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Constellation Energy
Nuclear Generation Group

July 23, 2009

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: **R.E. Ginna Nuclear Power Plant**
Docket No. 50-244

License Amendment Request: Improvement to the Definition of Operations Involving Positive Reactivity Changes (TSTF-286)

In accordance with the provisions of 10 CFR 50.90, R.E. Ginna Nuclear Power Plant, LLC (Ginna LLC) is submitting a request for an amendment to revise the Technical Specification actions requiring suspension of operations involving positive reactivity addition and revise various notes precluding reduction in boron concentration.

The proposed changes would allow the introduction of positive reactivity to the core but would limit the addition such that the required margin to the Shutdown Margin (SDM) and refueling boron concentration limits will be maintained. The description and evaluation of the proposed changes are provided in the attached enclosure. In addition, marked up copies of the current Technical Specification pages are attached to the enclosure.

The changes proposed in this letter are similar to those documented in Industry Technical Specification Task Force (TSTF)-286, Revision 2, Define "Operations Involving Positive Reactivity Additions," which was approved by the NRC. Ginna has reviewed TSTF-286, Revision 2 and concluded that it is applicable to the R.E. Ginna Nuclear Power Plant (Ginna). Differences between TSTF-286, Revision 2 and the proposed Technical Specification changes are noted and discussed in the attached enclosure.

This proposed change to the Technical Specifications and our determination of significant hazards have been reviewed by our Plant Operation Review Committee (PORC), and it has concluded that implementation of these changes will not result in an undue risk to the health and

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safety of the public. A copy of this letter with attachments has been provided to the appropriate state representative per 10CFR50.91(b)(1).

We request that this change be approved by July 23, 2010. Once approved, the amendment shall be implemented within 60 days.

Should you have questions regarding this matter, please contact Thomas Harding at 585.771.5219, or Thomas.HardingJr@Constellation.com.

Very truly yours,

Eric A. Larson

STATE OF NEW YORK :
: **TO WIT:**
COUNTY OF WAYNE :

I, Eric A. Larson, being duly sworn, state that I am Plant General Manager, R.E. Ginna Nuclear Power Plant, LLC (Ginna LLC), and that I am duly authorized to execute and file this request on behalf of Ginna LLC. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Ginna LLC employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Eric A Larson

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Wayne, this 23rd day of July, 2009.

WITNESS my Hand and Notarial Seal:

Richard A. Johnson
Notary Public

My Commission Expires:

Oct. 31, 2010
Date

RICHARD A. JOHNSON
NOTARY PUBLIC, STATE OF NEW YORK
No. 01JO6082344
QUALIFIED IN WAYNE COUNTY
MY COMMISSION EXPIRES Oct 31 2010

EL/MR

Enclosure: Evaluation of the Proposed Change

cc: S. J. Collins, NRC
D.V. Pickett, NRC
Resident Inspector, NRC (Ginna)
P.D. Eddy, NYSDPS
A. Peterson, NYSERDA

ENCLOSURE
Evaluation of the Proposed Change

TABLE OF CONTENTS

1.0 SUMMARY DESCRIPTION
2.0 DETAILED DESCRIPTION
3.0 TECHNICAL EVALUATION
4.0 REGULATORY EVALUATION
    4.1 Applicable Regulatory Requirements/Criteria
    4.2 Precedent
    4.3 Significant Hazards Consideration
    4.4 Conclusions
5.0 ENVIRONMENTAL CONSIDERATION
6.0 REFERENCES

ATTACHMENTS

1. Technical Specification Page Markups

ENCLOSURE
Evaluation of the Proposed Change

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Operating License No. DPR-18, for the R.E. Ginna Nuclear Power Plant (Ginna).

This proposed amendment revises several of the Required Actions in the Ginna Technical Specifications (TS) that require the suspension of operations involving positive reactivity additions or suspension of operations that would cause the reduction of the Reactor Coolant System (RCS) boron concentration. In addition, the proposed amendment adds or revises several notes that address reductions in RCS boron concentration. This proposed amendment revises these Required Actions and Limiting Condition for Operation (LCO) notes to allow small, controlled, safe insertions of positive reactivity, but limits the introduction of positive reactivity such that compliance with the required Shutdown Margin (SDM) or refueling boron concentration limits will still be satisfied.

This proposed change to the Ginna TS incorporates TSTF-286, Revision 2 (Reference 1). The TSTF is applicable to Ginna. During conditions in which the actions affected by the proposed changes may be required, various unit operations must be maintained and RCS temperature must be controlled. These activities may make it necessary to add cooler water to the RCS (a positive reactivity change in most cases) or may involve inventory makeup from sources that are at a boron concentration less than that in the RCS. The proposed change provides the flexibility necessary for continued safe reactor operations, while limiting any potential for excess positive reactivity addition.

For example, operational considerations may make it necessary or prudent to use a different shutdown cooling loop from the one in operation. With the proposed changes, if the newly selected shutdown cooling loop is sampled and the boron concentration is slightly lower than that of the RCS, but sufficiently higher than the SDM and refueling boron concentration limits continue to be met, the switch to a different loop would be acceptable. Alternatively, if the shutdown cooling loop is at a lower or higher temperature than the RCS average temperature, but the reactivity effects are small enough to assure that the SDM and refueling boron concentration limits will continue to be met, the change to an alternate loop may be performed.

Another example of the type of activity that will be acceptable when the proposed changes are in effect is the addition of inventory to the RCS from the Refueling Water Storage Tank (RWST) during a refueling outage. Boron concentration in the RWST is controlled by TS between 2750 ppm and 3050 ppm. The RWST boron concentrations are cycle-specific and subject to change based on core design. Provided that the RWST boron concentration is sufficiently high to assure SDM and refueling boron concentration limits will continue to be met, an alternate supply of makeup to the RCS will be available from the RWST. These activities should not be precluded as long as the required SDM or refueling boron concentration is maintained.

2.0 DETAILED DESCRIPTION

The following are the proposed changes to Ginna's Limiting Condition of Operations (LCOs) based upon TSTF-286, Revision 2. The proposed changes to the Ginna TS are consistent with the changes proposed by TSTF-286, Revision 2 (Reference 1), unless otherwise stated. Where differences exist, an explanation is provided. Reference 2 provides clarification of the wording in Reference 1 in some cases. Ginna has utilized the wording in Reference 2 and has indicated this deviation from Reference 1 where applicable in the below discussion.

Adds a note to Required Action LCO 3.3.1.F.2 and LCO 3.3.1.H.2 to state, "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM."

Adds a note to Required Action LCO 3.3.1.J.1 to state, "Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM."

Revises LCO Note 3.4.5, Note (a) to state, "No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1, and". The applicability of TSTF-286 LCO 3.4.5 is Mode 3 while the applicability of the Ginna LCO 3.4.5 is Modes 1, 2, and 3. However, Ginna's LCO 3.4.5 Note (the location of the proposed change) is only applicable during the conditions when "Both reactor coolant pumps may be de-energized in Mode 3 for $\leq$ 1 hour per 8 hour period." Therefore, with regard to the Mode of applicability, the proposed revision is consistent with the TSTF-286. Additionally, the proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Action LCO 3.4.5.C.2 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1." The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises LCO note 3.4.6, Note (1.a) to state, "No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and". The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Action LCO 3.4.6.C.1 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet

the SDM of LCO 3.1.1." The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises LCO note 3.4.7, Note (1.a) to state, "No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and". The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Action LCO 3.4.7.B.1 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1." The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises LCO note 3.4.8, Note (1.a) to state, "No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1; and". The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Action LCO 3.4.8.B.1 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1." The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Actions LCO 3.8.2.A.2.3 and LCO 3.8.2.B.3 to state, "Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration." TSTF-286, LCO 3.8.2 is for AC Sources – Shutdown. The Ginna LCO 3.8.2 is for AC Sources – Modes 5 and 6. Since the TSTF-286 required action is applicable to Modes 5 and 6, the proposed revision to Ginna LCO 3.8.2 is consistent with TSTF-286.

Revises Required Action LCO 3.8.5.A.2.3 to state, "Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration."

Revises Required Action LCO 3.8.8.A.2.3 to state, "Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration."

Revises Required Action LCO 3.8.10.A.2.3 to state, "Suspend operations involving Positive reactivity additions that could result in loss of required SDM or boron concentration."

Revises Required Action LCO 3.9.2.A.2 and LCO 3.9.2.C.2 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1." The change to LCO 3.9.2.C.2 is not addressed in TSTF-286 because Ginna's TS differs slightly from Standard TS, but is consistent with the philosophy and methodology of the TSTF changes. The proposed wording of the revisions varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises LCO 3.9.4 Note to state, "The required RHR loop may be removed from operation for $\leq$ 1 hour per 8 hour period, provided no operations are permitted that would cause introduction of coolant into the Reactor Coolant System (RCS) with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1." This note is applicable during Mode 6 with the water level $\geq$ 23ft above the top of the reactor vessel flange, which is equivalent to the proposed TSTF-286 LCO 3.9.5 revision. The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Action LCO 3.9.4.A.1 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentrations less than required to meet the concentration of LCO 3.9.1." This is applicable during Mode 6 with the water level $\geq$ 23ft above the top of the reactor vessel flange and the RHR loop requirements are not met, which is equivalent to the proposed TSTF-286 LCO 3.9.5.A.1 Required Action. The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

Revises Required Action LCO 3.9.5.B.1 to state, "Suspend operations that would cause introduction of coolant into the RCS with boron concentrations less than required to meet the boron concentration of LCO 3.9.1." This is applicable during Mode 6 with the water level < 23 feet above the top of the reactor vessel flange and no RHR loop is in operation, which is equivalent to the proposed TSTF-286 LCO 3.9.6.B.1 Required Action. The proposed wording of the revision varies from TSTF-286 as determined to be acceptable by Reference 2.

3.0 TECHNICAL EVALUATION

Shutdown margin is a core design condition that can be ensured during operation through Control Rod (CR) positioning (control and shutdown groups) and through adjustment of the soluble boron concentration. In Modes 1 through 4, the minimum required SDM is assumed as an initial condition in safety analyses. This assumption ensures that specified acceptable fuel design limits are not exceeded for normal operation and anticipated operational occurrences, assuming that the highest worth CR remains fully withdrawn (and thus unavailable) following a reactor scram. In Modes 5 and 6, the reactivity condition of the core is consistent with the initial conditions assumed for the boron dilution accident analysis. The required boron concentration, in Mode 6, ensures that the k_{eff} of the core will remain within the required range of values during refueling operations.

Shutdown margin requirements provide sufficient reactivity margin to ensure that acceptable fuel design limits will not be exceeded for normal shutdown conditions or anticipated operational occurrences. As such, the SDM defines how much negative reactivity results from insertion all CRs, assuming the CR of highest reactivity worth remains fully withdrawn. In Modes 1 and 2 when critical, SDM is ensured by complying with TS 3.1.4, "Rod Group Alignment Limits," TS 3.1.5, "Shutdown Bank Insertion Limit," and TS 3.1.6, "Control Bank Insertion Limits."

In Mode 2 when subcritical and in Modes 3, 4, and 5, the SDM requirements provide enough negative reactivity to meet the assumptions of the safety analyses in the Updated Final Safety Analysis Report (UFSAR). In Modes 3 and 4, some rods may be withdrawn, which provides tripable rod worth in addition to preparing for reactor startup, but acceptable shutdown margin is maintained. Small changes in reactivity occur as a result of temperature changes associated with RCS inventory management or RCS temperature control. At the beginning of core life a positive moderator temperature coefficient is allowed by TS 3.1.3, "Moderator Temperature Coefficient (MTC)."

In Mode 6, the shutdown reactivity requirements are ensured by satisfying TS 3.9.1, Boron Concentration. During Mode 6, the limit on the boron concentrations of the RCS, the refueling canal, and the refueling cavity ensures that the reactor remains subcritical. Refueling boron concentration is the soluble boron concentration in the coolant having direct access to the reactor core during refueling. The soluble boron concentration, which offsets core reactivity, is measured by chemical analysis of a representative sample of the coolant. The refueling boron concentration limit is specified in the Core Operating Limits Report.

Two independent reactivity control systems are provided at Ginna. One of these systems maintains the core subcritical by the use of movable control and shutdown CRs. The other system uses the Chemical and Volume Control System (CVCS) that adjusts the soluble boric acid in the RCS. In Modes 1 and 2, the two independent reactivity control systems are used to compensate for the reactivity effects of the fuel and water temperature changes that accompany power level changes over the range from full load to no load. In addition, the CR together with

the CVCS provide SDM during power operation and are capable of making the core subcritical rapidly enough to prevent exceeding acceptable fuel design limits, assuming that the CR of highest reactivity worth remains fully withdrawn. In Modes 3, 4, and 5, soluble boron is used to compensate for reactivity changes caused by temperature and reactor poisons, such as xenon, to maintain the reactor subcritical under shutdown conditions. Some rods are withdrawn in Mode 3 to prepare for reactor startup. In Mode 6, the CVCS is used to control boron concentration to meet required limits.

The main steam line break and boron dilution accidents are the most limiting analyses that establish the SDM value for LCO 3.1.1 and the minimum boron concentration requirement of LCO 3.9.1. For main steam line break accidents, if LCO 3.1.1 is not met, there is a potential to exceed the departure from nucleate boiling ratio limit and the required actions of LCO 3.1.1 are necessary to restore compliance with the LCO. For the boron dilution accident, if LCO 3.1.1 or 3.9.1 are not met, the minimum required time assumed for operator action to terminate dilution may no longer be sufficient, and the required actions of LCO 3.1.1 or LCO 3.9.1 are necessary to restore compliance with the LCO.

The actions and notes that precluded positive reactivity additions and reduction in boron concentration were intended to ensure that under the specified plant conditions, further power increases or reductions in the margin to core criticality were precluded. The proposed change allows the small reactivity effects that result from temperature or boron concentration fluctuations associated with RCS inventory management or temperature control to be performed, provided the minimum SDM of LCO 3.1.1 or the minimum boron concentration of LCO 3.9.1 is maintained. The changes to notes and actions continue to provide assurance that the assumptions of the most limiting accident analyses are maintained. Therefore, necessary activities that involve additions to the RCS of cooler water (a positive reactivity effect in most cases) or that may involve makeup from borated sources of water that are at boron concentrations less than the RCS boron concentration, should not be precluded as long as the required margin to criticality, the required SDM, or refueling boron concentration limits are not adversely affected.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

NRC approved Generic Changes to the Standard TS, TSTF-286, Revision 2, Define "Operations Involving Positive Reactivity Changes"

4.2 Precedent

The following plants have received approval for adopting TSTF-286:

H. B. Robinson Unit 2 (ADAMS Accession Number ML010810282)

Callaway Unit 1 (ADAMS Accession Number ML020220051)
Wolf Creek Generating Station (ADAMS Accession Number ML021290254)

Catawba Nuclear Station, Units 1 & 2 (ADAMS Accession Number ML032110122)

McGuire Nuclear Station Units 1 & 2 (ADAMS Accession Number ML032110073)

Calvert Cliffs Nuclear Power Plant, Units 1 & 2 (ADAMS Accession Number ML040760287)

4.3 Significant Hazards Consideration

R.E. Ginna Nuclear Power Plant, LLC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No

The Technical Specifications (TS) addressed in this proposed change prevent inadvertent addition of positive reactivity which could challenge the shutdown margin of the reactor core. The current TS contain rigid requirements that sometimes pose operational difficulties without significantly increasing safety. The intent of the change is to allow small, controlled, and safe insertions of positive reactivity that are now categorically prohibited to allow operational flexibility. These new activities could result in a slight change in the probability of an event occurring because Reactor Coolant System (RCS) manipulations that are currently prohibited would now be allowed. However, to preclude an increase in the probability of a reactivity addition accident, RCS manipulations are rigidly controlled to ensure that the reactivity remains within the required shutdown margin.

The proposed change does not permit the shutdown margin to be reduced below that required by the TS. While the proposed change will permit changes in the discretionary boron concentration above the TS requirements, this excess concentration is not credited in the Updated Final Safety Analysis Report accident analysis. Because the initial conditions assumed in the safety analysis are preserved, no increase in the consequences of an accident previously evaluated would occur. In addition, small temperature changes in the RCS impose reactivity changes by means of the moderator temperature coefficient of reactivity. These small changes are within the required shutdown margin which also bounds the reactivity addition accident analysis ensuring there is no increase in the consequence of an accident previously evaluated.

Therefore the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

This proposed amendment allows for minor plant operational adjustments without adversely impacting the safety analysis required shut down margin. It does not involve any change to plant equipment or the shutdown margin requirements in the TS, and no new accident precursors are created.

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

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

Response: No.

The margin of safety in Modes 3, 4, 5, and 6 is preserved by the TS required shutdown margin which prevents a return to criticality. The proposed change will permit reductions in the discretionary shutdown margin only within the limits of the TS, thereby maintaining the margin of safety within the accident analysis.

Therefore, the proposed change will not involve a significant reduction in the margin of safety.

4.4 Conclusions

As discussed above, the proposed changes are based on TSTF-286, Revision 2. These changes revise actions that either require suspension of operations involving positive reactivity additions, or preclude reduction in boron to a concentration less than that of the RCS. The proposed changes limit the introduction into the RCS of reactivity more positive than that required to meet the required SDM or refueling boron concentrations, as applicable. The operational flexibility allowed in the proposed license amendment will be performed under administrative controls in order to limit the potential for excess positive reactivity additions. Therefore, the proposed changes are deemed safe and acceptable.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed

amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c) (9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. TSTF-286, Technical Specification Task Force Improved Standard Technical Specification Change Traveler, Revision 2.

2. Memorandum from J. N. Donohew (NRC) to R. A. Gramm (NRC), dated May 16, 2003, Comanche Peak Steam Electric Station, Units 1 and 2 – Licensee's Agreement to Revised Wording in Proposed License Amendment Involving Positive Reactivity Additions (TAC Nos. MB6890 and MB6891).

Attachment 1

Technical Specification Page Markups

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

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

	CONDITION		REQUIRED ACTION	COMPLETION TIME
A.	One or more Functions with one channel inoperable. OR Two source range channels inoperable.	A.1	Enter the Condition referenced in Table 3.3.1-1 for the channel(s).	Immediately
B.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	B.1	Restore channel to OPERABLE status.	48 hours
C.	Required Action and associated Completion Time of Condition B not met.	C.1 AND	Be in MODE 3.	6 hours
		C.2 AND	Initiate action to fully insert all rods.	6 hours
		C.3	Place Control Rod Drive System in a condition incapable of rod withdrawal.	7 hours

CONDITION		REQUIRED ACTION		COMPLETION TIME
D.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	D.1	- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. Place channel in trip.	6 hours
E.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	E.1	Reduce THERMAL POWER to < 5E-11 amps.	2 hours
		OR		
		E.2	- NOTE - Required Action E.2 is not applicable when: a. Two channels are inoperable, or b. THERMAL POWER is < 5E-11 amps. Increase THERMAL POWER to ≥ 8% RTP.	2 hours
F.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	F.1	Open RTBs and RTBBs upon discovery of two inoperable channels.	Immediately upon discovery of two inoperable channels
		AND		
		F.2	Suspend operations involving positive reactivity additions.	Immediately
		AND		
		F.3	Restore channel to OPERABLE status.	48 hours

INSERT 1

CONDITION		REQUIRED ACTION		COMPLETION TIME
G.	Required Action and associated Completion Time of Condition D, E, or F is not met.	G.1	Be in MODE 3.	6 hours
H.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	H.1	Restore at least one channel to OPERABLE status upon discovery of two inoperable channels.	1 hour from discovery of two inoperable channels
		AND		
		H.2	Suspend operations involving positive reactivity additions.	Immediately
		AND		
		H.3	Restore channel to OPERABLE status.	48 hours
I.	Required Action and associated Completion Time of Condition H not met.	I.1	Initiate action to fully insert all rods.	Immediately
		AND		
		I.2	Place the Control Rod Drive System in a condition incapable of rod withdrawal.	1 hour
J.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	J.1	Suspend operations involving positive reactivity additions.	Immediately
		AND		
		J.2	Perform SR 3.1.1.1.	12 hours AND Once per 12 hours thereafter

INSERT 1

INSERT 2

CONDITION		REQUIRED ACTION		COMPLETION TIME
K.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	K.1	- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. Place channel in trip.	6 hours
L.	Required Action and associated Completion Time of Condition K not met.	L.1	Reduce THERMAL POWER to < 8.5% RTP.	6 hours
M.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	M.1	- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. Place channel in trip.	6 hours
N.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	N.1	Restore channel to OPERABLE status.	6 hours
O.	Required Action and associated Completion Time of Condition M or N not met.	O.1	Reduce THERMAL POWER to < 30% RTP.	6 hours
P.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	P.1	- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. Place channel in trip.	6 hours

CONDITION		REQUIRED ACTION		COMPLETION TIME
Q.	Required Action and Associated Completion Time of Condition P not met.	Q.1	Reduce THERMAL POWER to < 50% RTP.	6 hours
		AND		
		Q.2.1	Verify Steam Dump System is OPERABLE.	7 hours
			OR	
		Q.2.2	Reduce THERMAL POWER to < 8% RTP.	7 hours
R.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	R.1	- NOTE - One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
			Restore train to OPERABLE status.	6 hours
S.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	S.1	Verify interlock is in required state for existing plant conditions.	1 hour
		OR		
		S.2	Declare associated RTS Function channel(s) inoperable.	1 hour

CONDITION		REQUIRED ACTION		COMPLETION TIME
T.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	T.1	- NOTE - 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed for up to 6 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. Restore train to OPERABLE status.	1 hour
U.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	U.1	Restore at least one trip mechanism to OPERABLE status upon discovery of two RTBs with inoperable trip mechanisms.	1 hour from discovery of two inoperable trip mechanisms
		AND		
		U.2	Restore trip mechanism to OPERABLE status.	48 hours
V.	Required Action and associated Completion Time of Condition R, S, T, or U not met.	V.1	Be in MODE 3.	6 hours
W.	As required by Required Action A.1 and referenced by Table 3.3.1-1.	W.1	Restore at least one trip mechanism to OPERABLE status upon discovery of two RTBs with inoperable trip mechanisms.	1 hour from discovery of two inoperable trip mechanisms
		AND		

CONDITION		REQUIRED ACTION		COMPLETION TIME
		W.2	Restore trip mechanism or train to OPERABLE status.	48 hours
X.	Required Action and associated Completion Time of Condition W not met.	X.1 AND	Initiate action to fully insert all rods.	Immediately
		X.2	Place the Control Rod Drive System in a Condition incapable of rod withdrawal.	1 hour

SURVEILLANCE REQUIREMENTS

- NOTE -
Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	- NOTE - Required to be performed within 12 hours after THERMAL POWER is ≥ 50% RTP.	
	Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output and adjust if calorimetric power is > 2% higher than indicated NIS power.	24 hours
SR 3.3.1.3	- NOTE - 1. Required to be performed within 7 days after THERMAL POWER is ≥ 50% RTP but prior to exceeding 90% RTP following each refueling and if the Surveillance has not been performed within the last 31 EFPD. 2. Performance of SR 3.3.1.6 satisfies this SR.	
	Compare results of the incore detector measurements to NIS AFD and adjust if absolute difference is ≥ 3%.	31 effective full power days (EFPD)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.4	Perform TADOT.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.6	- NOTE - Not required to be performed until 7 days after THERMAL POWER is ≥ 50% RTP, but prior to exceeding 90% RTP following each refueling. Calibrate excore channels to agree with incore detector measurements.	92 EFPD
SR 3.3.1.7	- NOTE - Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entering MODE 3. Perform COT.	92 days
SR 3.3.1.8	- NOTE - 1. Not required for power range and intermediate range instrumentation until 4 hours after reducing power < 6% RTP. 2. Not required for source range instrumentation until 4 hours after reducing power < 5E-11 amps. Perform COT.	92 days
SR 3.3.1.9	- NOTE - Setpoint verification is not required. Perform TADOT.	92 days

	SURVEILLANCE	FREQUENCY
SR 3.3.1.10	- NOTE - Neutron detectors are excluded. Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.11	Perform TADOT.	24 months
SR 3.3.1.12	- NOTE - Setpoint verification is not required. Perform TADOT.	Prior to reactor startup if not performed within previous 31 days
SR 3.3.1.13	Perform COT.	24 months

Table 3.3.1-1
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	LIMITING SAFETY SYSTEM SETTINGS[a]
1.	Manual Reactor Trip	1, 2, 3[b], 4[b], 5[b]	2	B,C	SR 3.3.1.11	NA
2.	Power Range Neutron Flux					
	a. High	1, 2	4	D,G	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.10	≤ 109.27% RTP
	b. Low	1[c], 2	4	D,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.10	≤ 29.28% RTP
3.	Intermediate Range Neutron Flux	1[c], 2	2	E,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.10	(d)
4.	Source Range Neutron Flux	2[e]	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.10	(d)
		3[b], 4[b], 5[b]	2	H,I	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	(d)
		3[f], 4[f], 5[f]	1	J	SR 3.3.1.1 SR 3.3.1.10	NA
5.	Overtemperature ΔT	1, 2	4	D,G	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.10	Refer to Note 1
6.	Overpower ΔT	1, 2	4	D,G	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	Refer to Note 2

Table 3.3.1-1
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	LIMITING SAFETY SYSTEM SETTINGS[a]
7.	Pressurizer Pressure					
	a. Low	1[g]	4	K,L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 1791.3 psig
	b. High	1, 2	3	D,G	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 2396.2 psig
8.	Pressurizer Water Level-High	1, 2	3	D,G	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 96.47%
9.	Reactor Coolant Flow-Low					
	a. Single Loop	1[h]	3 per loop	M,O	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 89.86%
	b. Two Loops	1[i]	3 per loop	K,L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 89.86%
10.	Reactor Coolant Pump (RCP) Breaker Position					
	a. Single Loop	1[h]	1 per RCP	N,O	SR 3.3.1.11	NA
	b. Two Loops	1[j]	1 per RCP	K,L	SR 3.3.1.11	NA
11.	Undervoltage-Bus 11A and 11B	1[g]	2 per bus	K,L	SR 3.3.1.9 SR 3.3.1.10	[d]
12.	Underfrequency-Bus 11A and 11B	1[g]	2 per bus	K,L	SR 3.3.1.9 SR 3.3.1.10	≥ 57.5 HZ

Table 3.3.1-1
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	LIMITING SAFETY SYSTEM SETTINGS[a]
13.	Steam Generator (SG) Water Level-Low Low	1, 2	3 per SG	D,G	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 13.88%
14.	Turbine Trip					
	a. Low Autostop Oil Pressure	1[k][l]	3	P,Q	SR 3.3.1.10 SR 3.3.1.12	(d)
	b. Turbine Stop Valve Closure	1[k][l]	2	P,Q	SR 3.3.1.12	NA
15.	Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1, 2	2	R,V	SR 3.3.1.11	NA

Table 3.3.1-1
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	LIMITING SAFETY SYSTEM SETTINGS[a]
16.	Reactor Trip System Interlocks					
	a. Intermediate Range Neutron Flux, P-6	2[e]	2	S,V	SR 3.3.1.10 SR 3.3.1.13	≥ 5E-11 amp
	b. Low Power Reactor Trips Block, P-7	1[g]	4 (power range only)	S,V	SR 3.3.1.10 SR 3.3.1.13	≤ 8.0% RTP
I	c. Power Range Neutron Flux, P-8	1[h]	4	S,V	SR 3.3.1.10 SR 3.3.1.13	≤ 29.0% RTP
	d. Power Range Neutron Flux, P-9	1[l]	4	S,V	SR 3.3.1.10 SR 3.3.1.13	≤ 50.0% RTP
		1[k]	4	S,V	SR 3.3.1.10 SR 3.3.1.13	≤ 8.0% RTP
	e. Power Range Neutron Flux, P-10	1[c], 2	4	S,V	SR 3.3.1.10 SR 3.3.1.13	≥ 6.0% RTP
17.	Reactor Trip Breakers[m]	1, 2 3[b], 4[b], 5[b]	2 trains 2 trains	T,V W,X	SR 3.3.1.4 SR 3.3.1.4	NA NA
18.	Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1, 2 3[b], 4[b], 5[b]	1 each per RTB 1 each per RTB	U,V W,X	SR 3.3.1.4 SR 3.3.1.4	NA NA
19.	Automatic Trip Logic	1, 2 3[b], 4[b], 5[b]	2 trains 2 trains	R,V W,X	SR 3.3.1.5 SR 3.3.1.5	NA NA

(a)

A channel is OPERABLE when both of the following conditions are met:

1. The absolute difference between the as-found Trip Setpoint (TSP) and the previous as-left TSP is within the COT Acceptance Criteria. The COT Acceptance Criteria is defined as:

   |as-found TSP - previous as-left TSP| ≤ COT uncertainty

   The COT uncertainty shall not include the calibration tolerance.

2. The as-left TSP is within the established calibration tolerance band about the nominal TSP. The nominal TSP is the desired setting and shall not exceed the Limiting Safety System Setting (LSSS). The LSSS and the established calibration tolerance band are defined in accordance with the Ginna Instrument Setpoint Methodology. The channel is considered operable even if the as-left TSP is non-conservative with respect to the LSSS provided that the as-left TSP is within the established calibration tolerance band.

(b) With Control Rod Drive (CRD) System capable of rod withdrawal or all rods not fully inserted.

(c) THERMAL POWER < 6% RTP.

(d) UFSAR Table 7.2-3.

(e) Both Intermediate Range channels < 5E-11 amps.

(f) With CRD System incapable of withdrawal and all rods fully inserted. In this condition, the Source Range Neutron Flux function does not provide a reactor trip, only indication.

(g) THERMAL POWER ≥ 8.5% RTP.

(h) THERMAL POWER ≥ 30% RTP.

(i) THERMAL POWER ≥ 8.5% RTP and Reactor Coolant Flow-Low (Single Loop) trip Function blocked.

(j) THERMAL POWER ≥ 8.5% RTP and RCP Breaker Position (Single Loop) trip Function blocked.

(k) THERMAL POWER > 8% RTP, and either no circulating water pump breakers closed, or condenser vacuum ≤ 20".

(l) THERMAL POWER ≥ 50% RTP, 1 of 2 circulating water pump breakers closed, and condenser vacuum > 20".

(m) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

Table 3.3.1-1 (Note 1)
Overtemperature ΔT

- NOTE -

The Overtemperature ΔT Function Limiting Safety System Setting is defined by:

$$\text{Overtemperature } \Delta T \leq \Delta T_0 \{K_1 + K_2 (P-P') - K_3 (T-T') [(1+\tau_1 s) / (1+\tau_2 s)] - f_1(\Delta I)\}$$

Where:

ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.

s is the Laplace transform operator, sec^{-1}.

T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, °F.

P is the measured pressurizer pressure, psig.
P' is the nominal RCS operating pressure, psig.

K_1 is the Overtemperature ΔT reactor trip setpoint, [*].
K_2 is the Overtemperature ΔT reactor trip depressurization setpoint penalty coefficient, [*]/psi.
K_3 is the Overtemperature ΔT reactor trip heatup setpoint penalty coefficient, [*]/°F.

τ_1 is the measured lead time constant, [*] seconds.
τ_2 is the measured lag time constant, [*] seconds.

$f(\Delta I)$ is a function of the indicated difference between the top and bottom detectors of the Power Range Neutron Flux channels where q_t and q_b are the percent power in the top and bottom halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RTP.

$f_1(\Delta I) = [*] \{[*] - (q_t - q_b)\}$ when $q_t - q_b \leq$ [*]% RTP

$f_1(\Delta I) = 0\%$ of RTP when [*] % RTP < $q_t - q_b \leq$ [*]% RTP

$f_1(\Delta I) = [*] \{(q_t - q_b) - [*]\}$ when $q_t - q_b >$ [*]% RTP

* These values denoted with [*] are specified in the COLR.

Table 3.3.1-1 (Note 2)
Overpower ΔT

- NOTE -

The Overpower ΔT Function Limiting Safety System Setting is defined by:

$$\text{Overpower } \Delta T \leq \Delta T_0 \{K_4 - K_5 (T-T') - K_6 [(\tau_3 sT) / (\tau_3 s+1)] - f_2(\Delta I)\}$$

Where:

ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.

s is the Laplace transform operator, sec^{-1}.

T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, °F.

K_4 is the Overpower ΔT reactor trip setpoint, [*].
K_5 is the Overpower ΔT reactor trip heatup setpoint penalty coefficient which is:
[*]/°F for $T < T'$ and;
[*]/°F for $T \geq T'$.
K_6 is the Overpower ΔT reactor trip thermal time delay setpoint penalty which is:
[*]/°F for increasing T and;
[*]/°F for decreasing T.

τ_3 is the measured impulse/lag time constant, [*] seconds.

$f_2(\Delta I) = [*]$

* These values denoted with [*] are specified in the COLR.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODES 1 ≤ 8.5% RTP, 2, and 3

LCO 3.4.5 Two RCS loops shall be OPERABLE and one loop shall be in operation.

- NOTE -

Both reactor coolant pumps may be de-energized in MODE 3 for ≤ 1 hour per 8 hour period provided:

INSERT 5 →

a. No operations are permitted that would cause reduction of the RCS boron concentration; and

b. Core outlet temperature is maintained at least 10°F below saturation temperature.

APPLICABILITY: MODES 1 ≤ 8.5% RTP,
MODES 2 and 3.

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One RCS loop inoperable.	A.1	Verify SDM is within limits specified in the COLR.	Once per 12 hours
		AND		
		A.2	Restore inoperable RCS loop to OPERABLE status.	72 hours
B.	Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 4.	12 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both RCS loops inoperable. OR No RCS loop in operation.	C.1 De-energize all CRDMs. AND C.2 Suspend all operations involving a reduction of RCS boron concentration. AND C.3 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately Immediately Immediately

INSERT 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required RCS loop is in operation.	12 hours
SR 3.4.5.2	Verify steam generator secondary side water levels are ≥ 16% for two RCS loops.	12 hours
SR 3.4.5.3	Verify correct breaker alignment and indicated power are available to the required RCP that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

- NOTE -

1. All reactor coolant pumps (RCPs) and RHR pumps may be de-energized for ≤ 1 hour per 8 hour period provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless:

   a. The secondary side water temperature of each steam generator (SG) is ≤ 50°F above each of the RCS cold leg temperatures; or

   b. The pressurizer water volume is < 324 cubic feet (38% level).

APPLICABILITY: MODE 4.

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One RCS loop inoperable. AND Two RHR loops inoperable.	A.1	Initiate action to restore a second loop to OPERABLE status.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One RHR loop inoperable. AND Two RCS loops inoperable.	- NOTE - Required Action B.1 is not applicable if all RCS and RHR loops are inoperable and Condition C is entered. B.1 Be in MODE 5.	24 hours
C. All RCS and RHR loops inoperable. OR No RCS or RHR loop in operation.	C.1 ~~Suspend all operations involving a reduction of RCS boron concentration.~~ INSERT 3 AND C.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify one RHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	Verify SG secondary side water level is ≥ 16% for each required RCS loop.	12 hours
SR 3.4.6.3	Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

a. One additional RHR loop shall be OPERABLE; or

b. The secondary side water level of at least one steam generator (SG) shall be ≥ 16%.

- NOTE -

1. The RHR pump of the loop in operation may be de-energized for ≤ 1 hour per 8 hour period provided:

INSERT 5

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. One required RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

3. No reactor coolant pump shall be started with one or more RCS cold leg temperatures less than or equal to the LTOP enable temperature specified in the PTLR unless:

   a. The secondary side water temperature of each SG is ≤ 50°F above each of the RCS cold leg temperatures; or

   b. The pressurizer water volume is < 324 cubic feet (38% level).

4. All RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One RHR loop inoperable. AND Both SGs secondary side water levels not within limits.	A.1	Initiate action to restore a second RHR loop to OPERABLE status. OR	Immediately
		A.2	Initiate action to restore required SG secondary side water levels to within limits.	Immediately
B.	Both RHR loops inoperable. OR No RHR loop in operation.	B.1	~~Suspend all operations involving a reduction of RCS boron concentration.~~ AND	Immediately
		B.2	Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately

INSERT 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify one RHR loop is in operation.	12 hours
SR 3.4.7.2	Verify SG secondary side water level is ≥ 16% in the required SG.	12 hours
SR 3.4.7.3	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

- NOTE -

1. All RHR pumps may be de-energized for ≤ 15 minutes when switching from one loop to another provided:

   a. No operations are permitted that would cause a reduction of the RCS boron concentration;

   b. Core outlet temperature is maintained at least 10°F below saturation temperature; and

   c. No draining operations to further reduce the RCS water volume are permitted.

2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

INSERT 5

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately
B. Both RHR loops inoperable. OR No RHR loop in operation.	B.1 Suspend all operations involving reduction in RCS boron concentration. AND	Immediately

INSERT 3

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR loop is in operation.	12 hours
SR 3.4.8.2	Verify correct breaker alignment and indicated power are available to the RHR pump that is not in operation.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - MODES 5 and 6

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified independent offsite power circuit connected between the offsite transmission network and each of the onsite 480 V safeguard buses required by LCO 3.8.10, "Distribution Systems - MODES 5 and 6"; and

b. One emergency diesel generator (DG) capable of supplying one train of the onsite 480 V safeguard bus(es) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Offsite power to one or more required 480 V safeguards bus(es) inoperable.	- NOTE - Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A.	
	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.1 Suspend CORE ALTERATIONS. AND	Immediately
	A.2.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	A.2.3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. DG to the required 480 V safeguards bus(es) inoperable.	B.1 Suspend CORE ALTERATIONS. AND	Immediately
	B.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	B.3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

INSERT 8

INSERT 8

SURVEILLANCE REQUIREMENTS

SURVEILLANCE			FREQUENCY
SR 3.8.2.1	For AC sources required to be OPERABLE, the following SRs are applicable:		In accordance with applicable SRs
	SR 3.8.1.1	SR 3.8.1.4	
	SR 3.8.1.2	SR 3.8.1.5	

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - MODES 5 and 6

LCO 3.8.5 DC electrical power sources shall be OPERABLE to support the DC electrical power distribution subsystem required by LCO 3.8.10, "Distribution Systems - MODES 5 and 6."

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power source(s) inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.2.4 Initiate action to restore required DC electrical power source(s) to OPERABLE status.	Immediately

INSERT 8

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	For DC sources required to be OPERABLE, SR 3.8.4.1 is applicable.	In accordance with applicable SR

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 AC Instrument Bus Sources - MODES 5 and 6

LCO 3.8.8 AC instrument bus power sources shall be OPERABLE to support the onsite Class 1E AC instrument bus electrical power distribution subsystem required by LCO 3.8.10, "Distribution Systems - MODES 5 and 6."

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC instrument bus power source(s) inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.2.4 Initiate action to restore required AC instrument bus power source(s) to OPERABLE status.	Immediately

INSERT 8

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct static switch alignment to required AC instrument bus(es).	7 days
SR 3.8.8.2	Verify correct Class 1E CVT alignment to the required AC instrument bus.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - MODES 5 and 6

LCO 3.8.10 The necessary trains(s) of the following electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE:

a. AC power;

b. AC instrument bus power; and

c. DC power.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One or more required electrical power distribution train(s) inoperable.	A.1 OR	Declare associated supported required feature(s) inoperable.	Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.1 Suspend CORE ALTERATIONS. AND	Immediately
	A.2.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
INSERT 8	A.2.3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	A.2.4 Initiate actions to restore required electrical power distribution train(s) to OPERABLE status. AND	Immediately
	A.2.5 Declare associated required residual heat removal loop(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required electrical power distribution trains.	7 days

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One source range neutron flux monitor inoperable.	A.1 Suspend CORE ALTERATIONS. AND A.2 Suspend positive reactivity additions.	Immediately Immediately
B. Two source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status. AND B.2 Perform SR 3.9.1.1.	Immediately 4 hours AND Once per 12 hours thereafter
C. No audible count rate.	C.1 Suspend CORE ALTERATIONS. AND C.2 Suspend positive reactivity additions. AND	Immediately Immediately

Insert 4

Insert 4

CONDITION	REQUIRED ACTION	COMPLETION TIME
	C.3 Perform SR 3.9.1.1	4 hours AND Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.9.2.2	- NOTE - Neutron detectors are excluded from CHANNEL CALIBRATION. Perform CHANNEL CALIBRATION.	24 months

3.9 REFUELING OPERATIONS

3.9.4 Residual Heat Removal (RHR) and Coolant Circulation - Water Level ≥ 23 Ft

LCO 3.9.4 One RHR loop shall be OPERABLE and in operation.

- NOTE -

The required RHR loop may be removed from operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System (RCS) boron concentration.

INTRODUCTION OF COOLANT INTO

INSERT 7

WITH

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RHR loop requirements not met.	A.1 Suspend operations involving a reduction in RCS boron concentration.	Immediately
	AND	
	A.2 Suspend loading irradiated fuel assemblies in the core.	Immediately
	AND	
	A.3 Initiate action to satisfy RHR loop requirements.	Immediately
	AND	
	A.4 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

INSERT 4

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.9.4.1	Verify one RHR loop is in operation and circulating reactor coolant.	12 hours

3.9 REFUELING OPERATIONS

3.9.5 Residual Heat Removal (RHR) and Coolant Circulation - Water Level < 23 Ft

LCO 3.9.5 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Less than the required number of RHR loops OPERABLE.	A.1 Initiate action to restore RHR loop(s) to OPERABLE status. OR A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately Immediately
B. No RHR loop in operation.	B.1 Suspend operations involving a reduction in Reactor Coolant System boron concentration. AND B.2 Initiate action to restore one RHR loop to operation. AND B.3 Close all containment penetrations providing direct access from containment to outside atmosphere.	Immediately Immediately 4 hours

INSERT 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant.	12 hours
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days