2 verifies each required Remote Shutdown System transfer switch and control circuit performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the plant can be placed and maintained in MODE 3 from the remote shutdown panel, auxiliary shutdown panels and the local control stations. The 24 month Frequency is based on the need to perform this

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2.2 (continued)

Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience demonstrates that Remote Shutdown System control channels usually pass the Surveillance when performed at the 24 month Frequency.

SR 3.3.3.2.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies the channel responds to measured parameter values with the necessary range and accuracy.

The 24 month Frequency is based upon operating experience and consistency with the typical industry refueling cycle.

REFERENCES

1. UFSAR, Section 16.6.
2. UFSAR, Section 14.5.12.
3. UFSAR, Section 7.2.3.6.j.
4. 10 CFR 50.36 (c)(2)(ii).
5. Technical Requirements Manual, Appendix D. |I

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 (continued)

for one Function when both Functions are not maintaining ATWS-RPT trip capability, consistent with the CTS. 1Ⓘ

These changes are acceptable for the following reasons:

1) Because of the diversity of sensors available to provide trip signals, the low probability of extensive numbers of inoperabilities affecting all diverse Functions, and the low probability of an event requiring the initiation of ATWS-RPT, the 14 days is provided to restore or place a channel in the trip condition with one or more channels inoperable as long as trip capability is maintained for each Function.

2) The 72 hour Completion Time is sufficient for the operator to take corrective action and takes into account the likelihood of an event requiring actuation of the ATWS-RPT instrumentation during this period and that one Function is still maintaining ATWS-RPT trip capability. 1Ⓘ

These changes are consistent with the Completion Times used in an analysis (GENE-770-06-1-A) to extend certain out of service times for test and repair and is consistent with NUREG-1433, Revision 1. The JAFNPP logic design is similar to the BWR-4 design used in the analysis therefore this change is acceptable. The NRC, in their letter dated July 21, 1992, from Charles E. Rossi, Division of Operational Events Assessment to R. D. Binz IV, Chairman of the BWR Owner's Group, approved the above referenced General Electric Topical Report GENE-770-06-1. In the NRC's letter, the Staff concluded that the analyses presented in the Topical Report was acceptable for supporting Licensee's proposed Technical Specification changes subject to the conditions noted in their letter. These conditions were:

1. Confirmation of the applicability of the generic analysis to the plant.

2. Confirmation that any increase in instrument drift due to the extended surveillance test intervals is properly accounted for in the setpoint calculation methodology.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L2 (continued)

A review of this matter has been completed. The Licensee has concluded that the generic analysis is applicable to the JAFNPP and that the setpoint calculation methodology properly accounts for the effects of increased instrument drift associated with the extended surveillance test intervals. Accordingly, use of the Topical Report to support these Technical Specification changes is acceptable.

L3 CTS Table 3.2-7 Note 1.a, and Note 1.b requires that the reactor be placed in startup/hot standby mode within 6 hours if the associated Required Actions are not met. ITS 3.3.4.1 Required Action D.2 (Be in MODE 2) provides the same requirement as the CTS but an alternative Required Action has been added to the CTS. ITS 3.3.4.1 Required Action D.1 will allow the affected recirculation pump be removed from service. This action will accomplish the Safety Function of the ATWS-RPT instrumentation and enables continued operation. This change is acceptable since JAFNPP has been analyzed to operate in single loop operation as allowed by CTS 3.5.K, Single-Loop Operation, and proposed ITS 3.4.1, Recirculation Loops Operating. Therefore, this action can only be taken if the inoperability is associated with one RPT breaker. If the inoperability is associated with the instrumentation, then the only alternative is to be in MODE 2 within 6 hours. For clarity a NOTE (ITS 3.3.4.1 Required Action D.1 Note) has been added which specifies that the action to remove the affected recirculation pump from service is only applicable if the inoperable channel is the result of an inoperable RPT breaker. This note prevents the operator from removing both recirculation pumps from service under the most likely scenario where ATWS-RPT Instrumentation trip capability is not maintained for one or more functions as a consequence of inoperable instrumentation. This change is consistent with NUREG-1433, Revision 1 as modified by TSTF 297 R1. | I

TECHNICAL CHANGES - RELOCATIONS

None

A1

JAFNPP

Table 3.3.5.1-1 ECCS Instrumentation

~~TABLE 3.2-2~~

~~CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS~~

Item No.	Minimum No. of Operable Instrument Channels Per Trip System (LA2)	Trip Function	Trip Level Setting (Allowable Value) (A12)	Total Number of Instrument Channels Provided by Design for Both Trip Systems (Required Channels per Function) (A7)	Remarks (LA1) (see ITS: 3.3.5.2)
[3.a] → 1	2 (LA2) Notes 1, 11 [ACTION B,A] [SR Table 2.A]	Reactor Low-Low Water Level	≥ 126.5 in. above TAF	4 HPCI & RCIC (A8)	Initiates HPCI, RCIC and SGTS (LAI) (Table 3.3.5-1 Note b)
[1.a] [2.a] [4.a] [5.a] → 2	2 (LA2) Notes 2, 3, 11 [ACTION B,H for Functions 1.a, 2.a] [ACTION F,B for Functions 4.a, 5.a] [SR Table Note 2.A]	Reactor Low-Low-Low Water Level	≥ 18 in. above TAF (LA4)	[1.a] [2.a] 4 Core Spray & RHR; [4.a] [5.a] 4 (ADS) (A8) 2 in Trip System A 2 in Trip System B (A7)	Initiates Core Spray, RHR (LPCI), and Emergency Diesel Generators. Initiates ADS (if not inhibited by ADS override switches) in conjunction with Confirmatory Low Level, 120 second delay and RHR (LPCI) or Core Spray pump discharge pressure interlock. (LA1)
[3.c] → 3	2 (LA2) Notes 4, 12 [ACTION C,H] [SR Table Note 2.A]	Reactor High Water Level	≤ 222.5 in. above TAF	2 (Note 16) (LA2)	Trips HPCI turbine. (LA1) (see ITS: 3.3.5.2)
~~4~~	~~2 (Notes 4, 12)~~	~~Reactor High Water Level~~	~~≤ 222.5 in. above TAF~~	~~2 (Note 16)~~	~~Closes RCIC steam supply valve.~~
[2.e] → 5	1 (LA2) Notes 5, 11 [ACTION B,A] [SR Table Note 2.b]	Reactor Low Level (inside shroud)	≥ 0 in. above TAF (LA4) 1 inch (M6)	2	Prevents inadvertent operation of containment spray during accident condition. (LA1)
[2.h] → 6	2 (LA2) Notes 5, 11 [ACTION B,H] [SR Table Note 2.b]	Containment High Pressure	1 < p ≤ 2.7 psig (add new value) (L6)	4	Prevents inadvertent operation of containment spray during accident condition. (LA1)

add Functions 1.e, 1.f, 2.g, 3.f and 3.g (M2)

TECHNICAL CHANGES - MORE RESTRICTIVE

M6 This change replaces the setpoint or Allowable Value (A12) in CTS Table 3.2-2, Item 5, Reactor Low Level (inside shroud), containment spray interlock of ≥ 0.0 in. with ≥ 1 inch (ITS Table 3.3.5.1-1 Function 2.e). The Allowable Values (to be included in the Technical Specifications) and the Trip Setpoints (to be included in plant procedures) have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the "Allowable Values" are consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." The proposed value will ensure the most limiting requirement is met. All design limits, applied in the methodologies, were confirmed as ensuring that applicable design requirements of the associated system is maintained.

| I

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details in the CTS Table 3.2-2 "Remarks" column (i.e., initiates HPCI, SGTS, Core Spray, RHR (LPCI) and, etc) are proposed to be relocated to the Bases and therefore the "Remarks" column has been deleted. The Trip Functions in CTS Table 3.2-2 will be associated along with the System which is provides a support Function in the ITS. Therefore all Functions in CTS Table 3.2-2 providing a support Function to the Core Spray System, Low Pressure Injection System (LPCI), High Pressure Coolant Injection (HPCI) System and the Automatic Depressurization System (Trip System A and B) are now associated with the specific System in ITS Table 3.3.5.1-1. Therefore the details in the "Remarks" column are not necessary and have been relocated to the Bases. The Bases will describe the actual support Function (e.g., initiate HPCI). The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, the details in Table 3.3.5.1-1 for each Function, the definition of Operability and the associated Surveillance Requirements will ensure the instrumentation remains Operable. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA2 CTS Table 3.2-2 includes both a "Minimum No. of Operable Instrument Channels Per Trip System" column and a "Total Number of Instrument Channels Provided by Design for Both Trip Systems." In addition, Note 16 further specifies there is only one trip system associated with certain High Pressure Coolant Injection Functions (i.e., Item 3, 17, and 18), Item 11 (Core Spray Pump Start Timer), Item 12 (RHR Pump Start

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

LA2 (continued)

Timers). The details that some Functions include more than one trip system and that others Functions only include one trip system are proposed to be relocated to the Bases (except for ADS, see A7). The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 must be OPERABLE, the details in Table 3.3.5.1-1 for each Function (Required Channels per Function or per pump), the definition of Operability and the associated Surveillance Requirements will ensure the instrumentation remains Operable. As such, this detail (number of trip systems) is not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA3 The detail in the CTS Table 3.2-2 "Trip Level Setting" column for Function 17 (Condensate Storage Tank Low Level) that the setting is equivalent to 15,600 gallons available is proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, the Allowable Value for Function 3.d (Condensate Storage Tank Level - Low) of $\geq$ 59.5 inches, and the specified Surveillances will ensure that the associated instrumentation remains OPERABLE. As such, this detail is not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA4 The detail in CTS Table 3.2-2 that the Trip Level Setting of the Reactor Water Level Trip Functions (1, 2, 3, 5, and 7) is referenced from the Top of Active Fuel (TAF) is proposed to be relocated to the Bases. CTS 1.0.Z definition specifies that the Top of Active Fuel, corresponding to the top of the enriched fuel column of each fuel bundle, is located 352.5 inches above vessel zero, which is the lowest point in the inside bottom of the reactor pressure vessel. (See General Electric drawing No. 919D690BD). These details are also proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.5.1 that the ECCS instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE, the requirements in the Table including the Allowable Value for Functions 1.a, 2.a, 2.e, 3.a, 3.c, 4.a and 5.a, the definition of Operability, the proposed Actions, and Surveillance Requirements are adequate to ensure the instrumentation is properly maintained. In addition, the Bases includes a statement that the Allowable Value is referenced from a level of water 352.56 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column. As such, these details are not required to be in the ITS

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

LA4 (continued)

to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L1 Not Used.

L2 CTS Table 3.2-2 Item 9 directs entry into Note 6 which requires the repair of one or more inoperable channels in 24 hours. The current action is independent of the plant conditions. An option has been provided in the ITS for these same Functions if operating in MODES 4 or 5. ITS Table 3.3.5.1 Functions 1.c and 2.c will now require entry into ITS 3.3.5.1 ACTION B and Required Action B.3 will require to place inoperable channels in the tripped condition within 24 hours if operating in MODES 4 or 5. The allowance to restore the channels to operable status is still applicable since LCO 3.0.2 will allow this action to be exited if the channel is restored to operable status prior to the Completion Time. In MODES 4 and 5 the reactor pressure is low and the pressure setpoint of all instrument channels should already be actuated. Therefore, placing the channel(s) in trip accomplishes the Function of the instrumentation. With the channels in trip the Core Spray System and Low Pressure Coolant Injection System injection valves will not open since the opening of these valves is also dependent on a Loss of Coolant Signal in conjunction with low reactor pressure. Therefore, placing one or more channels in trip is acceptable if operating in MODES 4 and 5.

L3 CTS Table 3.2-2 Item 24 (Reactor Pressure - Low) is currently required whenever the associated Low Pressure Coolant Injection (LPCI) System is required to be Operable as specified in CTS 3.2.B. In the ITS this Applicability has been reduced. ITS 3.3.5.1 Function 2.d will only require this Function to be Operable in MODE 1, 2 and 3 when the associated discharge valve is open (ITS Table 3.3.5.1-1 Footnote c). With the valve(s) closed, the function of the instrumentation has been performed; thus, the Function is not required. In MODES 4 and 5, the loop injection location is not critical since LPCI injection through the recirculation loop in either direction will still ensure that LPCI flow reaches the core (i.e., there is no significant reactor back pressure). Therefore, this change in the CTS Applicability is acceptable since the

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L3 (continued)

associated LPCI loop will still be able to perform its associated safety function.

L4 CTS Table 3.2-2 Action Notes 2.A and 6.A require action to be taken in 1 hour upon discovery of loss of initiation capability. ITS 3.3.5.1 Required Actions B.2 and C.1 require these same actions but Note 1 has been added to both of these actions which will only require these actions to be taken during MODES 1, 2 and 3. Note 2 simply clarifies which Functions these actions are applicable to. This change is less restrictive since it will allow 24 hours to restore initiation capability as governed by ITS 3.3.5.1 Required Actions B.3 and C.2. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 24 hours is allowed during MODES 4 and 5.

L5 Not Used.

L6 The CTS Table 3.2-2 Trip Level Settings (Allowable Value) for Item 6 (Containment High Pressure), which prevents inadvertent operation of containment spray during accident conditions, Item 9 (Reactor Low Pressure), which provides an open signal to the Core Spray (CS) and Low Pressure Coolant Injection (LPCI) System injection valves, and Item 24 (Reactor Low Pressure), which provides a close signal to the recirculation pump discharge valves, have been revised. The Allowable Value for Item 6 has been changed from > 1 psig and < 2.7 psig to ≥ 1 psig to ≤ 2.7 psig (ITS Table 3.3.5.1 Function 2.h). The Allowable Value for Item 9 has been changed from ≥ 450 psig to ≥ 410 psig and ≤ 490 psig (ITS Table 3.3.5.1-1 Functions 1.c for CS and 2.c for LPCI). The Trip Level Setting for Item 24 is 285 to 335 psig. This has been changed to ≥ 295 psig (ITS Table 3.3.5.1-1 Function 2.d). The Allowable Value for Functions 1.c and 2.c is low enough to prevent overpressuring the equipment in the low pressure ECCS, but high enough to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46. The Allowable Value for Function 2.d is chosen to ensure that the valves close prior to commencement of LPCI injection flow into the core, as assumed in the safety analysis. The Allowable Value for Function 2.h is low enough to ensure containment spray is not isolated when needed, but high enough to ensure isolation of containment spray prior to establishing a negative containment pressure. The Allowable Values have been established consistent with the NYPA Engineering Standards Manual, IES-3A, "Instrument Loop Accuracy and Setpoint Calculation Methodology." The methodology used to determine the Allowable Values are consistent with the methodology discussed in ISA-S67.04-1994, Part II, "Methodologies for the

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

L6 (continued)

Determination of Setpoints for Nuclear Safety-Related Instrumentation. Any changes to the safety analysis limits, applied in the methodologies, were evaluated and confirmed as ensuring safety analysis licensing acceptance limits are maintained. All design limits, applied in the methodologies, were confirmed as ensuring that applicable design requirements of the associated systems are maintained. The use of this methodology for establishing Allowable Values and Trip Setpoints ensures design or safety analysis limits are not exceeded in the event of transients or accidents and accounts for uncertainties and environmental conditions. This change is consistent with NUREG-1433, Revision 1.

L7 CTS Table 3.2-2, Item 11 specifies the trip level setting for the Core Spray Pump Start Time to be 11 ± 1.34 seconds. CTS Table 3.2-2, Item 12 specifies the trip level setting for the RHR (LPCI) Pump Start Timers to be 1.25 ± 0.26 seconds for the 1st pump in loops A and B and 6.0 ± 0.73 seconds for the 2nd pump in loops A and B. In ITS Table 3.3.5.1-1 the Allowable Value for Function 1.d (Core Spray Pump Start-Time Delay Relay) is ≤ 12.34 seconds while the Allowable Value for Function 2.f (LPCI Start-Time Delay Relays) is ≤ 1.51 seconds for the A and D pumps and ≤ 6.73 seconds for the B and C pumps. The proposed Allowable Values for the time delay relays are consistent with the upper limit of the CTS trip level settings (e.g., 11 + 1.34 seconds). The lower limit for the timers have been deleted. The Allowable Values included in ITS 3.3.5.1 ensure ECCS will operate within the time period assumed in the accident analyses. The current timer settings also ensure that the time delays are long enough so that most of the starting transient of a pump is complete before starting a subsequent pump. This requirement is maintained since a more restrictive requirement has been added for AC-Sources in ITS 3.8.1. SR 3.8.1.13 requires the verification that the interval between each sequenced load block is within the minimum design interval. If this new requirement is not met, then the associated EDG subsystem and reserve circuit must be declared inoperable and 12 hours are provided to restore the EDG or reserve circuit to operable status. This allowed out of service time is shorter than that currently provided by CTS Table 3.2-2 (Note 7.A). Therefore, the removal of the low limit for the timers from CTS Table 3.2-2 based on the addition of the requirement in ITS 3.8.1 is acceptable.

TECHNICAL CHANGES - RELOCATIONS

None

Table 3.3.5.1-1 (page 3 of 6)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (DB11)
2. LPCI System (continued)		(DB6)		(DB7)	
[M2] g. Low Pressure Coolant Injection Pump Discharge Flow — Low (Bypass)	1,2,3, 4(a), 5(a)	[1 per ~~pump~~] subsystem	E	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.2~~ SR 3.3.5.1.3 ~~SR 3.3.5.1.5~~ SR 3.3.5.1.6	≥ [ ] 1040 gpm and ≤ [ ] 1265 gpm (DB3)
~~h. Manual Initiation~~ (DB4)	~~1,2,3, 4(a), 5(a)~~	~~[2] [1 per subsystem]~~	~~C~~	~~SR 3.3.5.1.6~~	~~NA~~
[T.3.2-2(6)] add Insert Function 2.h (DB12) 3. High Pressure Coolant Injection (HPCI) System					
[T.3.2-2(1)] [T.4.2-2(1)] a. Reactor Vessel Water Level — Low Low Level 2 (PA1)	1, 2(d), 3(d)	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 (CLB3) SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6 (CLB1) ~~SR 3.3.5.1.7~~	≥ ~~[-47]~~ 126.5 inches
[T.3.2-2(8)] [T.4.2-2(8b)] b. Drywell Pressure — High	1, 2(d),3(d)	[4]	B	SR 3.3.5.1.1 SR 3.3.5.1.2 (CLB3) SR 3.3.5.1.3 (4) SR 3.3.5.1.5 SR 3.3.5.1.6 (CLB1) ~~SR 3.3.5.1.7~~	≤ ~~[1.92]~~ 2.7 psig
[T.3.2-2(3)] [T.4.2-2(1)] c. Reactor Vessel Water Level — High Level 8 (PA1)	1, 2(d), 3(d)	[2]	C	SR 3.3.5.1.1 SR 3.3.5.1.2 (CLB3) SR 3.3.5.1.3 (4) SR 3.3.5.1.5 SR 3.3.5.1.6 (CLB1) ~~SR 3.3.5.1.7~~	≤ ~~[56.5]~~ 222.5 inches (1)
[T.3.2-2(17)] [T.4.2-2(6)] d. Condensate Storage Tank Level — Low	1, 2(d), 3(d)	~~[2]~~ 4	D	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.2~~ SR 3.3.5.1.3 ~~SR 3.3.5.1.4~~ SR 3.3.5.1.6 (DB7)	≥ ~~[0]~~ 59.5 inches
[T.3.2-2(18)] [T.4.2-2(6)] e. Suppression Pool Water Level — High	1, 2(d), 3(d)	[2] (DB6)	D	~~SR 3.3.5.1.1~~ ~~SR 3.3.5.1.2~~ SR 3.3.5.1.3 ~~SR 3.3.5.1.5~~ SR 3.3.5.1.6	≤ ~~[154] inches~~ 14.5 feet

(continued)

[A10] (a) When the associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2. (TA1) (DB10)

[A10] (d) With reactor steam dome pressure > [150] psig.

DB(1)

INSERT Function 2.h

2.h Containment Pressure - High

The Containment Pressure - High Function is provided as an isolation of the containment spray mode of RHR on decreasing containment pressure following manual actuation of the system. This isolation ensures excessive depressurization of the containment does not occur due to containment spray actuation. This Function also serves as an interlock permissive to allow the RHR System to be manually aligned from the LPCI mode to the containment spray mode after containment pressure has exceeded the trip setting. The permissive ensures that containment pressure is elevated before the manual transfer is allowed. This ensures that LPCI is available to prevent or minimize fuel damage until such time that the operator determines that containment pressure control is needed. The Containment Pressure - High Function is implicitly assumed in the analysis of LOCAs inside containment (Refs. 1, 2 and 4) since the analysis assumes that containment spray occurs when containment pressure is high.

Containment Pressure - High signals are initiated from four pressure switches that sense drywell pressure. The Containment Pressure - High lower Allowable Value is chosen to ensure isolation of containment spray prior to a negative containment pressure occuring. This maintains margin to the negative design pressure and minimizes operation of the reactor building-to-suppression chamber vacuum breakers, which in turn prevents de-inerting the atmosphere. The upper Allowable Value is chosen to ensure containment spray is not isolated when there may be a need for containment spray.

Four channels of the Containment Pressure - High Function are only required to be OPERABLE in MODES 1, 2 and 3. In MODES 4 and 5, containment spray is not assumed to be initiated, and other administrative controls are adequate to control the valves that this Function isolates.

DBI

INSERT Function 3.a (1)

In addition, the Standby Gas Treatment (SGT) System suction valves receive an open signal so that the gland seal exhaust from the HPCI turbine can be treated. Opening of the SGT System suction valves results in automatic starting of the SGT System. I

DBI

INSERT Function 3.a (2)

The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 6)

The HPCI, RCIC and ATWS-RPT initiation functions (as described in Table 3.3.5.1, Functions 3.a; Table 3.3.5.2, Function 1 and LCO 3.3.4.1.a including SR 3.3.4.1.4, respectively) describe the reactor vessel water level initiation function as "Low Low (Level 2)." The Allowable Values associated with the HPCI and RCIC initiation function is different from the Allowable Value associated with the ATWS-RPT initiation function as the ATWS function has a separate analog tip unit. Nevertheless, consistent with the nomenclature typically used in design documents, the "Low Low (Level 2)" is retained in describing each of these three initiation functions.

DBI

INSERT Function 3.b

In addition, the SGT System suction valves receive an open signal so that the gland seal exhaust from the HPCI turbine can be treated. Opening of the SGT System suction valves results in automatic starting of SGT.

BASES

DB2

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

d e d e

4.e, 4.f, 5.e, 5.f. Core Spray and Low Pressure Coolant Injection Pump Discharge Pressure—High (continued)

one pump (both channels for the pump) indicate the high discharge pressure condition. The Pump Discharge Pressure—High Allowable Value is less than the pump discharge pressure when the pump is operating in a full flow mode and high enough to avoid any condition that results in a discharge pressure permissive when the CS and LPCI pumps are aligned for injection and the pumps are not running. The actual operating point of this function is not assumed in any transient or accident analysis.

However, this function is implicitly assumed to operate to provide the ADS permissive to depressurize the RCS to allow the ECCS low pressure systems to operate.

PA2

1 I

Twelve channels of Core Spray and Low Pressure Coolant Injection Pump Discharge Pressure—High Function are only required to be OPERABLE when the ADS is required to be OPERABLE to ensure that no single instrument failure can preclude ADS initiation. Two CS channels associated with CS pump A and four LPCI channels associated with LPCI pumps A and ~~B~~ C are required for trip system A. Two CS channels associated with CS pump B and four LPCI channels associated with LPCI pumps B and ~~C~~ D are required for trip system B. Refer to LCO 3.5.1 for ADS Applicability Bases.

DB2

~~4.g, 5.g. Automatic Depressurization System Low Water Level Actuation Timer~~

~~One of the signals required for ADS initiation is Drywell Pressure—High. However, if the event requiring ADS initiation occurs outside the drywell (e.g., main steam line break outside containment), a high drywell pressure signal may never be present. Therefore, the Automatic Depressurization System Low Water Level Actuation Timer is used to bypass the Drywell Pressure—High Function after a certain time period has elapsed. Operation of the Automatic Depressurization System Low Water Level Actuation Timer Function is not assumed in any accident analysis. The instrumentation is retained in the TS because ADS is part of the primary success path for mitigation of a DBA.~~

~~There are four Automatic Depressurization System Low Water Level Actuation Timer relays, two in each of the two ADS trip systems. The Allowable Value for the Automatic Depressurization System Low Water Level Actuation Timer is chosen to ensure that there is still time after~~

(continued)

Revision I

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
g. Low Pressure Coolant Injection Pump Discharge Flow – Low (Bypass)	1,2,3, 4(a), 5(a)	1 per subsystem	E	SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 1040 gpm and ≤ 1665 gpm
h. Containment Pressure – High	1,2,3	4	B	SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 1 psig and ≤ 2.7 psig
3. High Pressure Coolant Injection (HPCI) System					
a. Reactor Vessel Water Level – Low Low (Level 2)	1, 2(d), 3(d)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 126.5 inches
b. Drywell Pressure – High	1, 2(d),3(d)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.7 psig
c. Reactor Vessel Water Level – High (Level 8)	1, 2(d), 3(d)	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 222.5 inches
d. Condensate Storage Tank Level – Low	1, 2(d), 3(d)	4	D	SR 3.3.5.1.3 SR 3.3.5.1.6	≥ 59.5 inches
e. Suppression Pool Water Level – High	1, 2(d), 3(d)	2	D	SR 3.3.5.1.3 SR 3.3.5.1.6	≤ 14.5 feet

(continued)

1 (I)

(a) When the associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2.

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

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2.e. Reactor Vessel Shroud Level (Level 0) (continued)

is implicitly assumed in the analysis of the recirculation line break (Refs. 1, 2 and 4) since the analysis assumes that no LPCI flow diversion occurs when reactor water level is below Level 0.

Reactor Vessel Shroud Level (Level 0) signals are initiated from two level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. The Reactor Vessel Shroud Level (Level 0) Allowable Value is chosen to allow the low pressure core flooding systems to activate and provide adequate cooling before allowing a manual transfer. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 6).

Two channels of the Reactor Vessel Shroud Level (Level 0) Function are only required to be OPERABLE in MODES 1, 2, and 3. In MODES 4 and 5, the specified initiation time of the LPCI subsystems is not assumed, and other administrative controls are adequate to control the valves associated with this Function (since the systems that the valves are opened for are not required to be OPERABLE in MODES 4 and 5 and are normally not used).

2.h. Containment Pressure-High

The Containment Pressure-High Function is provided as an isolation of the containment spray mode of RHR on decreasing containment pressure following manual actuation of the system. This isolation ensures excessive depressurization of the containment does not occur due to containment spray actuation. This Function also serves as an interlock permissive to allow the RHR System to be manually aligned from the LPCI mode to the containment spray mode after containment pressure has exceeded the trip setting. The permissive ensures that containment pressure is elevated before the manual transfer is allowed. This ensures that LPCI is available to prevent or minimize fuel damage until such time that the operator determines that containment pressure control is needed. The Containment Pressure-High

(continued)

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2.h. Containment Pressure-High (continued)

Function is implicitly assumed in the analysis of LOCAs inside containment (Refs. 1, 2, and 4) since the analysis assumes that containment spray occurs when containment pressure is high.

Containment Pressure-High signals are initiated from four pressure switches that sense drywell pressure. The Containment Pressure-High lower Allowable Value is chosen to ensure isolation of containment spray prior to a negative containment pressure occuring. This maintains margin to the negative design pressure and minimizes operation of the reactor building-to-suppression chamber vacuum breakers, which in turn prevents de-inerting the atmosphere. The upper Allowable Value is chosen to ensure containment spray is not isolated when there may be a need for containment spray.

Four channels of the Containment Pressure-High Function are only required to be OPERABLE in MODES 1, 2, and 3. In MODES 4 and 5, containment spray is not assumed to be initiated, and other administrative controls are adequate to control the valves that this Function isolates.

High Pressure Coolant Injection System

3.a. Reactor Vessel Water Level-Low Low (Level 2)

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, the HPCI System is initiated at Level 2 to maintain level above the top of the active fuel. In addition, the Standby Gas Treatment (SGT) System suction valves receive an open signal so that the gland seal exhaust from the HPCI turbine can be treated. Opening of the SGT System suction valves results in automatic starting of the SGT System. The Reactor Vessel Water Level-Low Low (Level 2) is one of the Functions assumed to be OPERABLE and capable of initiating HPCI during the transients analyzed in Reference 3. Additionally, the Reactor Vessel Water Level-Low Low (Level 2) Function associated with HPCI is assumed to be OPERABLE and capable of initiating HPCI in the analysis of line breaks (Refs. 1

(continued)

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APPLICABLE SAFETY ANALYSES LCO, and APPLICABILITY

4.c, 5.c. Reactor Vessel Water Level - Low (Level 3) (continued)

discussion of this Function. The Allowable Value is the water level above a zero reference level which is 352.56 inches above the lowest point inside the RPV and is also at the top of a 144 inch fuel column (Ref. 6).

Two channels of Reactor Vessel Water Level - Low (Level 3) Function are only required to be OPERABLE when the ADS is required to be OPERABLE to ensure that no single instrument failure can preclude ADS initiation. One channel inputs to ADS trip system A, while the other channel inputs to ADS trip system B. Refer to LCO 3.5.1 for ADS Applicability Bases.

4.d, 4.e, 5.d, 5.e. Core Spray and Low Pressure Coolant Injection Pump Discharge Pressure - High

The Pump Discharge Pressure - High signals from the CS and LPCI pumps are used as permissives for ADS initiation, indicating that there is a source of low pressure cooling water available once the ADS has depressurized the vessel. Pump Discharge Pressure - High is one of the Functions assumed to be OPERABLE and capable of permitting ADS initiation during the events analyzed in References 1, 2, and 4 with an assumed HPCI failure. For these events the ADS depressurizes the reactor vessel so that the low pressure ECCS can perform the core cooling function. This core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

Pump discharge pressure signals are initiated from twelve pressure switches, two on the discharge side of each of the six low pressure ECCS pumps. In order to generate an ADS permissive in one trip system, it is necessary that only one pump (both channels for the pump) indicate the high discharge pressure condition. The Pump Discharge Pressure - High Allowable Value is less than the pump discharge pressure when the pump is operating in a full flow mode and high enough to avoid any condition that results in a discharge pressure permissive when the CS and LPCI pumps are aligned for injection and the pumps are not running.

(continued)

BASES

APPLICABLE SAFETY ANALYSIS LCO, and APPLICABILITY

4.d, 4.e, 5.d, 5.e. Core Spray and Low Pressure Coolant Injection Pump Discharge Pressure - High (continued)

The actual operating point of this function is not assumed in any transient or accident analysis. However, this function is implicitly assumed to operate to provide the ADS permissive to depressurize the RCS to allow the ECCS low pressure systems to operate.

Twelve channels of Core Spray and Low Pressure Coolant Injection Pump Discharge Pressure-High Function are only required to be OPERABLE when the ADS is required to be OPERABLE to ensure that no single instrument failure can preclude ADS initiation. Two CS channels associated with CS pump A and four LPCI channels associated with LPCI pumps A and D are required for trip system A. Two CS channels associated with CS pump B and four LPCI channels associated with LPCI pumps B and C are required for trip system B. Refer to LCO 3.5.1 for ADS Applicability Bases.

ACTIONS

A Note has been provided to modify the ACTIONS related to ECCS instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable ECCS instrumentation channels provide appropriate compensatory measures for separate inoperable Condition entry for each inoperable ECCS instrumentation channel.

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.1-1. The applicable Condition referenced in the table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

(continued)

BASES

ACTIONS (continued)

B.1, B.2, and B.3

Required Actions B.1 and B.2 are intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in redundant automatic initiation capability being lost for the feature(s). Required Action B.1 features would be those that are initiated by Functions 1.a, 1.b, 2.a, and 2.b (e.g., low pressure ECCS). The Required Action B.2 system would be HPCI. For Required Action B.1, redundant automatic initiation capability is lost if (a) two or more Function 1.a channels are inoperable and untripped such that both trip systems lose initiation capability, (b) two or more Function 2.a channels are inoperable and untripped such that both trip systems lose initiation capability, (c) two or more Function 1.b channels are inoperable and untripped such that both trip systems lose initiation capability, or (d) two or more Function 2.b channels are inoperable and untripped such that both trip systems lose initiation capability. For low pressure ECCS, since each inoperable channel would have Required Action B.1 applied separately (refer to ACTIONS Note), each inoperable channel would only require the affected portion of the associated system of low pressure ECCS and EDGs to be declared inoperable. However, since channels in both associated low pressure ECCS subsystems (e.g., both CS subsystems) are inoperable and untripped, and the Completion Times started concurrently for the channels in both subsystems, this results in the affected portions in the associated low pressure ECCS and EDGs being concurrently declared inoperable.

For Required Action B.2, redundant automatic HPCI initiation capability is lost if two or more Function 3.a or two or more Function 3.b channels are inoperable and untripped such that trip capability is lost. In this situation (loss of redundant automatic initiation capability), the 24 hour allowance of Required Action B.3 is not appropriate and the HPCI System must be declared inoperable within 1 hour. As noted (Note 1 to Required Action B.1), Required Action B.1 is only applicable in MODES 1, 2, and 3. In MODES 4 and 5, the specific initiation time of the low pressure ECCS is not assumed and the probability of a LOCA is lower. Thus, a total loss of initiation capability for 24 hours (as allowed by Required Action B.3) is allowed during MODES 4 and 5. There is no similar Note provided for Required Action B.2 since HPCI instrumentation is not required in MODES 4 and 5; thus, a Note is not necessary.

(continued)

Specification 3.3.5.2 A1

Table 3.3.5.2-1 Reactor Core Isolation Cooling System Instrumentation

TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

Required Channels per Function

Item No.	Minimum No. of Operable Instrument Channels Per Trip System (LA1)	Trip Function (A9)	Trip Level Setting (Allowable Value)	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Remarks
~~1~~ 1 [ACTION B, E]	~~2~~ (LA1) (~~Notes 1,~~ 11)	Reactor Low-Low Water Level (Level 2) [SR Table Note 2]	≥ 126.5 in. ~~above TAF~~ (LA4)	4 (HPCI & RCIC) (See ITS: 3.3.5.1)	~~Initiates HPCI, RCIC, and SGTS.~~ (LA2)
2	2 (Notes 2, 3, 11)	Reactor Low-Low-Low Water Level	≥ 18 in. above TAF	4 (Core Spray & RHR)	Initiates Core Spray, RHR (LPCI), and Emergency Diesel Generators.
				4 (ADS)	Initiates ADS (if not inhibited by ADS override switches), in conjunction with Confirmatory Low Level, 120 second delay and RHR (LPCI) or Core Spray pump discharge pressure interlock.
3	2 (Notes 4, 12)	Reactor High Water Level	≤ 222.5 in. above TAF	2 (Note 16)	Trips HPCI turbine.
[2] ~~4~~ [ACTION C, E]	(LA1) ~~2~~ (~~Notes 4,~~ 12)	Reactor High Water Level [Level 8] [SR Table Note 2]	≤ 222.5 in. ~~above TAF~~ (LA4)	2 ~~(Note 16)~~ (LA1)	~~Closes RCIC steam supply valve.~~ (LA2)
5	1 (Notes 5, 11)	Reactor Low Level (inside shroud)	≥ 0 in. above TAF	2	Prevents inadvertent operation of containment spray during accident condition.
6	2 (Notes 5, 11)	Containment High Pressure	1 < p < 2.7 psig	4	Prevents inadvertent operation of containment spray during accident condition.

See ITS: 3.3.5.1

add Function 4 (M2)

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TECHNICAL CHANGES - MORE RESTRICTIVE

M1 (continued)

requiring a surveillance to be performed on a more frequent basis, the change is considered more restrictive. The proposed change is consistent with NUREG-1433, Revision 1.

M2 A new Function has been added to the CTS Table 3.2-2 and 4.2-2 that requires one channel of RCIC Manual Initiation to be Operable consistent with the Applicability of all other RCIC Instrumentation requirements in the current Specification. In addition, ITS SR 3.3.5.2.6 (LOGIC SYSTEM FUNCTIONAL TEST) and ACTION C are applicable to this Function. This Function is not assumed in any accident or transient analyses in the UFSAR, however the Function is included for overall redundancy and diversity of the RCIC function.

M3 CTS Table 3.2-2 Item No. 16 (Condensate Storage Tank Level) requires two channels to be Operable. For the same Function in the ITS (ITS 3.3.5.2-1 Function 3) the required number of channels has been increased to 4 channels. The JAFNPP design includes two condensate storage tanks. Both tanks provide suction to the RCIC pump and each tank is instrumented with two channels of Condensate Storage Tank Level – Low. At least one channel in each tank must indicate low water level for the automatic transfer logic to function to initiate the transfer of the suction source from the CSTs to the suppression pool. Therefore, to ensure that no single instrument failure can preclude RCIC swap to the suppression pool source four channels of Condensate Storage Tank Level – Low are proposed to be included in the ITS. The addition of new requirements constitutes a more restrictive change.

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TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA1 The details of the "Minimum No. of Operable Instrument Channels Per Trip System" column of Table CTS 3.2-2 and Note 16 (only one trip system) is proposed to be relocated to the Bases. The requirements in LCO 3.3.5.2, that the RCIC instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE and the definition of OPERABILITY suffice. ITS Table 3.3.5.2-1 will specify the "Required Channels per Function" which is identical to the current requirements. The details of the logic configuration and the number of trip systems is included in the Bases. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (GENERIC)

LA2 The details (i.e., closes, RCIC steam supply valve, etc) in the "Remarks" column of CTS Table 3.2-2 are proposed to be relocated to the Bases. These details are not required to be included in the Specification to ensure Operability. The requirements in LCO 3.3.5.2 that the RCIC System instrumentation for each Function shall be OPERABLE and the ITS definition of OPERABILITY suffice. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA3 The details in the CTS Table 3.2-2 "Trip Level Setting" column for Function 16 (Condensate Storage Tank Low Level) that the setting is equivalent to 15,600 gallons available is proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.5.2 that the RCIC System instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE, the Allowable Value for Function 3 (Condensate Storage Tank Level - Low) of > 59.5 inches above the tank bottom, and the specified Surveillances will ensure that the associated instrumentation remains OPERABLE. Therefore the detail is not necessary and has been relocated to the Bases. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

LA4 The detail in CTS Table 3.2-2 that the Trip Level Setting of the Reactor Water Level Trip Functions (Items 1 and 4) is referenced from the Top of Active Fuel (TAF) is proposed to be relocated to the Bases. CTS 1.0.Z definition specifies that the Top of Active Fuel, corresponding to the top of the enriched fuel column of each fuel bundle, is located 352.5 inches above vessel zero, which is the lowest point in the inside bottom of the reactor pressure vessel. (See General Electric drawing No. 919D690BD). These details are also proposed to be relocated to the Bases. The requirement in ITS LCO 3.3.5.2 that the ECCS instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE, the requirements in the Table including the Allowable Value for Functions 1 and 2, the definition of Operability, the proposed Actions, and Surveillance Requirements are adequate to ensure the instrumentation is properly maintained. In addition, the Bases includes a statement that the Allowable Value corresponds to a level of water 352.56 inches above the lowest point in the inside bottom of the reactor pressure vessel and also corresponds to the top of a 144 inch fuel column. As such, these details are not required to be in the ITS to provide adequate protection of public health and safety. Changes to the Bases will be controlled by the provisions of the Bases Control Program described in Chapter 5 of the ITS.

TECHNICAL CHANGES - LESS RESTRICTIVE (SPECIFIC)

None

TECHNICAL CHANGES - RELOCATIONS

None

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

PA1 DB5

	FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
[T.3.2-2 (1)] [Note 1] [T.4.2-2 (1)]	1. Reactor Vessel Water Level — Low Low, Level 2 (C) (7) PA2	~~[4]~~ DB4	B	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.~~[3]~~ 4 SR 3.3.5.2.5 SR 3.3.5.2.6 CLB2	≥ [-47] inches 126.5
[T.3.2-2 (4)] [Note 4] [T.4.2-2 (1)]	2. Reactor Vessel Water Level — High, Level 8	~~[2]~~	C	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.~~[3]~~ 4 SR 3.3.5.2.5 SR 3.3.5.2.6 CLB2	≤ [56.5] inches 222.5
[T.3.2-2 (16)] M3 [Note 9] [T.4.2-2 (6)]	3. Condensate Storage Tank Level — Low	~~[2]~~ 4	D DB3 add SR 3.3.5.2.3	~~[SR 3.3.5.2.1]~~ ~~SR 3.3.5.2.2~~ ~~[SR 3.3.5.2.3]~~ ~~[SR 3.3.5.2.4]~~ SR 3.3.5.2.6	≥ [0] inches 59.5
DB2	~~4. Suppression Pool Water Level — High~~	~~[2]~~	~~D~~	~~[SR 3.3.5.2.1]~~ ~~SR 3.3.5.2.2~~ ~~[SR 3.3.5.2.3]~~ ~~SR 3.3.5.2.5~~ ~~SR 3.3.5.2.6~~	~~≤ [151] inches~~
[M2]	~~5~~ 4. Manual Initiation	~~[1]~~ DB4	C	SR 3.3.5.2.6	NA X1

I

DBI unless otherwise noted

B 3.3 INSTRUMENTATION

B 3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

BASES

BACKGROUND

PA1

RCIC System initiation occurs and maintains sufficient reactor water level such that an

The purpose of the RCIC System instrumentation is to initiate actions to ensure adequate core cooling when the reactor vessel is isolated from its primary heat sink (the main condenser) and normal coolant makeup flow from the Reactor Feedwater System is insufficient or ~~unavailable, such that~~ initiation of the low pressure Emergency Core Cooling Systems (ECCS) pumps does not occur. A more complete discussion of RCIC System operation is provided in the Bases of LCO 3.5.3, "RCIC System."

PA1 I

– Low Low (Level 2) PA1

The RCIC System may be initiated by either automatic or manual means. Automatic initiation occurs for conditions of reactor vessel ~~Low Low~~ water level – Low Low (Level 2). The variable is monitored by four transmitters that are connected to four trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic arrangement. Once initiated, the RCIC logic seals in and can be reset by the operator only when the reactor vessel water level signals have cleared.

PA1

PA2

The normally closed RCIC test line isolation valve ~~(which is also a primary containment isolation valve)~~ is closed on a RCIC initiation signal to allow full system flow ~~and maintain primary containment isolated in the event RCIC is not operating~~.

The RCIC System also monitors the water levels in ~~the~~ each condensate storage tank (CST) ~~and the suppression pool~~ since this is the initial source ~~these are the two sources~~ of water for RCIC operation. Reactor grade water in the CSTs is the normal source. Upon receipt of a RCIC initiation signal, the CSTs suction valve is automatically signaled to open (it is normally in the open position) unless both the pump suction from the suppression pool valves ~~is~~ are open. If the water level in ~~the~~ both CSTs falls below a preselected level, first the suppression pool suction valves automatically open, and then the CST suction valve automatically closes. Two level switches are used to detect low water level in ~~the~~ each CST. ~~Either switch can cause~~ A level switch associated with each CST must actuate to cause the suppression pool suction valves to open and the CSTs suction valve to close. ~~The suppression pool suction valves also automatically open and the CST suction valve closes if high water level is detected in the suppression pool~~ The channels are arranged in a one-out-of-two taken twice logic.

The CST suction source consists of two CSTs connected in parallel to the RCIC pump suction.

(continued)

BASES

ACTIONS (continued)

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered to be inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the RCIC System. In this case, automatic initiation capability is lost if two Function 1 channels in the same trip system are inoperable and untripped. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour after discovery of loss of RCIC initiation capability.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically initiated due to two inoperable, untripped Reactor Vessel Water Level—Low Low, Level 2 channels in the same trip system. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. 1

PA3 ( )

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 1) to permit restoration of any inoperable channel to OPERABLE status. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.2. Placing the

3 X1 DB1

(continued)

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

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low (Level 2)	4	B	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.4 SR 3.3.5.2.5 SR 3.3.5.2.6	≥ 126.5 inches
2. Reactor Vessel Water Level – High (Level 8)	2	C	SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.4 SR 3.3.5.2.5 SR 3.3.5.2.6	≤ 222.5 inches
3. Condensate Storage Tank Level – Low	4	D	SR 3.3.5.2.3 SR 3.3.5.2.6	≥ 59.5 inches
4. Manual Initiation	1	C	SR 3.3.5.2.6	NA

I

B 3.3 INSTRUMENTATION

B 3.3.5.2 Reactor Core Isolation Cooling (RCIC) System Instrumentation

BASES

BACKGROUND

The purpose of the RCIC System instrumentation is to initiate actions to ensure adequate core cooling when the reactor vessel is isolated from its primary heat sink (the main condenser) and normal coolant makeup flow from the Reactor Feedwater System is insufficient or unavailable, such that RCIC System initiation occurs and maintains sufficient reactor water level such that an initiation of the low pressure Emergency Core Cooling Systems (ECCS) pumps does not occur. A more complete discussion of RCIC System operation is provided in the Bases of LCO 3.5.3, "RCIC System."

The RCIC System may be initiated by either automatic or manual means. Automatic initiation occurs for conditions of Reactor Vessel Water Level – Low Low (Level 2). The variable is monitored by four transmitters that are connected to four trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic arrangement. Once initiated, the RCIC logic seals in and can be reset by the operator only when the reactor vessel water level signals have cleared.

The normally closed RCIC test line isolation valve is closed on a RCIC initiation signal to allow full system flow.

The RCIC System also monitors the water level in each condensate storage tank (CST) since this is the initial source of water for RCIC operation. Reactor grade water in the CSTs is the normal source. The CST suction source consists of two CSTs connected in parallel to the RCIC pump suction. Upon receipt of a RCIC initiation signal, the CSTs suction valve is automatically signaled to open (it is normally in the open position) unless the pump suction from the suppression pool valves are open. If the water level in both CSTs fall below a preselected level, first the suppression pool suction valves automatically open, and then the CST suction valve automatically closes. Two level switches are used to detect low water level in each CST. A level switch associated with each CST must actuate to cause

(continued)

BASES

ACTIONS (continued)

A.1

Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered to be inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.

B.1 and B.2

Required Action B.1 is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Function result in a complete loss of automatic initiation capability for the RCIC System. In this case, automatic initiation capability is lost if two Function 1 channels in the same trip system are inoperable and untripped. In this situation (loss of automatic initiation capability), the 24 hour allowance of Required Action B.2 is not appropriate, and the RCIC System must be declared inoperable within 1 hour after discovery of loss of RCIC initiation capability.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." For Required Action B.1, the Completion Time only begins upon discovery that the RCIC System cannot be automatically initiated due to two inoperable, untripped Reactor Vessel Water Level - Low Low (Level 2) channels in the same trip system. The 1 hour Completion Time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels. I

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 3) to permit restoration of any inoperable channel to OPERABLE status. If the inoperable channel cannot be restored to OPERABLE status within the allowable out of service time, the channel must be placed in the tripped condition per Required Action B.2. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a

(continued)

Specification 3.3.6.1

A1

Table 3.3.6.1-1
Function 6.a

1.2 (cont'd)

3. The reactor vessel dome pressure shall not exceed 75 psig at any time when operating the residual heat removal pump in the shutdown cooling mode.

L1

L1

2.2 (cont'd)

3. Action shall be taken to decrease the reactor vessel dome pressure below 75 psig or the shutdown cooling isolation valves shall be closed.

L1

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I

Specification 3.3.6.1

A1

3.2 LIMITING CONDITIONS FOR OPERATION

3.2 INSTRUMENTATION

Applicability:

Applies to the plant instrumentation which either (1) initiates and controls a protective function, or (2) provides information to aid the operator in monitoring and assessing plant status during normal and accident conditions.

Objective:

To assure the operability of the aforementioned instrumentation.

[Applicability] MODES 1, 2 and 3 M13

Specifications:

A. Primary Containment Isolation Functions

[LCO 3.3.6.1] When primary containment integrity is required, the limiting conditions of operation for the instrumentation that initiates primary containment isolation are given in Table ~~3.2-1~~ 3.3.6.1-1.

4.2 SURVEILLANCE REQUIREMENTS

4.2 INSTRUMENTATION

Applicability:

Applies to the surveillance requirement of the instrumentation which either (1) initiates and controls protective function, or (2) provides information to aid the operator in monitoring and assessing plant status during normal and accident conditions.

Objective:

To specify the type and frequency of surveillance to be applied to the aforementioned instrumentation.

Specifications:

A. Primary Containment Isolation Functions

[Surveillance Requirements Note 1] Instrumentation shall be functionally tested and calibrated as indicated in Table ~~4.2-1~~ 3.3.6.1-1. System logic shall be functionally tested as indicated in Table ~~4.2-1~~.

[SR 3.3.6.1.8] The response time of the main steam isolation valve actuation instrumentation isolation trip functions listed below shall be demonstrated to be within their limits once per 24 months. M4

[Note 2 to SR 3.3.6.1.8] Each test shall include at least one channel in each trip system. All channels in both trip systems shall be tested within two test intervals.

[Table 3.3.6.1-1]

[Function 1.a] 1. MSIV Closure - Reactor Low Water Level (L1) *
(02-3LT-57A,B and 02-3LT-58A,B)

[Function 1.b] 2. MSIV Closure - Low Steam Line Pressure *
(02PT-134A,B,C,D)

[Function 1.c] 3. MSIV Closure - High Steam Line Flow *
(02DPT-116A-D, 117A-D, 118A-D, 119A-D)

L2

* Sensor is eliminated from response time testing for the MSIV actuation logic circuits. Response time testing and conformance to the test acceptance criteria for the remaining channel components includes trip unit and relay logic.

LA12 A2

JAFNPP

Specification 3.3.6.1 (A1)

TABLE ~~3.2-1~~ 3.3.6.1-1

PRIMARY CONTAINMENT ISOLATION ~~SYSTEM~~ INSTRUMENTATION ~~REQUIREMENTS~~

Functions	Minimum No. of Operable Instrument Channels Per Trip System (Notes 1 and 2) — Required	Trip Function (M2: add MODES 4 and 5 to Applicability for 6.b)	Trip Level Setting — Allowable Value (A16)	Total Number of Instrument Channels Provided by Design for Both Trip Systems (LA1)	Action (Note 3) (L19) (L5: add ACTION I for Function 6.b MODE 3 only)
[6.b] [5.e] (L3)	2 [2.a] [7.a]	(1) Reactor Low Water Level (Notes 4 & 6) (LA6)	≥ 177 in. ~~above TAF~~ (LA9) Note (c)	4	[H] [G] ~~A~~ (add ACTION F for Function 5.e) (L4)
[2.g]	2	(2) Reactor Low Water Level (~~Notes 7~~ & 8) (LA6)	≥ 177 in. ~~above TAF~~ (LA9)	2	(L8) [F] ~~B~~
[6.a] [6]	1	(3) Reactor High Pressure (Shutdown Cooling Isolation)	≤ ~~75~~ 74 psig (M14)	2	(L6) D [F] (L7)
[3.e]	[1.a] 2	(4) Reactor Low-Low-Low Water Level	≥ 18 in. ~~above the TAF~~ (LA9)	4	(add ACTION F for 2.e) ~~A~~ [D] (add RA D.1)
(L3)	[5.f] 2 [2.b] [7.b]	(5) Drywell High Pressure (Notes 4 & 7) (LA6)	≤ 2.7 psig	4	(add ACTION F for 5.f) A [G] [H] for 2.b (L19) (L4)
	[2.d] 2	(6) Drywell High Pressure (~~Notes 7~~ & 8) (LA6) Note (c)	≤ 2.7 psig	2	(L8) [F] A
[2.f] (L13)	[1.f] 2	(7) Main Steam Line Tunnel High Radiation	≤ 3 x Normal Rated Full Power Background	4	~~B~~ [F] (L9)
	[1.b] 2	(8) Main Steam Line Low Pressure (Note 5) — MODE 1 (A17)	≥ 825 psig	4	(M15: add ACTION E) B (add R.A. D.2.1 and D.2.2)
	[1.c] 2 per MSL	(9) Main Steam Line High Flow	≤ ~~140% of Rated Steam Flow~~ 125.9 psid (L17)	4	~~C~~ [D]
	[1.e] 8 (A7)	(10) Main Steam Line Leak Detection High Temperature	≤ ~~40°F above max ambient~~ 195°F (M14)	16	~~C~~ [D]
[5.a, b, c]	4 (5a → 1, 5b → 2, 5c → 1)	(11) ~~Reactor Water Cleanup System Equipment Area High Temperature~~ (A7)	≤ ~~40°F above max ambient~~ (add proposed values) (M14)	8	~~E~~ [F]
	[1.d] 2	(12) Condenser ~~Low~~ Vacuum (~~Note 6~~) (M11: add Function 3.d)	≥ 8" Hg. Vac	4	~~E~~ [D]

Add proposed Table 3.3.6.1-1 footnote (d) (M11)

Add proposed Table 3.3.6.1-1, footnote (e) (M2)

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Specification 3.3.6.1 (A1)

Table 3.3.6.1-1 TABLE 3.2-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION REQUIREMENTS

LA1

Function	Minimum No. of Operable Instrument Channels Per Trip System (Note 1 and 2) Required	Trip Function	~~Trip Level Setting~~ Allowable Value (A16)	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Action (Note 3)
[3.a]	1 (M6)	(13) HPCI Turbine Steam Line High Flow	≤ ~~160~~ in H_2O dp 168.24 (L16)	2	F [F]
[3.b]	~~1~~ 2	(14) HPCI Steam Line Low Pressure	~~100 > P > 50 psig~~ ≥ 61 psig and ≤ 90 psig (M14)	2	F [F]
[3.c]	~~1~~ 2	(15) HPCI Turbine High Exhaust Diaphragm Pressure	≤ ~~10~~ psig 9.9 (M14)	2	F [F]
[3.d, e, f, g, h, i, j]	(A7) ~~8~~ d-i 1; j 2	(16) HPCI Steam Line/Area Temperature (A7)	≤ 40°F above max. ambient NEW VALUES	16	F [F]
[4.a]	1 (M6)	(17) RCIC Turbine Steam Line High Flow	≤ ~~262~~ in H_2O dp 272.26 (M14)	2	F [F]
[4.b]	~~1~~ 2	(18) RCIC Steam Line Low Pressure	~~100 > P > 50 psig~~ ≥ 58 psig and ≤ 93 psig	2	F [F]
[4.c]	~~1~~ 2	(19) RCIC Turbine High Exhaust Diaphragm Pressure	≤ ~~10~~ psig 5 (M14)	2	F [F]
[4.d, e, and f]	(A7) ~~8~~ d=1, e=1, f=2	(20) RCIC Steam Line/Area Temperature (A7)	≤ 40°F above max. ambient NEW VALUES	8	F [F]

3.3.6.1-1

Specification 3.3.6.1

A1

TABLE ~~3.2-1 (Cont'd)~~

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION REQUIREMENTS

A3

add ACTION Note 2

add ACTION Note 1

L18

~~NOTES FOR TABLE 3.2-1~~

MODES 1, 2 and 3

M13

[APP] [LCO 3.3.6.1] 1. ~~Whenever Primary Containment Integrity is required by Specification 3.7.A.2~~, there shall be two operable or tripped trip systems for each Trip Function, except as provided for below:

[ACTION A]

a. For each Trip Function with one less than the required minimum number of operable instrument channels, place the inoperable instrument channel and/or its associated trip system in the tripped condition* within:

1) 12 hours for trip functions ~~common to RPS instrumentation, and~~ 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b A15

2) 24 hours for trip functions ~~not common to RPS instrumentation~~, other than Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b

[ACTION C] or, initiate the ACTION required by Table 3.2-1 for the affected trip function.

[ACTION B]

b. For each Trip Function with two or more channels less than the required minimum number of operable instrument channels:

1) Within one hour, verify sufficient instrument channels remain operable or tripped* to maintain trip capability in the Trip Function, and

L10

~~2) Within 6 hours, place the inoperable instrument channel(s) in one trip system and/or that trip system** in the tripped condition*, and~~

[ACTION A]

3) ~~Restore the inoperable instrument channel(s) in the other trip system to an operable status~~, or place the inoperable instrument channel(s) in the trip system and/or that trip system in the tripped condition* within:

A4

A15

(a) 12 hours for trip functions ~~common to RPS instrumentation~~ and 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b

(b) 24 hours for trip functions ~~not common to RPS instrumentation~~. other than Functions 2.a, 2.b, 2.d, 2.g, 5.e, 5.f, 6.b, 7.a, and 7.b

[ACTION C] If any of these three conditions cannot be satisfied, initiate the ACTION required by Table 3.2-1 for the affected Trip Function.

Asterisk shown on next page

A1

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3.3.6.1-1

~~TABLE 3.2-1 (Cont'd)~~

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION REQUIREMENTS

~~NOTES FOR TABLE 3.2-1 (cont'd)~~

[ACTION C]

* An inoperable instrument channel or trip system need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, if the inoperable instrument channel is not restored to operable status within the required time, the ACTION required by Table 3.2-1 for that Trip Function shall be taken. LA2

** This action applies to that trip system with the greatest number of inoperable instrument channels. If both systems have the same number of inoperable instrument channels, the ACTION can be applied to either trip system. L10

[NOTE 2 to SRs]

2. When a channel, and/or the affected primary containment isolation valve, is placed in an inoperable status solely for performance of required instrumentation surveillances, entry into associated Limiting Conditions for Operation and required actions may be delayed as follows: M12

   a) for up to 6 hours for Trip Functions utilizing a two-out-of-two-taken-once logic; or A.5 2.d, 2.g, 7.a, and 7.b

   b) for up to 6 hours for the remaining Trip Functions provided the associated Trip Function maintains PCIS initiation capability for at least one containment isolation valve in the affected penetration. LA4

3. Actions: LA3

MODE 3 in 12 hours M7

36 L11

[H] [D] A. Place the reactor in the cold condition within ~~24~~ hours.

12 L12

[D] B. Isolate the main steam lines within ~~eight~~ hours.

[F] C. Isolate Reactor Water Cleanup System within ~~four~~ hours.

one M8 LA3

[F] D. Isolate shutdown cooling within ~~four~~ hours.

see also ITS:3.3.7.2

[F.1] E. Isolate the main steam line drain valves, the recirculation loop sample valves, and the mechanical vacuum pump within ~~eight~~ hours. one M8

[F] F. Isolate the affected penetration flow path(s) within one hour and declare the affected system inoperable. A6

[D] G. Isolate the affected main steam line within ~~eight~~ hours. 12 L12

M11

add ACTIONS B, C and I for Function 5.d

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Specification 3.3.6.1

A1

Table 3.3.6.1-1 TABLE 3.2-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION REQUIREMENTS

~~**NOTES FOR TABLE 3.2-1 (cont'd)**~~

4. These signals also start SGTS and initiate secondary containment isolation.

See ITS: 3.3.6.2

5. Only required in run mode (interlocked with Mode Switch). APPLICABILITY FOR FUNCTION 1.b

6. Only required in the run mode and turbine stop valves are open. APPLICABILITY FOR FUNCTION 1.d and footnote (a)

7. Instrumentation common to RPS. LA6

[Note (c)] 8. Trip Function utilizes a two-out-of-two taken-once logic for isolation of both primary containment isolation valves on the hydrogen and oxygen sample, and gaseous and particulate sample supply and return lines.

I

LA4

Only one trip system provided for each associated penetration

I

Specification 3.3.6.1

(A1)

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TABLE ~~4.2-1~~ 3.3.6.1-1

PRIMARY CONTAINMENT ISOLATION ~~SYSTEM~~ INSTRUMENTATION [SR 3.3.6.1.1.3 SR 3.3.6.1.1.4 SR 3.3.6.1.1.5 SR 3.3.6.1.1.6]

~~TEST AND CALIBRATION REQUIREMENTS~~

A12

		Instrument Channel ~~(Note 5)~~	[SR 3.3.6.1.1.2] ~~Instrument~~ Channel Functional Test	Channel Calibration Frequency	[SR 3.3.6.1.1] ~~Instrument~~ Channel Check ~~(Note 4)~~ A9
[6.a]	1)	Reactor High Pressure (Shutdown Cooling Isolation)	~~Q~~ — A8	3 - Q	NA
[2.e 1.a]	2)	Reactor Low-Low-Low Water Level	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	~~D~~ -1
[1.e]	3)	Main Steam High Temperature	2 - Q ~~(Note 5)~~ A10	5 - R (Note 15) - 4	D -1
[1.c]	4)	Main Steam High Flow	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	~~D~~ -1
[1.b]	5)	Main Steam Low Pressure	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	D -1
[5.a, 5.b, 5.c]	6)	RWCU Area High Temperature	~~Q~~ — A8	3 - Q ~~(Note 16)~~ A10	NA
[1.d]	7)	Condenser Low Vacuum	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	D -1
[2.f, 1.f]	8)	Main Steam Line High Radiation	A8 ~~Q~~ ~~(Note 5)~~ A10	3 - Q/~~R~~ ~~(Note 11)~~ 6	~~D~~ -1
[3.a] [4.a]	9)	HPCI & RCIC Steam Line High Flow	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	D -1
[3.d → 3.g] [4.d → 4.f]	10)	HPCI & RCIC Steam Line/ Area High Temperature	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	~~D~~ -1
[3.b] [4.b]	11)	HPCI & RCIC Steam Line Low Pressure	2 - Q ~~(Note 5)~~	5 - R (Note 15) - 4	D -1
[3.c] [4.c]	12)	HPCI & RCIC High Exhaust Diaphragm Pressure	~~Q~~ — A8	3 - Q	NA

M9 12 hours

M9 12 hours

I

~~NOTE: See notes following Table 4.2-5.~~ A1

add SRs associated with Functions 5.d

M11

Amendment No. ~~27~~, ~~89~~, ~~126~~, ~~181~~, ~~182~~, ~~190~~, ~~207~~, 227

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A1

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TABLE ~~4.2-1 (Cont'd)~~ 3.3.6.1-1

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION

~~TEST AND CALIBRATION REQUIREMENTS~~

[SR 3.3.6.1.7] See ITS: 3.5.1, 3.6.1.3, 3.6.4.2, 3.6.4.3

Logic System Functional Test (Notes 7 & 9) A11		Frequency
[1] 1)	Main Steam Line Isolation Valves Main Steam Line Drain Valves	~~R~~ 24 months
[2]	Reactor Water Sample Valves	
[6] 2)	RHR - Isolation Valve Control Shutdown Cooling Valves	~~R~~ 24 months
[5] 3)	Reactor Water Cleanup Isolation	~~R~~ 24 months
[2] 4)	Drywell Isolation Valves TIP Withdrawal Atmospheric Control Valves	~~R~~ 24 months
5)	Standby Gas Treatment System Reactor Building Isolation	R see ITS: 3.3.6.2
[3] 6)	HPCI Subsystem Auto Isolation	~~R~~ 24 months
[4] 7)	RCIC Subsystem Auto Isolation	~~R~~ 24 months

LA5

LA5

~~NOTE: See notes following Table 4.2-5.~~

Specification 3.3.6.1 A1

~~NOTES FOR TABLES 4.2-1 THROUGH 4.2-5~~

See ITS: 3.4.5

1. Initially once every month until acceptance failure rate data are available; thereafter, a request may be made to the NRC to change the test frequency. The compilation of instrument failure rate data may include data obtained from other boiling water reactors for which the same design instruments operate in a environment similar to that of JAFNPP.

See ITS: 3.3.2.1

2. Functional tests are not required when these instruments are not required to be operable or are tripped. Functional tests shall be performed within seven (7) days prior to each startup. [SR 3.3.6.1.6]

3. Calibrations are not required when these instruments are not required to be operable or are tripped. Calibration tests shall be performed within seven (7) days prior to each startup or prior to a pre-planned shutdown. [SR 3.3.6.1.3]

A9

4. Instrument checks are not required when these instruments are not required to be operable or are tripped.

A10

5. This instrumentation is exempt from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.

See ITS 3.3.2.1

6. These instrument channels will be calibrated using simulated electrical signals once every three months.

7. Simulated automatic actuation shall be performed once per 24 months.

See ITS: 3.5.1 3.6.1.3 3.6.4.2 3.6.4.3

A12

8. ~~Reactor low water level, and high drywell pressure are not included on Table 4.2-1 since they are listed on Table 4.1-2.~~

A11

9. ~~The logic system functional tests shall include a calibration of time delay relays and timers necessary for proper functioning of the trip systems.~~

10. (Deleted).

LA7 add Note for Function 1.f and 2.f

11. Perform a detector calibration once per 24 months using a radiation source. Perform an instrument channel alignment once every 3 months using a current source.

LA7

CALIBRATION

12. ~~(Deleted)~~

13. ~~(Deleted)~~

14. ~~(Deleted)~~

[SR 3.3.6.1.5] [SR 3.3.6.1.4]

15. Sensor calibration once per 24 months. Master/slave trip unit calibration once per 6 months.

16. ~~The quarterly calibration of the temperature sensor consists of comparing the active temperature signal with a redundant temperature signal.~~ A10

Table 3.3.6.1-1 Primary Containment Isolation Instrumentation

Specification 3.3.6.1 (A1)

~~TABLE 4.1-1~~

~~REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION TEST REQUIREMENTS~~

~~Trip~~ Function	Group (Note 2)	[SR 3.3.6.1.2] Functional Test	[SR 3.3.6.1.2] Functional Test Frequency (Note 3) (A9)	[SR 3.3.6.1.1] Instrument Check
Mode Switch in Shutdown	A	Place Mode Switch in Shutdown	R	NA
Manual Scram	A	Trip Channel and Alarm	Q	NA
RPS Channel Test Switch	A	Trip Channel and Alarm	W (Note 1)	NA
IRM High Flux	C	Trip Channel and Alarm (Note 4)	S/U and W (Note 5)	NA
IRM Inoperative	C	Trip Channel and Alarm (Note 4)	S/U and W (Note 5)	NA
APRM				
High Flux	B	Trip Output Relays (Note 4)	Q	NA
Inoperative	B	Trip Output Relays (Note 4)	Q	NA
Flow Biased High Flux	B	Trip Output Relays (Note 4)	Q	NA
High Flux in Startup or Refuel	C	Trip Output Relays (Note 4)	S/U and W (Note 5)	NA
Reactor High Pressure	B	Trip Channel and Alarm (Note 4) (A10)	Q	D
[7.b] [5.f] [2.b] [2.d] Drywell High Pressure (8)	See ITS: 3.3.1.1 B	Trip Channel and Alarm ~~(Note 4)~~ (L14)	Q - Z	~~D~~ -1 (M9) 12 hours
[6.b] [5.e] [2.a] [2.g] [7.a] Reactor Low Level (9)	B	Trip Channel and Alarm ~~(Note 4)~~	Q - Z	~~D~~ -1
High Water Level in Scram Discharge Instrument Volume	A	Trip Channel	Q (Note 6)	NA
High Water Level in Scram Discharge Instrument Volume	B	Trip Channel and Alarm (Note 4)	Q	D

See ITS: 3.3.1.1

See ITS: 3.3.1.1

I

I

Table 3.3.6.1-1
Primary Containment Isolation Instrumentation

Specification 3.3.6.1
A1

TABLE 4.1-1 (Cont'd)

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION TEST REQUIREMENTS

Trip Function	Group (Note 2)	Functional Test	Functional Test Frequency (Note 3)	Instrument Check
Main Steam Line Isolation Valve Closure	A	Trip Channel and Alarm	Q	NA
Turbine Control Valve Fast Closure	A	Trip Channel and Alarm	Q	NA
Turbine First Stage Pressure Permissive	B	Trip Channel and Alarm (Note 4)	Q	D
Turbine Stop Valve Closure	A	Trip Channel and Alarm	Q	NA

See ITS: 3.3.1.1

NOTES FOR TABLE 4.1-1

1. The automatic scram contactors shall be exercised once every week by either using the RPS channel test switches or performing a functional test of any automatic scram function. If the contactors are exercised using a functional test of a scram function, the weekly test using the RPS channel test switch is considered satisfied. The automatic scram contactors shall also be exercised after maintenance on the contactors.

See ITS: 3.3.1.1

2. A description of the three groups is included in the Bases of this Specification.

See ITS: 3.3.1.1

A9

3. ~~Functional tests are not required on the part of the system that is not required to be operable or are tripped. If tests are missed on parts not required to be operable or are tripped, then they shall be performed prior to returning the system to an operable status.~~

A10

4. ~~This instrumentation is exempted from the instrument channel test definition. This instrument channel functional test will consist of injecting a simulated electrical signal into the instrument channels.~~

5. Weekly functional test required only during refuel and startup mode.

See ITS: 3.3.1.1

6. The functional test shall be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected.

Table 3.3.6.1-1, Primary Containment Isolation Instrumentation

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Specification 3.3.6.1 A1

~~TABLE 4.1-2~~

~~REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION~~
~~MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS~~

Function

See ITS 3.3.1.1

A9

	Instrument Channel	Group (1)	Calibration	Frequency (2)	
	IRM High Flux	C	Comparison to APRM on Controlled Shutdowns	W	See ITS 3.3.1.1
	APRM High Flux Output Signal	B	Heat Balance	D	
	Flow Bias Signal	B	Internal Power and Flow Test with Standard Pressure Source	R	
	LPRM Signal	B		Every 1000 MWD/T average core exposure	
	High Reactor Pressure	B	Standard Pressure Source	(Note 6)	
[7.b] [6.f] [2.b] [2.d]	High Drywell Pressure	See ITS 3.3.1.1 B	~~Standard Pressure Source~~ L14	(Note 6)	[SR 3.3.6.1.4]
[6.b] [5.e] [2.a] [2.g] [7.a]	Reactor Low Water Level	B	~~Standard Pressure Source~~	(Note 6)	[SR 3.3.6.1.5]
	High Water Level in Scram Discharge Instrument Volume	A	Water Column (Note 5)	R (Note 5)	
	High Water Level in Scram Discharge Instrument Volume	B	Standard Pressure Source	Q	
	Main Steam Line Isolation Valve Closure	A	(Note 4)	(Note 4)	See ITS 3.3.1.1
	Turbine First Stage Pressure Permissive	B	Standard Pressure Source	(Note 6)	

Specification 3.3.6.1

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TABLE 4.1-2 (Cont'd)

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION
MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS

Instrument Channel	Group (1)	Calibration	Frequency (2)
Turbine Control Valve Fast Closure Oil Pressure Trip	A	Standard Pressure Source	R
Turbine Stop Valve Closure	A	(Note 4)	(Note 4)

See ITS: 3.3.1.1

NOTES FOR TABLE 4.1-2

See ITS: 3.3.1.1

1. A description of three groups is included in the Bases of this Specification.

A9

2. ~~Calibration test is not required on the part of the system that is not required to be operable, or is tripped, but is required prior to return to service.~~

3. ~~Deleted~~

See ITS: 3.3.1.1

4. Actuation of these switches by normal means will be performed once per 24 months.

5. Calibration shall be performed utilizing a water column or similar device to provide assurance that damage to a float or other portions of the float assembly will be detected.

[SR 3.3.6.1.5] 6. Sensor calibration once per 24 months. Master/slave trip unit calibration once per 6 months. [SR 3.3.6.1.4]

Table 3.3.6.1-1
Primary Containment Isolation Instrumentation

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Specification 3.3.6.1 (A1)

TABLE 3.2-8

ACCIDENT MONITORING INSTRUMENTATION

Required Channels per Trip System (M10)

Instrument	No. of Channels Provided by Design (LA1)	Minimum No. of Operable Channels Required	Mode in Which Instrument Must be Operable	Action
1. Stack High Range Effluent Monitor (17RM-53A) (17RM-53B)	2	1	Note H	Note B
2. Turbine Building Vent High Range Effluent Monitor (17RM-434A) (17RM-434B)	2	1	Note H	Note B
3. Radwaste Building Vent High Range Effluent Monitor (17RM-463A) (17RM-463B)	2	1	Note H	Note B
4. Containment High Range Radiation Monitor* (27RM-104A) (27RM-104B) (L2) [Function 2.c]	~~2~~ (LA1)	1	[Applicability] ~~Note H~~ MODES 1, 2 and 3	Note A [F] (M10)
5. Drywell Pressure (narrow range) (27PI-115A1 or 27PR-115A1) (27PI-115B1 or 27PR-115B1)	2	1	Note J	Note A
6. Drywell Pressure (wide range) (27PI-115A2 or 27PR-115A2) (27PI-115B2 or 27PR-115B2)	2	1	Note J	Note A
7. Drywell Temperature (16-1TR-107) (16-1TR-108)	2	1	Note J	Note A

see JTS: 3.3.3.1 (items 1–3)

See JTS: 3.3.3.1 (items 5–7)

[Function 2.c Allowable Value] → * At less than or equal to 450 R/hr, ~~closes vent and purge valves~~ (LA3)

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add ACTION Note 1 L18

add ACTION NOTE 2 A3

Table 3.3.6.1-1 Primary Containment Isolation Instrumentation

Specifications 3.3.6.1 A1

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TABLE 3.2-8 (Cont'd)

ACCIDENT MONITORING INSTRUMENTATION

M10

NOTES FOR TABLE 3.2-8

A. With the number of operable channels less than the required minimum, either restore the inoperable channels to operable status within 30 days, or be in a cold condition within the next 24 hours.

See ITS: 3.3.3.1

B. With the number of OPERABLE channels less than required by the minimum channels OPERABLE requirements, initiate an alternate method of monitoring the appropriate parameter(s) within 72 hours and: (1) either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or (2) prepare and submit a Special Report to the Commission within 14 days following the event outlining the cause of the inoperability, the action taken, and the plans and schedule for restoring the system to OPERABLE status.

C. Each Safety/Relief Valve is equipped with two acoustical detectors, one of which is in service. Each SRV also has a backup thermocouple detector. In the event that a thermocouple is inoperable, SRV performance shall be monitored daily with the associated in service acoustical detector.

D. From and after the date that both of the acoustical detectors are inoperable, continued operation is permissible until the next outage in which a primary containment entry is made provided that the thermocouple is operable. Both acoustical detectors shall be made operable prior to restart.

E. In the event that both primary (acoustical detectors) and secondary (thermocouple) indications of this parameter for any one valve are disabled and neither indication can be restored in forty-eight (48) hours, the reactor shall be in a Hot Shutdown condition within twelve (12) hours and in a Cold Shutdown within the next twenty-four (24) hours.

F. With the number of operable channels less than the required minimum, continued reactor operation is permissible for the following 30 days provided at least once each 24 hours, either the appropriate parameter(s) is monitored and logged using 27PCX-101A, B, or an appropriate grab sample is obtained and analyzed. If this condition can not be met, be in the Hot Shutdown mode within the next 12 hours.

G. This parameter and associated instrumentation are not part of post-accident monitoring.

[Applicability] Function 2.c

H. This instrument shall be operable in the Run, Startup/Hot Standby, and Hot Shutdown modes. MODES 1, 2 and 3

J. This instrument shall be operable in the Run and Startup/Hot Standby modes.

K. Primary containment atmosphere shall be continuously monitored for hydrogen and oxygen when in the Run and Startup/Hot Standby modes, except when the Post-Accident Sampling System (PASS) is to be operated. When the PASS is to be operated, the containment atmosphere monitoring systems may be isolated for a period not to exceed 3 hours in a 24-hour period.

See ITS 3.3.3.1

Amendment No. ~~184~~, ~~192~~, 221

M10

add ACTIONS A, B, C and F

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addSRNote 2 for Function 2.c

M10

Table 3.3.6.1-1 Primary Containment Isolation Instrument

~~TABLE 4.2-8~~

~~MINIMUM TEST AND CALIBRATION FREQUENCY FOR~~
~~ACCIDENT MONITORING INSTRUMENTATION~~

~~Instrument~~ Function	[SR 3.3.6.1.2] Channel ~~Instrument~~ Functional Test	[SR 3.3.6.1.6] Channel ~~Calibration Frequency~~	[SR 3.3.6.1.1] Channel ~~Instrument~~ Check
1. Stack High Range Effluent Monitor	18M	18M	D
2. Turbine Building Vent High Range Effluent Monitor	18M	*18M	D
3. Radwaste Building Vent High Range Effluent Monitor	18M	18M	D
[(Function 2c)] 4. Containment High Range Radiation Monitor	[SR 3.3.6.1.2] ~~R~~ 92 days M1	R [5]	~~D~~ [1] 12 hours M9
5. Drywell Pressure (narrow range)	N/A	R	D
6. Drywell Pressure (wide range)	N/A	R	D
7. Drywell Temperature	N/A	R	D
8. Torus Water Level (wide range)	N/A	R	D
9. Torus Bulk Water Temperature	N/A	R	D
10. Torus Pressure	N/A	R	D
11. Primary Containment Hydrogen/Oxygen Concentration Analyzer	N/A	Q	D
12. Reactor Vessel Pressure	N/A	R	D
13. Reactor Water Level (fuel zone)	N/A	R	D
14. Reactor Water Level (wide range)	N/A	R	D

See ITS: 3.3.3.1

See ITS: 3.3.3.1

Amendment No. ~~3, 172, 181, 221~~, 233

SR 3.3.6.1.7

M1

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A1

SEE ITS 3.3.5.1

TABLE 3.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

Item No.	Minimum No. of Operable Instrument Channels Per Trip System	Trip Function	Trip Level Setting	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Remarks
7	1 (Notes 3, 11)	Reactor Low Level	≥ 177 in. above TAF	2	Confirmatory low water level for ADS actuation.
8	2 (Notes 1, 2, 11)	Drywell High Pressure	≤ 2.7 psig	4	Initiates Core Spray, RHR (LPCI), HPCI and SGTS.
9	2 (Notes 6, 11)	Reactor Low Pressure	≥ 450 psig	4	Permits opening Core Spray and RHR (LPCI) injection valves.
~~10~~	~~1 (Notes 2, 12)~~	~~Reactor Low Pressure~~	~~50 ≤ p ≤ 75 psig~~	~~2~~	~~Permits closure of RHR (LPCI) injection valves while in shutdown cooling in conjunction with PCIS signal.~~ LA8
11	1 (Notes 7, 11)	Core Spray Pump Start Timer (each loop)	11 ± 1.34 sec.	1 (Note 16)	Initiates starting of core spray pump. (each loop)
12	1 (Notes 7, 11)	RHR (LPCI) Pump Start Timer			
		1st Pump (A Loop)	1.25 ± 0.26 sec.	1 (Note 16)	Starts 1st Pump (A Loop)
		1st Pump (B Loop)	1.25 ± 0.26 sec.	1 (Note 16)	Starts 1st Pump (B Loop)
		2nd Pump (A Loop)	6.0 ± 0.73 sec.	1 (Note 16)	Starts 2nd Pump (A Loop)
		2nd Pump (B Loop)	6.0 ± 0.73 sec.	1 (Note 16)	Starts 2nd Pump (B Loop)

SEE ITS 3.3.5.1

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Specification 3.3.6.1

A1

see ITS : 3.3.5.1
3.3.5.2

TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

NOTES FOR TABLE 3.2-2

1. With one or more channels inoperable for HPCI and/or RCIC:

   A. Within one hour from discovery of loss of system initiation capability, declare the affected system inoperable, and

   B. Within 24 hours, place channel in trip.

   C. If required actions and associated completion times of actions A or B are not met, immediately declare the affected system inoperable.

2. With one or more channels inoperable for Core Spray and/or RHR:

   A. Within one hour from discovery of loss of initiation capability for feature(s) in both divisions, declare the supported features inoperable, and

   B. Within 24 hours, place channel in trip.

   C. If required actions and associated completion times of actions A or B are not met, immediately declare associated supported feature(s) inoperable.

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3. With one or more channels inoperable for ADS:

   see ITS: 3.3.5.1

   A. Within one hour from discovery of loss of ADS initiation capability in both trip systems, declare ADS inoperable, and

   B. Within 96 hours from discovery of an inoperable channel concurrent with HPCI or RCIC inoperable, place channel in trip, and

   C. Within 8 days, place channel in trip.

   D. If required actions and associated completion times of actions A, B, or C are not met, immediately declare ADS inoperable.

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Specification 3.3.6.1 A1

TABLE 3.2-2

CORE AND CONTAINMENT COOLING SYSTEM INITIATION AND CONTROL INSTRUMENTATION OPERABILITY REQUIREMENTS

see ITS: 3.3.5.1 3.3.5.2

10. With one or more channels inoperable for 4kV Emergency Bus Undervoltage Trip Functions:

see ITS: 3.3.8.1

   A. Within one hour, place channel in trip.

   B. If required action and associated completion time of action A is not met, immediately declare the affected Emergency Diesel Generator System inoperable.

see ITS: 3.3.5.1 3.3.5.2

11. When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions For Operation and required actions may be delayed for up to 6 hours provided the associated Trip Function or the redundant Trip Function maintains ECCS initiation capability.

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12. When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions For Operation and required actions may be delayed for up to 6 hours.

13. The 4kV Emergency Bus Undervoltage Timers (degraded voltage LOCA, degraded voltage non-LOCA, and loss-of-voltage) initiate the following: starts the Emergency Diesel-Generators; trips the normal/reserve tie breakers and trips all 4kV motor breakers (in conjunction with 75 percent Emergency Diesel-Generator voltages); initiates diesel-generator breaker close permissive (in conjunction with 90 percent Emergency Diesel-Generator voltages) and; initiates sequential starting of vital loads in conjunction with low-low-low reactor water level or high drywell pressure.

14. A secondary voltage of 110.6 volts corresponds to approximately 93% of 4160 volts on the bus.

15. A secondary voltage of 85 volts corresponds to approximately 71.5% of 4160 volts on the bus.

16. Only one trip system.

see ITS: 3.3.8.1

see ITS: 3.3.5.1 3.3.5.2

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TABLE 4.2-2

See ITS 3.3.5.1

CORE AND CONTAINMENT COOLING SYSTEM INSTRUMENTATION
TEST AND CALIBRATION REQUIREMENTS

	Instrument Channel	Instrument Functional Test	Calibration Frequency	Instrument Check (Note 4)
1)	Reactor Water Level	Q (Note 5)	SA / R (Note 15)	D
2a)	Drywell Pressure (non-ATTS)	Q	Q	NA
2b)	Drywell Pressure (ATTS)	Q (Note 5)	SA / R (Note 15)	D
3a)	~~Reactor Pressure (non-ATTS)~~	~~Q~~	~~Q~~	~~NA~~
3b)	Reactor Pressure (ATTS)	Q (Note 5)	SA / R (Note 15)	D
4)	Auto Sequencing Timers	NA	R	NA
5)	ADS - LPCI or CS Pump Disch.	Q	Q	NA
6)	HPCI & RCIC Suction Source Levels	Q	Q	NA
7)	4kV Emergency Bus Under-Voltage (Loss-of-Voltage, Degraded Voltage LOCA and non-LOCA) Relays and Timers.	R	R	NA

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See ITS 3.3.8.1

See ITS 3.3.5.1

~~NOTE: See notes following Table 4.2-5.~~

Specification 3.3.6.1 A1

2.1 (cont'd)

2. Reactor Water Low Level Scram Trip Setting

Reactor low water level scram setting shall be >177 in. above the top of the active fuel (TAF) at normal operating conditions.

See ITS 3.3.1.1

3. Turbine Stop Valve Closure Scram Trip Setting

Turbine stop valve scram shall be ≤10 percent valve closure from full open when the reactor is at or above 29% of rated power.

4. Turbine Control Valve Fast Closure Scram Trip Setting

Turbine control valve fast closure scram control oil pressure shall be set at 500 <P <850 psig.

5. Main Steam Line Isolation Valve Closure Scram Trip Setting

Main steam line isolation valve closure scram shall be ≤15 percent valve closure from full open.

[Table 3.3.6.1 Function 1.b]

6. Main Steam Line Isolation Valve Closure on Low Pressure

[Applicability]

When in the run mode main steam line low pressure initiation of main steam line isolation valve closure shall be ≥825 psig.

[Table 3.3.6.1-1 Function 1.b Allowable Value]

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