DRAFT Documents Farley 4b

- Attachment 1 provides a description and assessment of the proposed changes, the requested confirmation of applicability, and plant-specific verifications.
- Attachment 2 provides the existing TS pages marked up to show the proposed changes.
- Attachment 3 provides revised, clean TS pages.
- Attachment 4 provides existing TS Bases pages marked up to show the proposed changes.

Enclosure:
1. List of Revised Required Actions to Corresponding PRA Functions.
2. Information Supporting Consistency with Regulatory Guide 1.200, Revision 2.
3. Information Supporting Justification of Bounding Analysis or Excluding Sources of Risk Not Addressed by the PRA Models
4. Baseline CDF and LERF
5. PRA Model Update Process
6. Attributes of the CRMP Model
7. Key Assumptions and Sources of Uncertainty
8. Program Implementation
9. Cumulative Risk and Performance Monitoring Program
10. Risk Management Action Example

1. Summary Description

The proposed amendment would modify the Farley Nuclear Plant (FNP) Technical Specification (TS) requirements related to completion times (CTs) for required actions (RAs) to provide the option to calculate a longer, risk-informed completion time (RICT). The allowance is described in a new program in Chapter 5, "Administrative Controls," entitled the "Risk Informed Completion Time Program."

The methodology for using the RICT Program is described in NEI 06-09, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," which was approved by the Nuclear Regulatory Commission (NRC) on May 17, 2007. Adherence to NEI 06-09 is required by the RICT Program.

The proposed amendment is consistent with the methodologies presented in TSTF-505, Revision 1, *Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b*. Although the proposed amendment is consistent with TSTF-505, SNC is not proposing adoption of TSTF-505 with this License Amendment Request (LAR). This LAR is a site-specific application. Only those required actions described in this attachment and Enclosure 1 are proposed to be changed. This is consistent with the methodology described in NEI 06-09.

2. Detailed Description

The proposed amendment would modify the Farley Nuclear Plant (FNP) TSs in the following manner to incorporate the RICT Program.

Use and Application Example 1.3-8, which demonstrates the format and use of the RICT Program within an LCO, is added to the TS and reads as follows:

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem to OPERABLE status.	7 days OR In accordance with the Risk Informed Completion Time Program

B. ---- NOTES ---- 1. Not applicable when second subsystem intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two subsystems inoperable.	B.1 Restore subsystems to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

When a subsystem is declared inoperable, Condition A is entered. The 7 day completion time may be applied as discussed in Example 1.3-2. However, the licensee may elect to apply the Risk Informed Completion Time Program which permits calculation of a risk informed completion time (RICT) that may be used to complete the required action beyond the 7 day completion time. The RICT cannot exceed 30 days. After the 7 day completion time has expired, the subsystem must be restored to OPERABLE status within the RICT or Condition C must also be entered.

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by two Notes, one stating it is not applicable if the second subsystem is intentionally made inoperable. The second Note indicates those parts of Section 5.5.20 that are applicable to these “loss of function” conditions. The required actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The required action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable, or if both subsystems are found to be inoperable at the same time. If Condition B is applicable, at least one subsystem

must be restored to OPERABLE status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT to extend the Completion Time beyond 1 hour if the requirements of the Risk Informed Completion Time Program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition. For these loss of function conditions, the RICT may not exceed 24 hours.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the required action completion time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day completion time clock of Condition A or the 1 hour completion time clock of Condition B have expired and subsequent changes in plant conditions result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE Status, Condition C is also entered and the completion time clocks for required actions C.1 and C.2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to Operable status, Condition C is also entered and the completion time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.

Administrative Controls Section 5.5.20, which describes the RICT Program, is added to TSs and reads as follows (this is consistent with TSTF-505 and NEI 06-09 as amended for the adjustments made to the Vogtle Electric Generating Plant (VEGP) Risk Informed TS Program during its NRC review):

Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI 06-09, Revision 0, “Risk Managed Technical Specifications (RMTS) Guidelines.” The program shall include the following:

a. The RICT may not exceed 30 days.

b. A RICT may only be used in MODE 1 and 2.

c. When a RICT is being used, any plant configuration within the scope of the Configuration Risk Management Program must be considered for the effect on the RICT.

    1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
    2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time)(i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.
    3. Revising the RICT is not required if the plant configuration change would lower plant risk and would result in a longer RICT.

d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of specified safety function or inoperability of all required trains of a system required to be OPERABLE.

e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered “PRA Functional” as defined in Section 2.3.1 of NEI 06-09. However, the following additional constraints shall be applied to the criteria for “PRA Functional”:

    1. Any SSCs credited on the PRA Functionality determination shall be the same SSC relied upon to perform the specified safety Technical Specifications safety function.
    2. Design basis success criteria parameters shall be met for all design basis accident scenarios for establishing PRA Functionality during a Technical Specifications loss of function (LOF) condition where a RICT is applied.

    Use of a RICT for LOF conditions may not exceed 24 hours.

f. Upon entering a RICT, the potential for common cause failure (CCF) must be addressed. This can be accomplished in one of two ways:

    1. Adjusting the common cause factors in the configuration risk management tool,

        OR

2. Implementing risk management actions (RMA) which specifically address the potential for the CCF. If RMAs are chosen as the method for addressing the potential for the CCF, those RMAs must be in effect prior to reaching the front stop.

   If it is determined that a CCF is not likely, the RMAs or common cause adjustment factors may be discontinued.

g. A RICT entry is not permitted, or a RICT entry made shall be exited, for any condition involving a TS loss of function if a PRA Functionality determination that reflects the plant configuration concludes that the LCO cannot be restored without placing the TS inoperable trains in an alignment which results in a loss of functional level PRA success.

Individual LCO Required Actions (RA) modified by the proposed amendment to be included in the RICT program are identified below. (Mentions of TSTF-505 refer to TSTF-505-A, Rev. 1).

3.4.10 Pressurizer Safety Valves

Required Action A.1 – Restore valve to OPERABLE status
(Condition A: One pressurizer safety valve inoperable).

(This deviates from the TSTF-505 LCO Condition in that a loss of function Condition is assigned to Condition A of the FNP LCO. This is because the FNP safety analysis assumes operation of all three pressurizer safety valves to limit increases in RCS pressure).

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

Required Action B.3 – Restore PORV to OPERABLE status
(Condition B: One PORV inoperable and not capable of being manually cycled)
Required Action C.2 – Restore block valve to OPERABLE status
(Condition C: One block valve inoperable)
Required Action F.2 – Restore one block valve to OPERABLE status
(Condition F: Two block valves inoperable; this is a Loss of Function Condition.)

(This LCO deviates from TSTF-505 in the following manner: Condition F is a loss of function Condition in the FNP TS; it is not in the corresponding TSTF-505 Condition. Condition F in the FNP TS differs from the corresponding Condition in the NUREG in that there are two Required Actions in the FNP Condition as opposed to one in the TSTF; consequently, a RICT is assigned to Required Action F.2. This is consistent with the VEGP 4b program).

3.5.1 Accumulators

Required Action C.1 – Restore one accumulator to OPERABLE status.
(Condition C: Two or more accumulators inoperable for reasons other than boron concentration not within limits. This Condition is being added to LCO 3.5.1 as a Loss of Function Condition)

3.5.2 ECCS – Operating

Required Action A.1 – Restore train(s) to OPERABLE status
(Condition A: One or more trains inoperable AND at least 100% of the ECCS flow equivalent to a single Operable ECCS train available)

(A deviation from the TSTF is taken in that Condition B in the TSTF, "Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available" is not used in FNP LCO 3.5.2. During the review of the VEGP RICT Program submittal, NRC indicated that design parameters must be met to be able to credit PRA Functionality in a Loss of Function Condition).

3.5.4 Refueling Water Storage Tank (RWST)

Required Action B.1 – Restore RWST to OPERABLE status
(Condition B: RWST inoperable for reasons other than Condition A, this is a Loss of Function condition).

(FNP LCO 3.5.4 deviates from the TSTF in that Condition A is not given a RICT in the FNP Program. This is due to the NRC indicating, in their review of the VEGP RICT Program, that design

parameters must be met to be able to credit PRA Functionality for Loss of Function Conditions and Condition A in the proposed FNP TS is a loss of function).

(FNP LCO 3.5.4 also deviates from the TSTF in that, Condition B is identified as a Loss of Function Condition since with the RWST inoperable, neither the ECCS nor the Containment Spray system can perform its design function. The TSTF does not identify this Condition as a Loss of Function).

3.6.2 Containment Air Locks

Required Action C.3 – Restore air lock to OPERABLE status (Condition C: One or more containment air locks inoperable for reasons other than Condition A or B)

3.6.3 Containment Isolation Valves

Required Action A.1 – Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.
(Condition A: One or more penetration flow paths with one containment isolation valve inoperable except for purge valve penetration leakage not within limit. Note: Only applicable to penetration flow paths with two containment isolation valves)
Required Action B.1 – Isolate the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange.
(Condition B: One or more penetration flow paths with two containment isolation valves inoperable except for purge valve penetration leakage not within limit. Note: Only applicable to penetration flow paths with two containment isolation valves. This is a Loss of Function Condition).
Required Action C.1 – Isolate the affected flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.
(Condition C – One or more penetration flow paths with one containment isolation valve inoperable. Note: Only applicable to penetration flow paths with only one containment isolation valve and a closed system. This is a Loss of Function Condition).

3.6.6 Containment Spray and Cooling Systems

Required Action A.1 – Restore containment spray train to OPERABLE status.
(Condition A: One containment spray train inoperable)
Required Action B.1 – Restore one containment spray train to OPERABLE status.
(Condition B: Two containment spray trains inoperable. This is a TS Loss of Function Condition).
Required Action D.1 Restore containment cooling train to OPERABLE status.
(Condition D: One containment cooling train inoperable).
Required Action E.1 Restore one containment cooling train to OPERABLE status.
(Condition E: Two containment cooling trains inoperable)
Required Action G.1 – Restore one containment spray or cooling train to OPERABLE status.
(Condition G: Any combination of three or more trains inoperable. This is a Loss of Function Condition).

(FNP LCO 3.6.6 deviates in format from the TSTF-505 mark-up but the effect is the same. FNP has added Condition B, “Two containment spray trains inoperable”, and Condition G is “Any combination of three or more trains inoperable”. Both are Loss of Function Conditions. SNC FNP believes that separating the *two containment spray trains inoperable* Condition from *the any combination of three or more trains inoperable* Condition is clearer and more concise than the TSTF-505 Condition G where both situations are considered in one TS Condition.)

3.7.2 Main Steam Isolation Valves (MSIVs)

Required Action A.1 – Restore MSIV to OPERABLE status.
(Condition A: One or more steam lines with one MSIV inoperable in MODE 1).

Required Action B.1- Restore one MSIV to OPERABLE status in affected steam line.
(Condition B: One or more steam lines with two MSIVs inoperable in MODE 1. This is a TS Loss of Function Condition).

3.7.4 Atmospheric Relief Valves (ARVs)

Required Action A.1 – Restore required ARV line to OPERABLE status.
(Condition A: One required ARV line inoperable).
Required Action B.1 – Restore one ARV line to OPERABLE status.
(Condition B: Two required ARV lines inoperable.
Required Action C.1 – Restore one ARV line to OPERABLE status.
Condition C: Three required ARV lines inoperable. (This is a Loss of Function Condition).

(Conditions B and C are deviations from the TSTF. For the purposes of the Risk Informed Completion Time Program, the Condition of “Two or more required ARV lines inoperable” is being split into two Conditions. Condition B will be “Two required ARV lines inoperable” and Condition C will be “Three required ARV lines inoperable”. Condition C is a Loss of Function Condition, but Condition B is not. This is why they were split. Otherwise Condition B would have been a Loss of Function, with its restrictions, with just 2 ARVs inoperable).

3.7.5 Auxiliary Feedwater System (AFW)

Required Action A.1 – Restore affected equipment to OPERABLE status.
(Condition A: One steam supply to turbine driven AFW pump inoperable).
Required Action B.1 – Restore AFW train to OPERABLE status.
(Condition B: One AFW train inoperable for reasons other than Condition A).
Required Action C.1 – Restore one AFW train to OPERABLE status.
(Condition C : Two AFW trains inoperable. This is a TS Loss of Function condition)

3.7.6 Condensate Storage Tank (CST)

Required Action A.2 – Restore CST to OPERABLE status.
(Condition A: CST inoperable. This is a Loss of Function condition).

(This is a deviation from TSTF-505 in that Condition A, "CST Inoperable, is identified as a Loss of Function Condition in the FNP proposed TS. This is because the CST provides cooling water to remove decay heat and to cool down the unit following all events in the accident analysis. If this source of water is unavailable, it may not be possible to mitigate these events).

3.7.7 Component Cooling Water (CCW) System

Required Action A.1 – Restore CCW train to OPERABLE status
(Condition A – One CCW train inoperable)
Required Action B.1 – Restore one CCW train to OPERABLE status.
(Condition B: Two CCW trains inoperable. Condition B is a new Condition, added as a Loss of Function)

3.7.8 Service Water System (SWS)

Required Action A.1 – Restore SWS train to OPERABLE status.
(Condition A: One SWS train inoperable)
Required Action B.1 – Restore one SWS train to OPERABLE status.
(Condition B: Two SWS trains inoperable. Condition B is a new Condition, added as a TS Loss of Function).

3.7.11 Control Room Air Conditioning System (CRACS)

Required Action E.1 – Restore one CRACS train to OPERABLE status.
(Condition E: Two CRACS trains inoperable in MODE1, 2, 3, or 4. This is a Loss of Function Condition)

(Condition F for the FNP TS is a deviation from the TSTF in that, if the CT of the Loss of Function Condition E is not met, LCO 3.0.3 is entered. This is the current licensing basis for the FNP Loss of Function Condition and FNP chooses to retain it. There is little difference between it and the TSTF-505 Condition for not meeting the Loss of Function CT, Condition B, which requires being in Mode 3 in 6 hours and Mode 5 in 36 hours).

3.7.19 Engineered Safety Feature (ESF) Room Coolers

Required Action A.1: - Restore the affected ESF Room Cooler subsystem Train to OPERABLE status.
Condition A: One required ESF Room Cooler subsystem Train inoperable.
Required Action B.1: - Restore one of the same ESF Room Cooler subsystems to OPERABLE status.
Condition B: Two trains of the same ESF Room Cooler subsystem inoperable. (This is a new Condition, added as a loss of function).

(This LCO does not exist in NUREG-1431. Consequently, this represents a deviation from TSTF-505).

3.8.1 AC Sources – Operating

Required Action A.3 – Restore required offsite circuit to OPERABLE status.
(Condition A: One required offsite circuit inoperable)
Required Action B.4 – Restore DG set to OPERABLE status.
(Condition B: One DG Set inoperable)
Required Action C.2 – Restore one required offsite circuit to OPERABLE status.
(Condition C: Two required offsite circuits inoperable)
Required Action D.1 – Restore required offsite circuit to OPERABLE status.
Required Action D.2 – Restore DG set to OPERABLE status.
(Condition D: One required offsite circuit inoperable AND One DG set inoperable).
Required Action E.1 – Restore one DG set to OPERABLE status.
(Condition E: Two DG Sets inoperable)

Required Action G.1 – Restore automatic load sequencer to OPERABLE status.
(Condition G: One automatic load sequencer inoperable)
Required Action H.1 – Restore one required AC source to OPERABLE status.
(Condition H: Three or more required AC sources inoperable).

(Condition E is a deviation from TSTF-505. This is due to the structure of the LCO Condition differing between the FNP TS and the Standard TS, marked up for TSTF-505. The FNP Condition is two DG sets inoperable. There are three Completion Times in the current FNP Required Action but only one in the TSTF. The FNP CTs are dependent on which combination of individual DGs is affected. The CT increases depending on the severity in the combinations of DGs that are inoperable. The first combination listed in the current FNP CT for Condition E is 2 hours for all three DGs inoperable. The next two are 8 hours and 24 hours for different inoperable combinations of 2 DGs. A RICT is being assigned to the 8 hour and 24 hour CT. The first CT is being eliminated; it will be covered in proposed Condition H).

3.8.4 DC Sources – Operating

Required Action A.1 – Restore the Auxiliary Building DC electrical power subsystem to OPERABLE status.
(Condition A: One auxiliary building DC electrical power subsystem inoperable).
Required B.1 – Restore the battery connection resistance to within limit.
(Condition B: One auxiliary building DC electrical power subsystem with battery connection resistance not within limit).
Required Action D.1- Restore the battery connection resistance to within the limit.
(Condition D: One required SWIS DC electrical power subsystem battery connection resistance not within limit).
Required Action F.1 – Restore at least one DC electrical power subsystem to Operable status.
(Condition F: Two or more DC electrical power subsystems inoperable that result in a loss of function. This is a new Condition, added as a loss of function)

(This Condition deviates from TSTF-505 in that NUREG-1431, which was used as the generic mark-up for the Risk Informed Tech Specs, incorporates TSTF-500, “DC Electrical Re-write”. The FNP TS was never revised for TSTF-500).

3.8.7 Inverters – Operating

Required Action A.1 – Restore inverter to OPERABLE status.
(Condition A: One required inverter inoperable).
Required Action B.1 – Restore one required inverter to OPERABLE status.
(Condition B: Two or more required inverters inoperable. This is a new Condition, added as a loss of function).

3.8.9 Distribution Systems – Operating

Required Action D.1 – Restore AC electrical power distribution subsystem(s) to OPERABLE status.
(Condition D: One or more AC electrical power distribution subsystems inoperable).
Required Action E.1 – Restore AC Vital bus subsystem(s) to OPERABLE status.
(Condition E: One or more AC Vital buses inoperable).
Required Action F.1 – Restore auxiliary building DC electrical power distribution subsystem to OPERABLE status.
(Condition F: One auxiliary building DC electrical power distribution subsystem inoperable).
Required Action G.1 – Restore one train to OPERABLE status.
(ConditionG: Two trains with inoperable distribution subsystems that result in a loss of safety function. This is a loss of function Condition).

3. Technical Evaluation

The proposed modification to the Farley Nuclear Plant (FNP) Units 1 and 2 TS would add Section 5.5.20, Risk Informed Completion Time (RICT) Program to Chapter 5, Administrative Controls, add Example 1.3-8 to Chapter 1, Use of Application, and modify selected Required Action (RA) Completion Times (CT), provided risk is assessed and managed as described in NEI 06-09. In accordance with NEI 06-09-0-A, PRA methods are used to justify each extension to a RA CT based on the specific plant configuration, which exists at the time of the applicability of the RA, and are updated when plant configurations change. This application includes

documentation regarding the technical adequacy of the PRA models used in the Configuration Risk Management Program (CRMP), consistent with the requirements of RG 1.200 (Enclosure 2).

Most TS LCOs identify one or more Conditions for which the LCO may not be met, to permit a licensee to perform required testing, maintenance, or repair activities. Each Condition has associated RAs for restoration of the LCO or for other actions, each with some fixed time interval, referred to as the Completion Time, which identifies the time interval permitted to complete the Required Action. Upon expiration of the CT, the licensee is required to shutdown the reactor or follow the remedial action(s) stated in the TS. The RICT program provides the necessary administrative controls to permit extension of CTs and thereby delay reactor shutdown or remedial actions, if risk is assessed and managed within specified limits and programmatic requirements. The specified safety function of performance levels of TS required structures, systems, and components (SSCs) are unchanged, and the remedial actions, including the requirement to shut down the reactor, are also unchanged; only the CTs for the RAs are extended by the RICT program.

NEI 06-09 allows the application of a RICT to emergent conditions which represent inoperability of all required trains or divisions of a system required to be Operable provided one or more of the trains or divisions are considered “PRA functional” as defined in Section 2.3.1 of NEI 06-09. In order to avoid intentional entry to these “loss of function” conditions, they are modified by a Note similar to: “Not applicable when the second system [train] [division] is intentionally made inoperable”. A second Note, added to these loss of function conditions, lists the restrictions on these conditions, as given in Section 5.5.20. Furthermore, any SSCs credited in the PRA Functional determination shall be the same SSCs relied upon to perform the specified Technical Specifications safety function and design basis parameters will be met.

The Bases for each specific loss of function Condition are expanded to discuss the Note, similar to:

“The Condition is modified by two Notes. The first Note stating it is not applicable when the second system [train] [division] is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Required Action is only applicable if one system [train] [division] is inoperable for any reason and a second system [train] [division] is found to be inoperable, or if two systems [trains] [divisions] are found to be inoperable at the same time. The second Note lists the restrictions, per TS Section 5.5.20, that are applicable to these loss of function conditions”.

In Section 4, “Limitations and Conditions”, of the Safety Evaluation for NEI 06-09, there are thirteen aspects listed that describe required, plant-specific information to support a license amendment request to adopt NEI 06-09. They are as follows:

(1) The LAR will include proposed changes to the administrative controls of TS to add a Configuration Risk Management Program (CRMP) in accordance with NEI 06-09-A, Revision 0.

This information can be found in Attachment 1.

(2) The LAR will provide identification of the TS LCOs and Action requirements to which the Risk Managed Technical Specifications (RMTS) will apply, with a comparison of the TS functions to the PRA modeled functions of the SSCs subject to those LCO Actions. The comparison should justify that the scope of the PRA model, including applicable success criteria such as number of SSCs required, flowrate, etc., are consistent licensing basis assumptions (i.e., 50.46 ECCS flowrates) for each of the TS requirements, or an appropriate disposition or programmatic restriction will be provided.

This information can be found in Enclosure 1.

(3) The LAR will provide a discussion of the results of peer reviews and self assessments conducted for the plant-specific PRA models which support the RMTS, including the resolution or disposition of any identified deficiencies (i.e., findings and observations from peer reviews). This will include a comparison of the requirements of RG 1.200 using the elements of ASME RA-Sb-2005 for capability Category II for internal events PRA models, and for other models for which RG 1.200 endorsed standards exist. If additional standards have been endorsed by revision to RG 1.200, the LAR will provide similar information for those PRA models used to support the RMTS program.

This information can be found in Enclosure 2.

(4) The LAR will provide a description, in terms of scope, level of detail, technical adequacy, and methods applied, for all PRA models used in calculations of risk used to support the RMTS for risk sources for which NRC endorsed standards are not available.

This item is not applicable to this license amendment request.

(5) The LAR will provide a justification for excluding any risk sources determined to be insignificant to the calculation of configuration –specific risk, and will provide a discussion of any conservative or bounding analysis to be applied to the calculation of RICTs for sources of risk not addressed by the PRA models.

This information can be found in Enclosure 3.

(6) The LAR will provide the plant-specific total CDF and total LERF to confirm that these are less than 10^{-4}/year and 10^{-5}/year, respectively.

(7) This assures that the potential risk increases allowed under the RMTS program are consistent with RG 1.174, Revision 1.

The information can be found in Enclosure 4.

(8) The LAR will provide appropriate plant-specific justification for using at-power PRA models in shutdown modes to which the RMTS applies.

This item is not applicable to this license amendment request.

(9) The LAR will provide a discussion of the licensee's programs and procedures which assure the PRA models which support the RMTS are maintained consistent with the as-built, as-operated plant.

This information can be found in Enclosure 5.

(10) The LAR will provide a description of the PRA models and tools used to support the RMTS, including identification of how the baseline PRA model is modified for use in the CRMP tools, quality requirements applied to the PRA models and CRMP tools, consistency of calculated results from the PRA model and the CRMP tools, and training and qualification programs applicable to personnel responsible for development and use of the CRMP tools. The scope of SSCs within the CRMP will be provided. This item should also confirm that the CRMP tools can be readily applied for each TS LCO within the scope of the plant-specific RMTS submittal

This information can be found in Enclosure 6.

10) The LAR will provide a discussion of how the key assumptions and sources of uncertainty were identified, and how their impact on the RMTS was assessed and dispositioned.

This information can be found in Enclosure 7

11) The LAR will provide a description of the implementing programs and procedures regarding the plant staff responsibilities for the RMTS implementation, and specifically discuss the decision process for RMA implementation during a RICT.

This information can be found in Enclosure 8

(12) The LAR will include a description of the implementation and monitoring program as described in RG 1.174, Revision 1, Section 2.3, Element 3, and TR NEI 06-09, Revision 0, Section 2.3.2, Step 7.

This information can be found in Enclosure 9.

13) The LAR will describe the process to identify and provide compensatory measures and RMAs during expected CTs. Provide examples of compensatory measures/RMAs for planned activities which exceed risk

levels identified in NUMARC 93-01 (RMA threshold) that involve an extended CT.

This information can be found in Enclosure 10.

4. Summary of Vogtle Electric Generating Plant (VEGP) Responses to Requests for Additional Information

This section provides a summary of selected responses to NRC requests for additional information received by SNC during the VEGP Risk Informed Completion Time (RICT) program review process. These summaries are with respect to how they pertain to the FNP RICT Program. Those responses in which commitments were made by SNC are included in this section. Reviews and confirmations which were made, for FNP, as a result of the VEGP RAI responses are also included. Those VEGP responses which were only applicable to VEGP are not included. Also not included are those responses which only provided clarification on existing SNC practices, procedures, and processes.

In each case, only the relevant portions of the NRC question are provided. However, the SNC RAI response letter number and the date of the letter are included in each case should reviewers want to see the entire VEGP RAI response for the particular question.

In general, any response to a VEGP RAI which discusses SNC fleet procedures, processes, and guidelines pertaining to the Risk Informed Completion Time Program and makes clarifications regarding those processes were not included in this section. It is understood that the clarifications made in the VEGP submittal regarding these general items will apply to the FNP Risk Informed Completion Time Program as well.

The following SNC responses are provided as they pertain to FNP.

The SNC letter number and date of issuance is also provided.

1) NRC Question #4, from SNC letter NL-13-1540, August 2, 2013

"… Please address how the VEGP updated final safety analysis report will be revised to reflect the new conditions and required actions."

SNC Response for FNP:

SNC will include a summary of the Risk Informed Completion Time Program in the FNP FSAR. This will include a section on PRA Functionality which will list those conditions which must be satisfied before declaring a component as "PRA Functional" per the NEI 06-09 guidelines. The section will explicitly state that for a TS component to be considered PRA Functional, its PRA success criteria, among other things, must be satisfied. Additionally, for loss of function, the SSCs' design basis criteria for parameters must also be satisfied.

The FNP FSAR discussion will also include a section on PRA adequacy. It will state that the on-record PRA model that forms the basis for the VEGP Configuration Risk Management (CRM) tool has been developed to the requirements of Reg Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities", and is subjected to Peer Reviews per the requirements of NRC endorsed PRA standards and SNC procedures. Those Peer reviews are formally documented along with the findings and observations of the review, and their corresponding resolutions.

2) NRC Question #5, from SNC letter NL-14-1016, dated July 17, 2014

An oversight occurred during the NRC review of TSTF-505, Revision 1, and a specific scenario was not satisfactorily addressed. SNC is requested to address the following scenario.

For this scenario, the TS system is comprised of train A and train B and performs two associated Probabilistic Risk Assessment (PRA) success criteria, called PRA function 1 and PRA function 2.

In an emergent condition, with both TS system train A and train B TS inoperable and the associated PRA success criteria considered PRA functional with train A able to perform PRA function 1 and train B being able to perform function 2 (i.e., neither train by itself can perform PRA functions 1 and 2 but both trains together maintain PRA functionality). The NEI 06-09 guidelines will allow a risk informed completion time to be entered in this scenario, however, there is no way to repair either train A or train B without losing PRA functionality.

…Please provide changes to the proposed "Risk Informed Completion Time Program," in VEGP TS 5.5.22, which prevents entry into a risk informed completion time for this specific scenario.

SNC Response for FNP:

The following statement will be placed in new Section 5.5.20 of the FNP TS:

"A RICT entry is not permitted, or a RICT entry made shall be exited, for any condition involving a TS Loss of Function if a PRA Functionality determination that reflects the plant configuration concludes that the LCO cannot be restored without placing the TS inoperable trains in an alignment which results in a loss of functional level PRA success criteria."

3) NRC Question #13, from SNC letter NL-14-1016, dated July 17, 2014.

"… In a number of instances, the disposition in Table E1.1 justifies such differences as PRA success criteria representing "more realistic success criteria." Since the PRA success criteria differ in some instances from design basis criteria, please confirm that the PRA success criteria is up-to-

date, clearly and fully documented for the "4b" application to the level of detail necessary for the RICT program, and appropriate review processes are being implemented for the supporting calculations."

SNC Response for FNP:

Success criteria are documented as part of the PRA documentation and included in the scope of the Peer Review. PRA success criteria for each system included in the scope of the RICT program are further documented in the "CRM System Guidelines: including flow rates, where applicable, for ease of use during PRA Functionality evaluations when a RICT is entered.

The PRA success criteria are documented in a SNC calculation, which is governed by SNC procedures. The success criteria calculations are living documents and are maintained to reflect the as-built, as-operated plant conditions. SNC calculations are performed by qualified individuals and include a preparer, a reviewer, and an approver.

Table E1.1 of this letter documents the TS LCO Conditions included in the scope of the FNP RICT Program for a comparison between the design basis and PRA success criteria. It also documents, in the "Disposition Column" of Table E1.1, a satisfactory disposition where a difference was identified. Since all differences, as documented in Table E1.1 were satisfactorily resolved, no programmatic restrictions were necessary.

4) NRC RAI #1 (Alternative SSCs), from SNC letter NL-16-0067, dated February 17, 2016

If a PRA Functional determination for a loss of specified safety function or inoperability of all required trains or divisions of a system credits SSCs other than the SSCs covered by TSs (e.g., crediting the Fire Protection system as an alternative water source), please summarize each such TS and justify how appropriate redundancy and diversity is maintained if alternative SSCs are credited.

SNC Response for FNP:

SSCs credited in the PRA Functionality determination are the same SSCs relied on to perform the specified safety function when a RICT for a Technical Specification (TS) total loss of function (LOF Condition) is calculated.

If SNC desires to credit specific alternative SSCs in the future, i.e., SSCs other than those covered by the TS, a separate license amendment request will be required.

5) NRC RAI #1 (Human Actions) from SNC letter NL-16-0067, dated February 16, 2016.

Please confirm that all human action required to achieve PRA functional upon loss of specified safety function are modeled in the PRA (i.e., are

proceduralized and trained on or are simple enough so as to be skill of the craft). If any action were evaluated not modeled, please summarize the actions and the evaluation.

SNC Response for FNP:

Human actions required to achieve PRA Functionality during a TS LOF Condition are modeled in the PRA and are proceduralized and trained on unless they are simple enough to be skill of the craft.

6) NRC RAI #1 (Intent of Design Basis) from SNC letter NL-16-0067, dated February 16, 2016

Please confirm that PRA Functionality does not include any scenarios that allow any design basis accident to proceed directly to core damage or containment failure.

SNC Response for FNP:

When in a TS LOF RICT, PRA Functionality determination will include a review of dominant internal events CDF and LERF cutsets to provide high confidence that none of the design basis accidents, as modeled in the internal events PRA, proceed directly to core damage or containment failure.

7) NRC RAI #2 (SSCs not supporting CDF/LERF) from SNC letter NL-16-0067, dated February 16, 2016

Please confirm that the acceptable PRA Functional modelled in the PRA is also available and sufficient for the remaining design basis accident scenarios that are not modelled in the PRA because other design basis accident scenario does not affect CDF or LERF.

SNC Response for FNP:

For design basis initiators that are not modeled in the PRA because they do not affect CDF or LERF, the PRA Functionality evaluation performed following a TS LOF Condition will ensure SSCs not supporting CDF/LERF will remain available and will sufficiently perform their safety function with respect to the credited design basis scenario.

8) NRC Question #2 (Design Basis Success Criteria) from SNC letter NL-16-0067, dated February 16, 2016.

In Table E1.1 of its application dated September 13, 2012, the licensee noted differences between the design basis success criteria and the PRA success criteria for certain specified safety functions.

…please elaborate on how adequate safety margins are maintained and provide some clarifying examples of adequate safety margins for where the

PRA success criteria (e.g., flow rates, temperature limits) differ from the design criteria.

SNC Response for FNP:

For design basis initiators modelled in the internal events PRA, PRA Functionality determination performed subsequent to a TS LOF Condition entry will ensure design basis success criteria for parameters (e.g., flow rates, temperature limits) are met.

9) NRC Question (VEGP LCO 3.8.1, "AC Sources – Operating") from SNC letter NL-16-0307, dated April 18, 2016.

The LAR proposes to add the option of either applying the existing front stop Completion Time or applying a Risk Informed Completion Time for Required Action C.1. The proposed change to the Completion Time for Required Action C.1 could permit operation for an extended period of time with one DG inoperable without verifying the availability of the SAT or of the CTG. Please provide technical justification, including a discussion of defense-in-depth and safety margin considerations, for the addition of a risk informed completion time for the Required Actions associated with LCO 3.8.1 Condition C, or propose a modification to the license amendment request that retains the existing CTs for verifying availability of SAT and functionality of a DG.

SNC Response for FNP:

The VEGP TS, prior to the approval and implementation of the Risk Informed Completion Time Program into the current TS, contained a risk-informed LCO 3.8.1 which allowed a 14-day Completion Time (CT) for one inoperable diesel generator provided the availability of Start-Up Transformer (SUT) and a Combustion Turbine Generator (CTG) could be confirmed. Ultimately, the LCO 3.8.1 section of the VEGP TS for the Risk Informed Completion Time program was revised to reflect LCO 3.8.1 of the NUREG-1431 standard and TSTF-505. Accordingly, the front stop CT for the DG was changed from 14 days to 72 hours, per the standard.

FNP LCO 3.8.1 currently has a 10 day CT. This is not a risk-informed completion time, in other words, the original justification for the 10 day CT was not risk-informed. Therefore, SNC proposes that the front stop remain at 10 days, with the option of calculating a RICT.

10) NRC Question PRA RAI S-1 (A) from SNC letter NL-16-1008, dated July 13, 2016.

The NRC staff requests SNC to discuss the completion times backstop associated with TS-LOF and its basis. In particular the NRC requests SNC to clarify whether it intends to adopt a 24-hour backstop (and if so, how it intends to do so, in addition to providing marked up TS pages). And whether SNC intends to revise TS 5.5.22 to incorporate the following

constraints delineated SNC's previous response (And if so, how it intends to do so, in addition to providing marked-up TS pages):

i) Alternative SSCs cannot replace the SSCs covered by the TSs as described in the response to RAI 1.a.
ii) Design basis success criteria parameters shall be met for design basis accident scenarios that are not modeled in the internal events PRA as described in the response to 2.a.
iii) Design basis success criteria parameters shall be met for design basis accident scenarios modelled in the internal events PRA as described in the response to 2.c.

SNC Response for FNP:

SNC intends to adopt a 24 hour backstop for loss of function conditions in the FNP Risk Informed Completion Time Program.

The three additional constraints listed above will also be adopted by FNP and placed in FNP's proposed corresponding description of the Risk Informed Completion Time Program, Section 5.5.20.

11) NRC Question PRA RAI S-2 from SNC letter NL-16-1008, dated July 13, 2016.

C. The NRC staff requests SNC to identify any proposed changes to the TSs that conflict with the constraints or controls identified in PRA RAI S-1 and to provide a disposition of any conflict.

SNC Response for FNP:

The FNP LAR and the FNP proposed TS changes were prepared with the constraints and controls of PRA RAI S-1 in mind. The FNP LCO Conditions which are proposed to include a risk informed completion time do not conflict with the restrictions of question PRA-RAI S-1 from the NRC review of the VEGP risk informed TS.

12) NRC Question DORL-RAI-1 from SNC letter NL-16-1008, dated July 13, 2016.

… NEI 06-09, Revision 0-A incorporates changes based on the NRC staff's safety evaluation dated May 7, 2007, of NEI 06-09, Revision 0-A in the TS, and if so, to submit marked-up TS pages that reference Revision 0-A of NEI 06-09.

SNC Response for FNP:

Although the FNP submittal is a site specific TS change request, SNC will nonetheless use NEI 06-09- 0-A as the implementation guideline and reference it in proposed Section 5.5.20, "Risk Informed Completion Time Program".

13) NRC Question #2 from SNC letter NL-17-0232, dated March 13, 2017.

… SNC provided a list of systems with descriptions of the TS LOF Conditions. The proposed TS 5.5.22 in the same RAI response contains several constraints (e.g., 24 hour backstop and remaining mitigating capabilities) on developing a RICT that can be used for these conditions. However, the proposed TS changes do not identify the Conditions to which these constraints apply. Please propose a modification to the affected TS that stipulates that Conditions will be subject to the 24 hour backstop and associated mitigating capabilities.

SNC Response for FNP:

Section 5.5.20, "Risk Informed Completion Time Program" will contain general rules for the program. Including those that apply specifically to loss of function conditions. Additionally, each individual loss of function (LOF) Condition will make reference, in a Note, to those specific parts of 5.5.20 applicable to LOF Conditions.

14) NRC Question #3 from SNC letter NL-17-0232, dated March 13, 2017.

The staff reviewed the proposed TS 5.5.22, Risk Informed Completion Time Program, as provided in Enclosure 3 in the letter dated July 13, 2016, and identified the need for some additional clarification.

(1) Enclosure 3, part c, currently states:

c. When a RICT is being used, any plant configuration change within the scope of the RICT Program must be considered for the effect on the RICT.

The proposed wording appears to be circular. The parallel limitation from the NRC SE on NEI 06-09 is:

c. When a RICT is being used, any plant configuration change within the scope of the Configuration Risk Management Program (CRMP) must be considered for the effect on the RICT.

Please clarify the logic of the proposed limitation or revise TS 5.5.22 accordingly.

(2) Enclosure 3, part e.2 and 3.3 currently state:

e.2 For design basis accident scenarios that are not modelled in the PRA because they do not affect the CDF or LERF, the PRA Functionality evaluation performed following a TS LOF Condition entry will ensure SSCs not supporting CDF/LERF will remain available and sufficient.

e.3 For design basis initiators modeled in the internal events PRA, the PRA Functionality determination performed subsequent to a TS LOF Condition entry will ensure design basis success criteria for parameters (e.g., flow rate, temperature limits) are met.

(NRC further indicated in this question that SNC's proposed words, as presented above, did not match NRC's suggested wording, and that it (SNC's words) "substantively changed the scope of the response". NRC went on to suggest additional alternate wording).

SNC Response to part (1) for FNP:

The applicable portion of FNP Section 5.5.20 will use the same words and phrasing as that from the NRC SE on NEI 06-09 transcribed above.

SNC Response to part (2) for FNP:

SNC will use the same wording for FNP as for VEGP:

> Design basis success criteria parameters shall be met for all design basis accident scenarios for establishing PRA Functionality where a RICT is applied.

15) NRC Question #7 from SNC letter NL-17-0232, dated March 13, 2017.

LCO 3.5.1.A, "One accumulator inoperable due to boron concentration not within limits", is proposed in the scope of the RICT program. In response to RAI #12 provided in letter dated July 17, 2014, the licensee stated that this condition will be modeled in the PRA by assuming loss of accumulator as a surrogate. The RAI response further states that "loss of accumulator is the worst case surrogate for this degraded condition."

" … a) explain how modeling the accumulator as unavailable (i.e., no injection) in the PRA represents the worst case impact of the accumulator boron concentration not being within limits or remove Condition 3.5.1.A from the RICT program.
b) …

SNC Response for FNP

As was done for the VEGP Program, this LCO Condition will not be included in the FNP Risk Informed Completion Time Program.

NRC Question #11 from SNC letter NL-17-0232, dated March 13, 2017.

Please provided a license condition limiting the scope of the PRA and non-PRA methods to what is approved by the NRC staff for use in the plant specific RMTS program. An example is provided below:

The risk assessment approach and methods shall be acceptable to the NRC, be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk from extending the completion times must be PRA methods accepted as part of this license amendment, or other methods currently approved by the NRC for generic use. If a licensee wishes to change its method and the change is outside the bounds of this license condition, the licensee will need prior NRC approval, via license amendment.

SNC Response for FNP

FNP will adopt a similar license condition. Enclosure xx contains the marked-up and clean pages for the operating license with this particular condition included.

16) NRC Question 10.3 from SNC letter NL-17-0447, dated April 14, 2017

The proposed changes to the TS include Condition 3.4.11.F , Two [Pressurizer Power Operated Relief Valve – PORV] Block Valves inoperable. The current TS require restoring one block valve to Operable status within 2 hours. The proposed change is to permit the option of calculating a RICT for this Required Action. Per the proposed RICT program, the RICT could be calculated to be any length of time between 2 hours and 30 days. The TS bases state that an Operable block valve may be either open and energized, or closed and energized with the capability to be opened, since the required safety function is accomplished by manual operation. Although typically open to allow PORV operation, the block valves may be Operable when closed to isolate the flow path of an inoperable PORV that is capable of being manually cycled (e.g., as in the case of excessive PORV leakage). A TS loss of function is considered to exist when two redundant SSCs are simultaneously inoperable. Voluntary entry into a condition representing a TS loss of function is prohibited throughout the proposed TSs by a Note which modifies the Condition. If emergent conditions create a TS loss of function condition, the RICT is limited to maximum of 24 hours and constraints on PRA Functionality are applied. The required position of the PORV block valves could be either open or closed, dependent on the condition of its associated PORV. If the block valves are not repositionable, then inoperability of the block valves could result in a loss of safety function.

SNC Response for FNP

Similar to the VEGP response, this will be made a loss of function condition in the FNP RICT Program.

17) NRC Question #10.4 from SNC letter NL-17-0447, dated April 14, 2017

The proposed changes to the TS include Condition 3.5.1.B, One Accumulator Inoperable (for reasons other than Boron Concentration).

The current TS require restoring the accumulator to Operable status within 24 hours. The proposed change is to permit the option of calculating a RICT for this Required Action. Per the proposed RICT program, the RICT could be calculated to be any length of time between 24 hours and 30 days.

Section 6.3.2 of the Vogtle FSAR states that ECCS components are designed such that a minimum of three accumulators, one residual heat removal pump, one residual heat removal (RHR) heat exchanger, together with their associated valves and piping will ensure adequate core cooling in the event of a design basis accident.

The Vogtle TS Bases states that the need to ensure that three accumulators are adequate for this function is consistent with the loss-of-coolant-accident (LOCA) assumption that the entire contents of one accumulator will be lost via the reactor coolant system (RCS) pipe break during the blowdown phase of the LOCA.

It is not clear to the staff how the assumptions in the accident analysis would be satisfied for a LOCA in which the contents of one accumulator is lost through the break, and a second accumulator is inoperable at the time of the event.

Please provide an explanation of how the PRA functionality would be applied in this condition, why this condition would not be considered a TS loss of function, and how it would be assured that design basis success criteria would be satisfied.

SNC Response for FNP

Like the VEGP TS, the LCO Condition for FNP was also revised from a one hour CT to a 24 hour CT. The arguments in support of the amendment were risk informed. Therefore, this LCO Condition (3.5.1.B) will be excluded from the FNP RICT program.

18) NRC Question #10.5 from SNC letter NL-17-0447, dated April 14, 2017

The proposed change to the TS include Condition 3.6.3.B, Containment Penetrations with more than one inoperable containment isolation valve,

and Condition 3.6.3.C, Containment Penetrations with Purge Valves Leakage outside limits.

The Required Action for Condition B is to isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. The current Completion Time to isolate the penetration flow path is one hour, which is consistent with the time specified to restore containment leakage to within its limits in TS LCO 3.6.1. Additionally, there is a requirement to verify the affected penetration flow path is isolated for at least 31 days for devices outside containment.

Condition C applies when one or more penetration flow paths have one or more containment purge valves not within purge valve leakage limits. The required action is to isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.

The proposed change is to permit the option of calculating a RICT for these Required Actions. Per the proposed RICT program, the RICT could be calculated to be any length of time between 1 hour, for Condition B, and 24 hours for Condition C and 30 days. During this period, no actions would be required to isolate the affected penetration pathway(s); and automatic actions to isolate the pathway may not be assured.

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. The containment penetrations covered under conditions 3.6.3.B and C include those penetrations that are connected directly to the RCS or to the containment atmosphere, and are typically isolated using two isolation devices in series. If both of the isolation devices are open in the isolated position, the safety function of minimizing the loss of reactor coolant inventory and maintaining the containment pressure boundary would not be assured.

Please provide justification to support extension of the Completion Time up to a maximum of 30 days or remove those conditions from the scope of the RICT program. Please include an explanation of how PRA functionality would be applied in this Condition, why this condition would not be considered a loss of function, and how it would be assured that design basis success criteria would be satisfied.

SNC Response for FNP

Conditions B and C, ”One or more penetration flow paths with two containment isolation valves inoperable except for purge valve penetration leakage not within limit”, and “One or more penetration flow paths with one containment isolation valve inoperable”, respectively, will be added to the program as loss of function conditions. Condition B is applicable to penetrations with two containment isolation valves and Condition C is applicable to penetrations with one containment isolation valve.

19) NRC Verbal Question #1 from SNC letter NL-17-0447, dated April 14, 2017

In Condition 3.4.11.E. “Two PORVs inoperable and incapable of being manually cycled” requires closing and de-energizing the block valves. The current REQUIRED ACTION (RA) statement for this LCO Condition requires closing the associated block valves and removing their power (RAs E.1 and E.2). FSAR Section 15.5.5.1.2.1 describes the *inadvertent operation of emergency core cooling systems during power operation* (IOECCS) event.

For this event, a manual operator action is assumed to open one PORV for water relief. The safety analysis assumes that the PORV is opened in approximately 10 minutes. However, if a block valve is closed and de-energized, the time to 1) recover power to the block valve, 2) open the block valve, then 3) open the PORV, may go beyond 10 minutes.

In their verbal request, NRC asked SNC to reconcile the situation.

SNC Response for FNP

As was done for VEGP, this LCO Condition, 3.4.11.E, will be removed from the FNP RICT Program.

20) Common Cause Failure Probabilities

In their requests for additional information letters to SNC of February 3, and March 7, 2017 and subsequent telephone conferences, NRC requested information on the VEGP’s proposed handling of potential common cause failures during RICT entries. NRC’s questions were answered via SNC letters NL-17-0447 dated April 14, 2017 and NL-17-0783, dated May 4, 2017.

Ultimately, NRC and SNC agreed that common cause failures during RICT entry could be handled either by calculational means or by the implementation of Risk Management Actions specifically intended to mitigate the effects of a common cause failure. Consequently, Paragraph g. was added to Section 5.5.22 of the VEGP TS to describe the means that would be used to mitigate the effects of a common cause failure during RICT entry. The same paragraph will be added to FNP TS Section 5.5.20, as follows:

Upon entering a RICT for an emergent condition, the potential for a common cause (CC) failure must be addressed.
If there is a high degree of confidence, based on the evidence collected, that there is no CC failure mechanism that could affect the redundant components, the RICT calculation may use nominal CC factor probability.

If a high degree of confidence cannot be established that there is no CC failure that could affect redundant components, the RICT shall account for the increased possibility of CC failure. Accounting for the increased possibility of CC failure shall be accomplished by one of two methods. If one of the two methods listed below is not used, the Technical Specifications Front Stop will not be exceeded.

1. *The RICT calculation shall be adjusted to numerically account for the increased possibility of CC failure, in accordance with RG 1.177, as specified in Section A-1.3.2.1 of Appendix A of the RG. Specifically, when a component fails, the CC probability for the remaining redundant components shall be increased to represent the conditional failure probability due to CC failure of these components, in order to account for the possibility the first failure was caused by a CC mechanism.*

   OR

2. *Prior to exceeding the front stop, RMAs not already credited in the RICT calculation shall be implemented. These RMAs shall target the success of the redundant and/or diverse structures, systems, or components (SSC) of the failed SSC and, if possible, reduce the frequency of initiating events which call upon the function(s) performed by the failed SSC. Documentation of RMAs shall be available for NRC review.*

5. Regulatory Analysis

5.1 Significant Hazards Evaluation

SNC requests adoption of a change to the Farley Nuclear Plant (FNP) plant-specific technical specifications (TS), to modify the TS requirements related to completion times for required actions to provide the option to calculate a longer, risk-informed completion time. The allowance is described in a new program in Chapter 5, “Administrative Controls”, entitled the “Risk Informed Completion Time Program”.

As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented below:

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

Response: No

The proposed change permits the extension of completion times provided risk is assessed and managed within the Risk Informed Completion Time Program. The proposed change does not involve a significant increase in the probability of an accident previously evaluated because the changes

involve no change to the plant or its mode of operation. This proposed change does not increase the consequences of an accident because the design-basis mitigation function of the affected systems is not changed and the consequences of an accident during the extended completion time are no different from those during the existing completion time.

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

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

Response: No

The proposed TS revision does not change the design, configuration, or method of plant operation. The proposed change does not involve a physical alteration of the plant in that no new or different kind of equipment will be installed.

Therefore, the proposed changes do 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 proposed change permits the extension of completion times provided risk is assessed and managed within the Risk Informed Completion Time Program. The proposed change implements a risk-informed configuration management program to assure that adequate safety margins are maintained. Application of these new specifications and the configuration management program considers cumulative effects of multiple systems or components being out of service and does so more effectively than the current TS.

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

Based on the above, SNC concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50.36, “Technical Specifications” – 10 CFR 50.36(c)(2) states, “When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the Technical Specifications until the condition can be met.”
The proposed change continues to meet the requirements of this regulation.

10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants”, requires monitoring the performance of condition of SSCs against licensee-established goals, in a manner sufficient to provide reasonable assurance that these SSCs are capable of fulfilling their intended functions. Additionally, 10 CFR 50.65(a)(4) requires that assessment and management of the increase in risk that may result from a proposed maintenance activity. The proposed change continues to meet the requirements of this regulation.

This license amendment request is consistent with the guidance set forth in NEI 06-09, Revision 0-A, which was found to be consistent with the guidance set forth in Revision 1 of Chapter 19.0, “Use of Probabilistic Risk Assessment in Plant –Specific, Risk-Informed Decision making: Technical Specifications,” of the Standard Review Plan, NUREG-0800, as well as the guidance of Regulatory Guide (RG) 1.174, Revision 1, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis”, and RG 1.177, Revision 0, “An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications”.

RG 1.200, Revision 2, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”, establishes requirements for PRA technical adequacy. The PRA supporting the proposed change has been assessed using this regulatory guidance.

5.3 Conclusions

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

6. Environmental Considerations

The proposed TS revision 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 change 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 change 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 change.

7. References

1) TSTF-505-A, Rev. 1, “Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b”.
2) Topical Report NEI 06-09, Revision 0-A, “Risk-Informed Technical Specifications Initiative 4b, Risk Managed Technical Specifications (RMTS) Guidelines”.
3) NUREG-0800, Standard Review Plan 19.1, “Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Assessment Results for Risk-Informed Activities”, Revision 3, May 2012.
4) NUREG-0800, Standard Review Plan 19.2, “Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance”, Revision 0, November, 2002.
5) NUREG-0800, Standard Review Plan 16.1, “Risk-Informed Decisionmaking : Technical Specifications”, Revision 1, March 20
6) Regulatory Guide 1.174, Revision 2, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis”, May, 2011, Accession No. ML100910008.
7) Regulatory Guide 1.177, Revision 1, “An Approach for Plant-Specific Risk-Informed Decisionmaking: Technical Specifications”, May, 2011, Accession No. ML100910008.
8) Regulatory Guide 1.200, Revision 2, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”, March, 2009, Accession No. ML090410014.

Joseph M. Farley Nuclear Plant

License Amendment Request to Revise Technical Specifications to Implement NEI 06-09, Revision 0, "Risk Informed Technical Specifications Initiative 4b, Risk Managed Technical Specifications (RMTS) Guidelines"

Attachment 2

Marked-Up Technical Specifications Pages

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-7 (continued)

Insert 1

Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

IMMEDIATE COMPLETION TIME

When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Three pressurizer safety valves shall be OPERABLE with lift settings ≥ 2460 psig and ≤ 2510 psig.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > the Low Temperature Overpressure Protection (LTOP) System applicability temperature specified in the PTLR.

NOTE
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 54 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

Insert 2

Insert 3

ACTIONS

	CONDITION		REQUIRED ACTION	COMPLETION TIME
A.	One pressurizer safety valve inoperable.	A.1	Restore valve to OPERABLE status.	15 minutes
B.	Required Action and associated Completion Time not met. OR Two or more pressurizer safety valves inoperable.	B.1 AND	Be in MODE 3.	6 hours
		B.2	Be in MODE 4 with any RCS cold leg temperatures ≤ the LTOP System applicability temperature specified in the PTLR.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE
Separate Condition entry is allowed for each PORV and each block valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1 Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1 Close associated block valve. AND	1 hour
	B.2 Remove power from associated block valve. AND	1 hour
	B.3 Restore PORV to OPERABLE status.	72 hours

Insert 3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One block valve inoperable.	C.1 Place associated PORV in manual control. AND C.2 Restore block valve to OPERABLE status.	1 hour 72 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours
E. Two PORVs inoperable and not capable of being manually cycled.	E.1 Close associated block valves. AND E.2 Remove power from associated block valves. AND E.3 Be in MODE 3. AND E.4 Be in MODE 4.	1 hour 1 hour 6 hours 12 hours

Insert 3

Insert 4

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. Two block valves inoperable.	F.1	Place associated PORVs in manual control.	1 hour
	AND		
	F.2	Restore one block valve to OPERABLE status.	2 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1	Be in MODE 3.	6 hours
	AND		
	G.2	Be in MODE 4.	12 hours

Insert 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.11.1	NOTES 1. Not required to be performed with block valve closed in accordance with the Required Actions of this LCO. 2. Only required to be performed in MODES 1 and 2.	
	Perform a complete cycle of each block valve.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Accumulators

LCO 3.5.1 Three ECCS accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS pressure > 1000 psig.

NOTE
In MODE 3, with RCS pressure > 1000 psig, the accumulators may be inoperable for up to 12 hours to perform pressure isolation valve testing per SR 3.4.14.1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One accumulator inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours
B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	24 hours
~~C.~~ ~~Required Action and associated~~ Completion Time ~~of Condition A or B~~ not met.	~~C.~~1 Be in MODE 3. AND ~~C.~~2 Reduce RCS pressure to ≤ 1000 psig.	6 hours 12 hours
~~D.~~ ~~Two or more accumulators inoperable.~~	~~D.1~~ ~~Enter LCO 3.0.3.~~	~~Immediately~~

Insert 5

D

B, or C

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS—Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

NOTES

1. In MODE 3, the Residual Heat Removal or the Centrifugal Charging Pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

2. Upon entry into MODE 3 from MODE 4, the breaker or disconnect device to the valve operators for MOVs 8706A and 8706B may be locked open for up to 4 hours to allow for repositioning from MODE 4 requirements.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	A.1 Restore train(s) to OPERABLE status.	72 hours Insert 3
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Storage Tank (RWST)

LCO 3.5.4 The RWST shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

~~NOTES~~
~~1. RWST piping may be unisolated from non-safety related piping for ≤ 4 hours under administrative controls to perform SR 3.5.4.3.*~~

~~2. RWST piping may be unisolated from non-safety related piping for ≤ 30 days per fuel cycle under administrative controls for filtration or silica removal.*~~

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWST boron concentration not within limits. OR RWST borated water temperature not within limits.	A.1 Restore RWST to OPERABLE status.	8 hours
B. RWST inoperable for reasons other than Condition A.	B.1 Restore RWST to OPERABLE status.	1 hour

Insert 6

Insert 3

~~*These Notes can only be applied during the next two fuel Cycles for each Unit. These Notes cannot be used after Refueling Outages 1R26 (Spring 2015) and 2R24 (Spring 2016).~~

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1	Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND		
	C.2	Verify a door is closed in the affected air lock.	1 hour
	AND		
	C.3	Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

Insert 3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ————NOTE———— Only applicable to penetration flow paths with two containment isolation valves. —————————— One or more penetration flow paths with one containment isolation valve inoperable except for purge valve penetration leakage not within limit.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND A.2 ————NOTE———— Isolation devices in high radiation areas may be verified by use of administrative means. —————————— Verify the affected penetration flow path is isolated.	4 hours Insert 3 Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

Insert 7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ~~NOTE~~ ~~Only applicable to penetration flow paths with two containment isolation valves.~~ --- One or more penetration flow paths with two containment isolation valves inoperable except for purge valve penetration leakage not within limit.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
C. ~~NOTE~~ ~~Only applicable to penetration flow paths with only one containment isolation valve and a closed system.~~ --- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND C.2 ----------NOTE---------- Isolation devices in high radiation areas may be verified by use of administrative means. --- Verify the affected penetration flow path is isolated.	72 hours Once per 31 days

Insert 3

Insert 8

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	6 hours 54 hours
C. One containment cooling train inoperable.	C.1 Restore containment cooling train to OPERABLE status.	7 days

Insert 9

or B

C

D

Insert 3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B.~~ Two containment cooling trains inoperable.	~~B.~~1 Restore one containment cooling train to OPERABLE status.	72 hours Insert 3
~~E.~~ Required Action and associated Completion Time of Condition ~~C~~ or ~~D~~ not met.	~~E.~~1 Be in MODE 3. AND ~~E.~~2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------	6 hours 12 hours
~~F.~~ ~~Two containment spray trains inoperable.~~ ~~OR~~ Any combination of three or more trains inoperable.	~~F.~~1 ~~Enter LCO 3.0.3.~~ Restore one containment spray or cooling train to OPERABLE status.	~~Immediately~~ Insert 3

E
D
F
Insert 10
1 hour
G
Insert 11

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ----------	
	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Two MSIVs per steam line shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when one MSIV in each steam line is closed.

ACTIONS

NOTE
Separate Condition entry is allowed for each steam line.

Insert 3

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more steam lines with one MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	72 hours
B. One or more steam lines with two MSIVs inoperable in MODE 1.	B.1 Restore one MSIV to OPERABLE status in affected steam line.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 2.	6 hours
D. One or more steam lines with one MSIV inoperable in MODE 2 or 3.	D.1 Verify one MSIV closed in affected steam line.	7 days AND Once per 7 days thereafter

Insert 12

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief Valves (ARVs)

LCO 3.7.4 Three ARV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

Insert 13

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ARV line inoperable.	A.1 Restore required ARV line to OPERABLE status.	7 days
~~B. Two or more required ARV lines inoperable.~~	~~B.1 Restore all but one ARV line to OPERABLE status.~~	~~24 hours~~
~~C.~~ Required Action and associated Completion Time not met.	~~C.~~1 Be in MODE 3.	6 hours
	AND	
	~~C.~~2 Be in MODE 4.	18 hours

Insert 3

D

D

of Condition A, B, or C

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE
LCO 3.0.4b is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable. OR NOTE Only applicable if MODE 2 has not been entered following refueling. One turbine driven AFW pump inoperable in MODE 3 following refueling.	A.1 Restore affected equipment to OPERABLE status.	7 days
B. One AFW train inoperable for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours

Insert 3

Insert 14

D

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C.~~ Required Action and associated Completion Time for Condition A ~~or B~~ not met. , B, or C ~~OR~~ ~~Two AFW trains inoperable.~~	~~C.1~~ Be in MODE 3. AND ~~C.2~~ Be in MODE 4.	6 hours 12 hours
~~D.~~ Three AFW trains inoperable. E	~~D.1~~ ----------NOTE---------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. --- Initiate action to restore one AFW train to OPERABLE status.	 Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	----------NOTE---------- AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation. --- Verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	 In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

Insert 15

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CST inoperable.	A.1	Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

Insert 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify the CST level is ≥ ~~150~~164,000 gal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CCW train inoperable.	A.1 ----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," for residual heat removal loops made inoperable by CCW. ---------- Restore CCW train to OPERABLE status.	72 hours
~~B.~~ Required Action and associated Completion Time of Condition A not met.	~~B.~~1 Be in MODE 3. AND ~~B.~~2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE ~~5~~4.	6 hours 36 12 hours

Insert 16

Insert 3

or B

C

3.7 PLANT SYSTEMS

3.7.8 Service Water System (SWS)

LCO 3.7.8 Two SWS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SWS train inoperable.	A.1 ——NOTES—— 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources — Operating," for emergency diesel generator made inoperable by SWS. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops — MODE 4," for residual heat removal loops made inoperable by SWS. --- Restore SWS train to OPERABLE status.	72 hours
B. One SWS automatic turbine building isolation valve inoperable in each SWS train.	B.1 Restore both inoperable turbine building isolation valves to OPERABLE status.	72 hours

~~* For the FNP Unit 2 October 06, 2009 entry into Technical Specification 3.7.8, the Service Water Train A may be inoperable for a period not to exceed 7 days provided that during the extended completion time for Train A, two Train A pumps are available (OPERABLE except during a seismic event).~~

Insert 17

Insert 3

C

A, B, or C

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C.~~ Required Action and associated Completion Time of Condition ~~A or B~~ not met.	~~C.~~1 Be in MODE 3.	6 hours
	AND	
	~~C.~~2 Be in MODE 5.	36 hours

D

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.8.1	----------NOTE---------- Isolation of SWS flow to individual components does not render the SWS inoperable. ---------- Verify each accessible SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.2	Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.3	Verify each SWS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.8.4	Verify the integrity of the SWS buried piping by visual inspection of the ground area.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two CRACS trains inoperable during movement of irradiated fuel assemblies or during CORE ALTERATIONS.	D.1 Suspend CORE ALTERATIONS. AND D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
E. Two CRACS trains inoperable in MODE 1, 2, 3, or 4.	E.1 ~~Enter LCO 3.0.3.~~	~~Immediately~~

Insert 18

Insert 19

Insert 20

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify each CRACS train has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.19 Engineered Safety Feature (ESF) Room Coolers

LCO 3.7.19 ESF Room Coolers shall be OPERABLE.

APPLICABILITY: When associated ESF equipment is required to be OPERABLE.

ACTIONS

NOTE
Separate Condition entry is allowed for each ESF Room Cooler subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ESF Room Cooler subsystem Train inoperable.	A.1 Restore the affected ESF Room Cooler subsystem Train to OPERABLE status.	72 hours
~~B.~~ Required Action and associated Completion Time of Condition A or B not met. ~~OR~~ ~~Two trains of the same ESF Room Cooler subsystem inoperable.~~	~~B~~.1 Be in MODE 3. AND ~~B~~.2 Be in MODE 5.	6 hours 36 hours

Insert 21

C

or B

C

Insert 3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Restore required offsite circuit to OPERABLE status.	72 hours
B. One DG set inoperable.	NOTE LCO 3.0.4c is applicable when only one of the three DGs is inoperable.	Insert 3
	B.1 Perform SR 3.8.1.1 for the required offsite circuit(s).	2 hours AND Once per 8 hours thereafter
	AND	
	B.2 Declare required feature(s) supported by the inoperable DG set inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND	
	B.3.1 Determine OPERABLE DG set is not inoperable due to common cause failure. OR	24 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3.2 Perform SR 3.8.1.6 for OPERABLE DG set. **AND** B.4 Restore DG set to OPERABLE status.	24 hours 10 days
C. Two required offsite circuits inoperable. Insert 3	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable. **AND** C.2 Restore one required offsite circuit to OPERABLE status.	12 hours from discovery of Condition C concurrent with inoperability of redundant required features 24 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One required offsite circuit inoperable. AND One DG set inoperable.	NOTE Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems — Operating," when Condition D is entered with no AC power source to any train.		
	D.1	Restore required offsite circuit to OPERABLE status.	24 hours
	OR		
	D.2	Restore DG set to OPERABLE status.	24 hours
E. Two DG sets inoperable.	E.1	Restore one DG set to OPERABLE status.	~~2 hours if all three DGs are inoperable~~ ~~OR~~ 8 hours if DG 1-2A and DG 1(2)B are inoperable OR 24 hours if DG 1C and DG 1(2)B are inoperable
F. Required Action and associated Completion Time of Condition C or E not met.	F.1	Be in MODE 3.	6 hours

Insert 3

, or H

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One automatic load sequencer inoperable.	G.1 Restore automatic load sequencer to OPERABLE status.	12 hours
~~H.~~ Required Action and associated Completion Time of Condition A, B, D, ~~or~~ G not met.	~~H.~~1 Be in MODE 3.	6 hours
	AND	
	~~H.~~2 NOTE LCO 3.0.4.a is not applicable when entering MODE 4.	
	Be in MODE 4.	12 hours
~~I. Three or more required AC sources inoperable.~~	~~I.1 Enter LCO 3.0.3.~~	~~Immediately~~

Insert 22

I

Insert 3

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources—Operating

LCO 3.8.4 The Train A and Train B Auxiliary Building and Service Water Intake Structure (SWIS) DC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Auxiliary Building DC electrical power subsystem inoperable.	A.1 Restore the Auxiliary Building DC electrical power subsystem to OPERABLE status.	2 hours ~~12 hours for 1B Auxiliary Building DC electrical power subsystem inoperable due to inoperable battery for cycle 19 only~~
B. One Auxiliary Building DC electrical power subsystem with battery connection resistance not within limit.	B.1 Restore the battery connection resistance to within limit.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	6 hours 12 hours
D. One required SWIS DC electrical power subsystem battery connection resistance not within limit.	D.1 Restore the battery connection resistance to within the limit.	24 hours

Insert 3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One required SWIS DC electrical power subsystem inoperable. OR Required Action and associated Completion Time of Condition D not met.	E.1 Declare the associated Service Water System train inoperable.	Immediately

Insert 23

Insert 24

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 127.8 V on float charge.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify post-to-post battery connection resistance of each cell-to-cell and terminal connection is ≤ 150 microhms for the Auxiliary Building batteries and ≤ 1500 microhms for the SWIS batteries.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters—Operating

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

---NOTE---

Two inverters may be disconnected from their associated DC bus for ≤ 24 hours to perform an equalizing charge on their associated common battery, provided:

a. The associated AC vital buses are energized from their Class 1E constant voltage source transformers; and

b. All other AC vital buses are energized from their associated OPERABLE inverters.

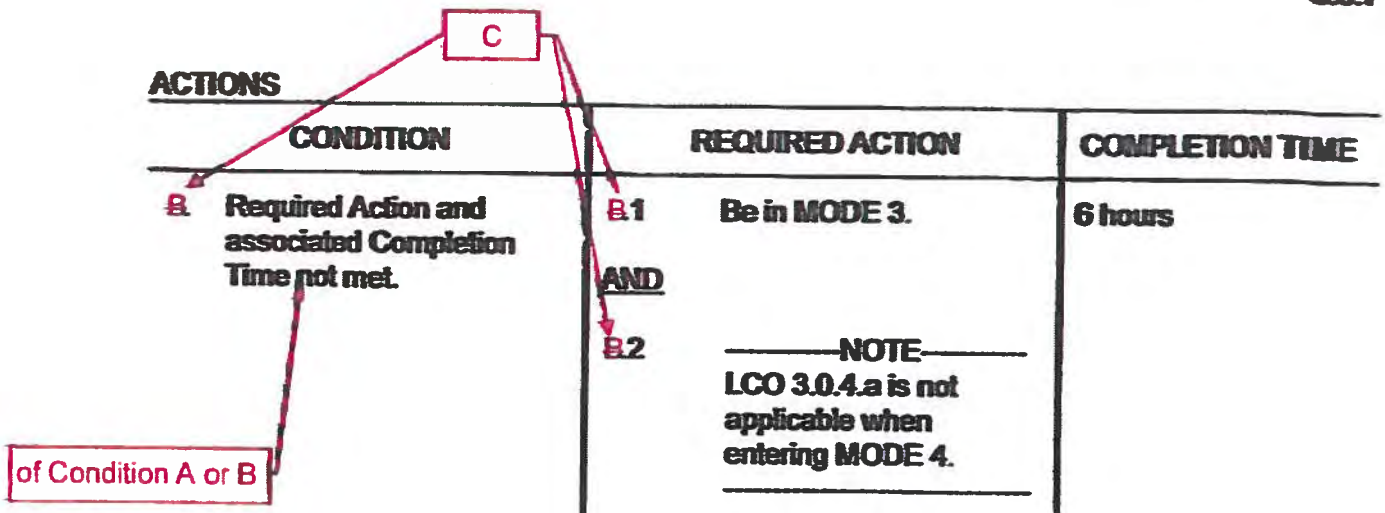
APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required inverter inoperable.	A.1 ---NOTE--- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any vital bus de-energized. --- Restore inverter to OPERABLE status.	24 hours

Insert 25

Insert 3



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 NOTE LCO 3.0.4.a is not applicable when entering MODE 4. Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to required AC vital buses.	In accordance with the Surveillance Frequency Control Program

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more AC electrical power distribution subsystems inoperable for reasons other than Condition A, B, or C.	D.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours Insert 3
E. One or more AC vital buses inoperable.	E.1 Restore AC vital bus subsystem(s) to OPERABLE status.	8 hours Insert 3
F. One Auxiliary Building DC electrical power distribution subsystem inoperable. Insert 26	F.1 Restore Auxiliary Building DC electrical power distribution subsystem to OPERABLE status.	2 hours Insert 3
~~G.~~ Required Action and associated Completion Time of Condition D, E, ~~or~~ F, or G not met. H	~~G.1~~ Be in MODE 3. H AND ~~G.2~~ ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	6 hours 12 hours
~~H.~~ One Service Water Intake Structure (SWIS) DC electrical power distribution subsystem inoperable. I	~~H.1~~ Declare the associated Service Water train inoperable.	Immediately
~~I. Two trains with inoperable distribution subsystems that result in a loss of safety function.~~	~~I.1 Enter LCO 3.0.3.~~	~~Immediately~~

5.5.18 Control Room Integrity Program (CRIP) (continued)

c. Maintain a CRE configuration control and a design and licensing bases control program and a preventative maintenance program. As a minimum, the CRE configuration control program will determine whether the i) CRE differential pressure relative to adjacent areas and ii) the control room ventilation system flow rates, as determined in accordance with ASME N510-1989 or ASTM E2029-99, are consistent with the values measured at the time the ASTM E741 test was performed. If item i or ii has changed, determine how this change has affected the inleakage characteristics of the CRE. If there has been degradation in the inleakage characteristics of the CRE since the E741 test, then a determination should be made whether the licensing basis analyses remain valid. If the licensing basis analyses remain valid, the CRE remains OPERABLE.

d. Test the CRE in accordance with the testing methods and at the frequencies specified in RG 1.197, Revision 0, May 2003.

The provisions of SR 3.0.2 are applicable to the control room inleakage testing frequencies.

5.5.19 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

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

Insert 27

INSERT 1

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable	A.1 Restore subsystem to OPERABLE status	7 days OR In accordance with the Risk Informed Completion Time Program.
B. ----------NOTES---------- 1. Not applicable when the second subsystem is deliberately made inoperable. 2. The following Section 5.5.20 constraints are applicable: b, c.2, c.3, d, e, f, g, and h. Two subsystems inoperable	B.1 Restore one subsystem to OPERABLE status	1 hour OR In accordance with the Risk Informed Completion Time Program.
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3 AND C.2 Be in MODE 5	6 hours 36 hours

INSERT 1 (continued)

EXAMPLE 1.3-8

If a second subsystem is declared inoperable, Condition B may also be entered. The Condition is modified by two Notes. The first note states it is not applicable if the second subsystem is intentionally made inoperable. The second note provides restrictions applicable to these "loss of function" Conditions. The Required Actions of Condition B are not intended for voluntary removal of redundant subsystems from service. The Required Action is only applicable if one subsystem is inoperable for any reason and the second subsystem is found to be inoperable at the same time. If Condition B is applicable, at least one subsystem must be restored to Operable status within 1 hour or Condition C must also be entered. The licensee may be able to apply a RICT or to extend the Completion Time beyond 1 hour, but not longer than 24 hours, if the requirements of the Risk Informed Completion Time program are met. If two subsystems are inoperable and Condition B is not applicable (i.e., the second subsystem was intentionally made inoperable), LCO 3.0.3 is entered as there is no applicable Condition.

The Risk Informed Completion Time Program requires recalculation of the RICT to reflect changing plant conditions. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.

If the 7 day Completion Time clock of Condition A or the 1 hour Completion Time clock of Condition B have expired and subsequent changes in plant conditions result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C. 2 start.

If the RICT expires or is recalculated to be less than the elapsed time since the Condition was entered and the inoperable subsystem has not been restored to OPERABLE status, Condition C is also entered and the Completion Time clocks for Required Actions C.1 and C.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition C is entered, Conditions A, B, and C are exited, and therefore, the Required Actions of Condition C may be terminated.

INSERT 2

---NOTE---

1. Not applicable when a pressurizer safety valve is intentionally made inoperable.
2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 3

OR

In accordance with the Risk Informed Completion Time Program

INSERT 4

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

1. Not applicable when the second block valve Is intentionally made inoperable.
2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 5

C. ----------NOTE---------- 1. Not applicable when two or more ECCS accumulators are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two or more accumulators inoperable for reasons other than boron concentration not within limits.	C.1 Restore one accumulator to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 6

---NOTE---

1. Not applicable when the RWST is intentionally made inoperable.
2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 7

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

1. Only applicable to penetration flow paths With two containment isolation valves.
2. Not applicable when the second Containment isolation valve is intentionally made inoperable.
3. The following Section 5.5.20 constraints apply: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 8

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

1. Only applicable to penetration flow paths with only one containment isolation valve and a closed system.
2. Not applicable when the containment isolation valve is intentionally made inoperable.
3. The following Section 5.5.20 constraints apply: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 9

B. ----------NOTE---------- 1. Not applicable when the second containment spray train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two Containment Spray trains inoperable.	B.1 Restore one Containment Spray train to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 10

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

1. Not applicable when three or more combinations of trains are intentionally made inoperable.
2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 11

H. Required Action and associated Completion Time of Condition G not met	H.1 Enter LCO 3.0.3	Immediately

INSERT 12

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

1. Not applicable when second MSIV in a line is intentionally made inoperable.
2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 13

B. Two required ARV lines inoperable	B.1 Restore one ARV line to OPERABLE status	24 hours OR In accordance with the Risk Informed Completion Time Program
----------NOTE---------- 1. Not applicable when the third ARV line is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. C. Three required ARV lines inoperable	C.1 Restore one ARV line to OPERABLE status	1 hour OR In accordance with the Risk Informed Completion Time Program

INSERT 14

C. ----------NOTE---------- 1. Not applicable when the second AFW train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two AFW trains inoperable.	C.1 Restore one AFW train to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 15

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

1. Not applicable when the CST is deliberately made inoperable.
2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, and g.

INSERT 16

B. ----------NOTE---------- 1. Not applicable when the second CCW train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two CCW trains inoperable.	B.1 Restore one CCW train to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 17

B. ----------NOTE---------- 1. Not applicable when the second SWS train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two SWS trains inoperable.	B.1 Restore one SWS train to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 18

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

1. Not applicable when the second CRACs train is intentionally made inoperable.
2. The following Section 5.5.20 constraints are Applicable: parts b, c.2, c.3, d, e, f, g, and h.

INSERT 19

Restore one CRACs train to OPERABLE status	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 20

F. Required Action and associated Completion Time of Condition E not met.	F.1 Enter LCO 3.0.3	Immediately

INSERT 21

B. ----------NOTES---------- 1. Not applicable when the second ESF Room Cooler is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: Parts b, C.2, c.3, d, e, f, g, and h ---------- Two trains of the same ESF Room Cooler subsystem inoperable	B.1 Restore one of the same ESF Room Cooler subsystems to OPERABLE status	1 hour OR In accordance with the Risk Informed Completion Time Program

INSERT 22

H. ----------NOTE---------- 1. Not applicable when three or more AC sources are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Three or more required AC sources inoperable.	H.1 Restore one required AC source to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 23

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. ----------NOTES---------- 1. Not applicable when a second DC power electrical subsystem is intentionally removed from service. 2. The following Section 5.5.20 constraints are applicable: b, c.2, c.3, d, e, f, g, and h. --- Two or more DC electrical subsystems inoperable that result in a loss of function	F.1 Restore at least one DC electrical subsystem to OPERABLE status	1 hour OR In accordance with the Risk Informed Completion Time

INSERT 24

G. Required Action and associated Completion Time of Condition F not met.	G.1 Be in Mode 3 AND G.2 -------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4 Be in Mode 4	6 hours 12 hours

INSERT 25

B. ----------NOTE---------- 1. Not applicable when the second required inverter is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. ---------- Two or more required inverters inoperable.	B.1 Restore one required inverter to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 26

G. ----------NOTE---------- 1. Not applicable when two or more electrical power distribution trains are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c.2, c.3, d, e, f, g, and h. --- Two trains with inoperable electrical distribution subsystems that result in a loss of function.	G.1 Restore one train to OPERABLE status.	1 hour OR In accordance with the Risk Informed Completion Time Program.

INSERT 27

5.5.20 Risk Informed Completion Time Program

This program provides controls to calculate a Risk Informed Completion Time (RICT) and must be implemented in accordance with NEI-06-09, Revision 0-A, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

a. The RICT may not exceed 30 days.
b. A RICT may only be utilized in MODE 1 and 2.
c. When a RICT is being used, any plant configuration change within the scope of the Configuration Risk Management Program must be considered for the effect on the RICT.

    1. For planned changes, the revised RICT must be determined prior to implementation of the change in configuration.
    2. For emergent conditions, the revised RICT must be determined within the time limits of the Required Action Completion Time (i.e., not the RICT) or 12 hours after the plant configuration change, whichever is less.
    3. Revising the RICT is not required if the plant configuration change would lower plant risk and would result in a longer RICT.

d. Use of a RICT is not permitted for voluntary entry into a configuration which represents a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE.
e. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function, or inoperability of all required trains of a system required to be OPERABLE, if one of more of the trains are considered "PRA Functional" as defined in Section 2.3.1 of NEI 06-09. The RICT for these loss of function conditions may not exceed 24 hours.
f. Use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more trains are considered "PRA Functional" as defined in Section 2.3.1 of NEI 06-09. However, the following additional constraints shall be applied to the criteria for "PRA Functional".

    1. Any SSCs credited in the PRA Functionality determination shall be the same SSCs relied upon to perform the specified Technical Specifications safety function.
    2. Design basis success criteria parameters shall be met for all design basis accident scenarios for establishing PRA Functionality, during a Technical Specifications loss of function condition, where a RICT is applied.

g. Upon entering a RICT for an emergent condition, the potential for a common cause (CC) failure must be addressed.

INSERT 27 (Continued)

If there is a high degree of confidence, based on the evidence collected, that there is no CC failure mechanism that could affect the redundant components, the RICT calculation may use nominal CC factor probability.

If a high degree of confidence cannot be established that there is no CC failure mechanism that could affect the redundant components, the RICT shall account for the increased possibility of CC failure. Accounting for the increased possibility of CC failure shall be accomplished by one of two methods. If one of the two methods listed below is not used, the Technical Specifications Front Stop shall not be exceeded.

1. The RICT calculation shall be adjusted to numerically account for the increased possibility of CC failure, in accordance with RG 1.177, as specified in Section A-1.3.2.1 of Appendix A of the RG. Specifically, when a component fails, the CC failure probability for the remaining components shall be increased to represent the conditional failure probability due to CC failure of these components, in order to account for the possibility the first failure was caused by a CC mechanism.

   OR

2. Prior to exceeding the front stop, RMAs not already credited in the RICT calculation shall be implemented. These RMAs shall target the success of the redundant and/or diverse structures, systems, and components (SSC) of the failed SSC and, if possible, reduce the frequency of initiating events which call upon the function(s) performed by the failed SSCs. Documentation of RMAs shall be available for NRC review.

h. A RICT entry is not permitted, or a RICT entry made shall be exited, for any condition involving a TS loss of function if a PRA Functionality determination that reflects the plant configuration concludes that the LCO cannot be restored without placing the TS inoperable trains in an alignment which results in a loss of functional level PRA success criteria.

Joseph M. Farley Nuclear Plant

License Amendment Request to Revise Technical Specifications to Implement NEI 06-09, Revision 0, "Risk Informed Technical Specifications Initiative 4b, Risk Managed Technical Specifications (RMTS) Guidelines"

Attachment 4

Marked-Up Technical Specifications Bases Pages

BASES

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes. The Completion Time of 15 minutes reflects the importance of maintaining the RCS Overpressure Protection System. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the pressure boundary.

Bases Insert 1

Bases Insert 2

B.1 and B.2

If the Required Action of A.1 cannot be met within the required Completion Time or if two or more pressurizer safety valves are inoperable, the plant must be brought to a MODE in which the requirement does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 with any RCS cold leg temperatures ≤ the LTOP System applicability temperature specified in the PTLR 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. With any RCS cold leg temperatures at or below the LTOP System applicability temperature specified in the PTLR, overpressure protection is provided by the LTOP System. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer insurges, and thereby removes the need for overpressure protection by three pressurizer safety valves.

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

Pressurizer safety valves are to be tested in accordance with the requirements of the ASME OM Code (Ref. 4), which provides the activities and Frequencies necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is ± 1% for OPERABILITY.

BASES

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III.
2. FSAR, Chapter 5.2, 5.5, 15.2, 15.3 and 15.4.
3. WCAP-7769, Rev. 1, June 1972.
4. ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).
5. (Add SE reference here.)

BASES

ACTIONS (continued)

B.1, B.2, and B.3

If one PORV is inoperable and not capable of being manually cycled, it must be either restored or isolated by closing the associated block valve and removing the power to the associated block valve. The Completion Times of 1 hour are reasonable, based on challenges to the PORVs during this time period, and provide the operator adequate time to correct the situation. If the inoperable valve cannot be restored to OPERABLE status, it must be isolated within the specified time. Because there is at least one PORV that remains OPERABLE, an additional 72 hours is provided to restore the inoperable PORV to OPERABLE status. If the PORV cannot be restored within this additional time, the plant must be brought to a MODE in which the LCO does not apply, as required by Condition D.

Bases Insert 1

C.1 and C.2

If one block valve is inoperable, then it is necessary to either restore the block valve to OPERABLE status within the Completion Time of 1 hour or place the associated PORV in manual control. The prime importance for the capability to close the block valve is to isolate a stuck open PORV. Therefore, if the block valve cannot be restored to OPERABLE status within 1 hour, the Required Action is to place the PORV in manual control to preclude its automatic opening for an overpressure event and to avoid the potential for a stuck open PORV at a time that the block valve is inoperable. The Completion Time of 1 hour is reasonable, based on the small potential for challenges to the system during this time period, and provides the operator time to correct the situation. Because at least one PORV remains OPERABLE, the operator is permitted a Completion Time of 72 hours to restore the inoperable block valve to OPERABLE status. The time allowed to restore the block valve is based upon the Completion Time for restoring an inoperable PORV in Condition B, since the PORVs are not capable of mitigating an overpressure event when placed in manual control. If the block valve is restored within the Completion Time of 72 hours, the power will be restored and the PORV restored to OPERABLE status. If it cannot be restored within this additional time, the plant must be brought to a MODE in which the LCO does not apply, as required by Condition D.

Bases Insert 1

(continued)

BASES

ACTIONS (continued)

D.1 and D.2

If the Required Action of Condition A, B, or C is not met, then 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 6 hours and to MODE 4 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. In MODES 4, 5, and 6, the PORVs are not required OPERABLE.

E.1, E.2, E.3, and E.4

If more than one PORV is inoperable and not capable of being manually cycled, it is necessary to either restore at least one valve within the Completion Time of 1 hour or isolate the flow path by closing and removing the power to the associated block valves. The Completion Time of 1 hour is reasonable, based on the small potential for challenges to the system during this time and provides the operator time to correct the situation. If one PORV is restored and one PORV remains inoperable, then the plant will be in Condition B with the time clock started at the original declaration of having two PORVs inoperable. If no PORVs are restored within the Completion Time, then 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 6 hours and to MODE 4 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. In MODES 4, 5, and 6, the PORVs are not required OPERABLE.

Bases Insert 3

F.1 and F.2

If two block valves are inoperable, it is necessary to restore at least one block valve within the Completion Time of 1 hour, or place the associated PORVs in manual control and restore at least one block valve within 2 hours. The Completion Times are reasonable, based on the small potential for challenges to the system during this time and provide the operator time to correct the situation.

Bases Insert 4

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.11.2

SR 3.4.11.2 requires a complete cycle of each PORV in MODE 3 or 4. The PORVs are stroke tested during MODES 3 or 4 with the associated block valves closed in order to limit the uncertainty introduced by testing the PORVs at lesser system temperatures than expected during actual operating conditions. Operating a PORV through one complete cycle ensures that the PORV can be manually actuated for mitigation of an SGTR. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Note modifies this SR to allow entry into and operation in MODE 3 prior to performing the SR. This allows the test to be performed in MODE 3 under operating temperature conditions, prior to entering MODE 1 or 2.

SR 3.4.11.3

SR 3.4.11.3 requires a complete cycle of each PORV using the backup PORV control system. This surveillance verifies the capability to operate the PORVs using the backup nitrogen supply system. Additionally, this surveillance ensures the correct function of the associated nitrogen supply system valves. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. Regulatory Guide 1.32, February 1977.
2. FSAR Sections 5.5 and 15.2.
3. Generic Letter 90-06, "Resolution of Generic Issue 70, 'Power-Operated Relief Valve and Block Valve Reliability,' and Generic Issue 94, 'Additional Low-Temperature Overpressure Protection for Light-Water Reactors,' Pursuant to 10 CFR 50.54(f)," June 25, 1990.
4. (Add SE reference here.)

BASES

ACTIONS (continued)

B.1

If one accumulator is inoperable for a reason other than boron concentration, the accumulator must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of two accumulators cannot be assumed to reach the core during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the 24 hour Completion Time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable accumulator to OPERABLE status. The Completion Time minimizes the potential for exposure of the plant to a LOCA under these conditions. The 24 hours allowed to restore an inoperable accumulator to OPERABLE status is justified in WCAP-15049-A, Rev. 1 (Ref. 3).

Bases Insert 5

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

D

If the accumulator cannot be returned to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours and RCS pressure reduced to ≤ 1000 psig 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.

~~D.1~~

~~If more than one accumulator is inoperable, the plant is in a condition outside the accident analyses; therefore, LCO 3.0.3 must be entered immediately.~~

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

Each accumulator valve should be verified to be fully open. This verification ensures that the accumulators are available for injection and ensures timely discovery if a valve should be less than fully open. If an isolation valve is not fully open, the rate of injection to the RCS would be reduced. Although a motor operated valve position should not change with power removed, a closed valve could result in not meeting accident analyses assumptions. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.5 (continued)

Should closure of a valve occur below 2000 psig, the SI signal provided to the valves would open a closed valve in the event of a LOCA.

REFERENCES

1. FSAR, Chapter 15.
2. 10 CFR 50.46
3. WCAP-15049-A, Rev. 1, April 1999.
4. NUREG-1366, February 1990.
5. (Add SE reference.)

ACTIONS

A.1

With one or more trains inoperable and at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available, the inoperable components must be returned to OPERABLE status within 72 hours. The 72 hour Completion Time is based on an NRC reliability evaluation (Ref. 5) and is a reasonable time for repair of many ECCS components.

Bases Insert 1

An ECCS train is inoperable if it is not capable of delivering design flow to the RCS. Individual components are inoperable if they are not capable of performing their design function or supporting systems are not available.

The LCO requires the OPERABILITY of a number of independent subsystems. Due to the redundancy of trains and the diversity of subsystems, the inoperability of one component in a train does not render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. This allows increased flexibility in plant operations under circumstances when components in opposite trains are inoperable.

An event accompanied by a loss of offsite power and the failure of an EDG can disable one ECCS train until power is restored. A reliability analysis (Ref. 5) has shown that the impact of having one full ECCS train inoperable is sufficiently small to justify continued operation for 72 hours.

Reference 6 describes situations in which one component, such as an RHR crossover valve, can disable both ECCS trains. With one or more component(s) inoperable such that 100% of the flow equivalent to a single OPERABLE ECCS train is not available, the facility is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be immediately entered.

(continued)

BASES

REFERENCES (continued)

3. FSAR, Section 6, "Engineered Safety Features."

4. FSAR, Chapter 15, "Accident Analysis."

5. NRC Memorandum to V. Stello, Jr., from R.L. Baer, "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.

6. IE Information Notice No. 87-01.

7. ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).

8. (Add SE reference here.)

BASES

ACTIONS (continued)

These administrative controls consist of (1) Stroking valve Q1(2)G31V010 open and then closed prior to circulating the RWST water through the Spent Fuel Pool Purification System (2) establishing a designated operator to control the valve and (3) establishing a preplanned communication method between the operator and Shift Supervisor. In this way, the flow path can be rapidly isolated in the event of a Reactor Trip or at the direction of the Shift Supervisor. These Notes are to allow recirculation and sampling of the RWST through the Spent Fuel Pool Purification System for filtering as well as operation of the reverse osmosis system to remove silica. These Notes can only be applied during the next two fuel Cycles for each Unit. These Notes cannot be used after Refueling Outages 1R26 (Spring 2015) and 2R24 (Spring 2016).

A.1

With RWST boron concentration or borated water temperature not within limits, they must be returned to within limits within 8 hours. Under these conditions neither the ECCS nor the Containment Spray System can perform its design function. Therefore, prompt action must be taken to restore the tank to OPERABLE condition. The 8 hour limit to restore the RWST temperature or boron concentration to within limits was developed considering the time required to change either the boron concentration or temperature and the fact that the contents of the tank are still available for injection.

B.1

Bases Insert 6

With the RWST inoperable for reasons other than Condition A (e.g., water volume), it must be restored to OPERABLE status within 1 hour.

In this Condition, neither the ECCS nor the Containment Spray System can perform its design function. Therefore, prompt action must be taken to restore the tank to OPERABLE status or to place the plant in a MODE in which the RWST is not required. The short time limit of 1 hour to restore the RWST to OPERABLE status is based on this condition simultaneously affecting redundant trains.

Bases Insert 7

C.1 and C.2

If the RWST cannot be returned to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.4.2

The RWST water volume should be verified to be above the required minimum level in order to ensure that a sufficient initial supply is available for injection and to support continued ECCS and Containment Spray System pump operation on recirculation. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.5.4.3

The boron concentration of the RWST should be verified to be within the required limits. This SR ensures that the reactor will remain subcritical following a LOCA. Further, it assures that the resulting sump pH will be maintained in an acceptable range so that boron precipitation in the core will not occur and the effect of chloride and caustic stress corrosion on mechanical systems and components will be minimized. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Chapter 6 and Chapter 15.
2. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
3. (Add reference to SE here.)

BASES

ACTIONS

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

be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

Bases Insert 1 →

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Containment Leakage

(continued)

BASES

REFERENCES

1. 10 CFR 50, Appendix J, Option B.
2. FSAR, Section 6.2.
3. NEL Letter NEL-02-0144, dated June 25, 2002.
4. (Add reference to SE here.)

BASES

ACTIONS

A.1 and A.2 (continued)

active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with forward flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within 4 hours. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

Bases Insert 1

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions.

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

Bases Insert 1

Bases Insert 8

~~Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. Condition A of this LCO addresses the condition of one containment isolation valve inoperable in this type of penetration flow path.~~

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve flow path must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the 72 hour Completion Time. The specified time period is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of maintaining containment integrity during MODES 1, 2, 3, and 4. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Bases Insert 1

three notes. The first Note indicates

Condition C is modified by ~~a Note indicating~~ that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. The closed system must meet the requirements of Ref. 5. This Note is necessary since this Condition is written to specifically address those penetration flow paths in a closed system. FSAR Table 6.2-31 identifies the following containment isolation valves as being in a Type III penetration (closed system) and having only one containment isolation valve: Q1/2 B13V026B (Pressurizer pressure generator).

Bases Insert 8a

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

(continued)

BASES

ACTIONS
(continued)

D.1, D.2, and D.3

In the event one or more penetration flow paths containing containment purge valves, have penetration leakage such that the sum of the leakage for all Type B and C tests is not within limits, purge valve penetration leakage must be restored such that the overall Type B and C testing limit is not exceeded, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, closed manual valve, or blind flange. A purge valve with resilient seals utilized to satisfy Required Action D.1 must have been demonstrated to support the penetration meeting the leakage requirements of SR 3.6.3.5. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

Bases Insert 1

In accordance with Required Action D.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those isolation devices outside containment capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For the containment penetration containing a containment purge valve with resilient seal that is isolated in accordance with Required Action D.1, SR 3.6.3.5 must be performed at least once every 92 days. This assures that degradation of the resilient seal is detected and confirms that the leakage rate of the containment purge valve penetration does not increase during the time the penetration is isolated. Since more reliance is placed on a single valve while in

(continued)

BASES

REFERENCES

1. FSAR, Section 15.
2. FSAR, Section 6.2.
3. Not used.
4. Not used.
5. Standard Review Plan 6.2.4.
6. (Add SE reference here.)

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment and an increase in containment pressure and temperature requiring the operation of the containment spray trains and containment cooling trains.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Thus, the Containment Spray System and the Containment Cooling System are not required to be OPERABLE in MODES 5 and 6.

ACTIONS

A.1

With one containment spray train inoperable, the inoperable containment spray train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE spray and cooling trains are adequate to perform the iodine removal and containment cooling functions. The 72 hour Completion Time takes into account the redundant heat removal capability afforded by the Containment Spray System, reasonable time for repairs, and low probability of a DBA occurring during this period.

Bases Insert 1

Bases Insert 9

~~B~~.1 and ~~B~~.2

C

or trains

If the inoperable containment spray train cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 54 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 7). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth.

(continued)

BASES

ACTIONS

~~B~~.1 and ~~B~~.2 (continued)

C

As stated in Reference 7, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action ~~B~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 4 allows 48 hours to restore the containment spray train to OPERABLE status in MODE 3. This is reasonable when considering the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

D

~~C~~.1

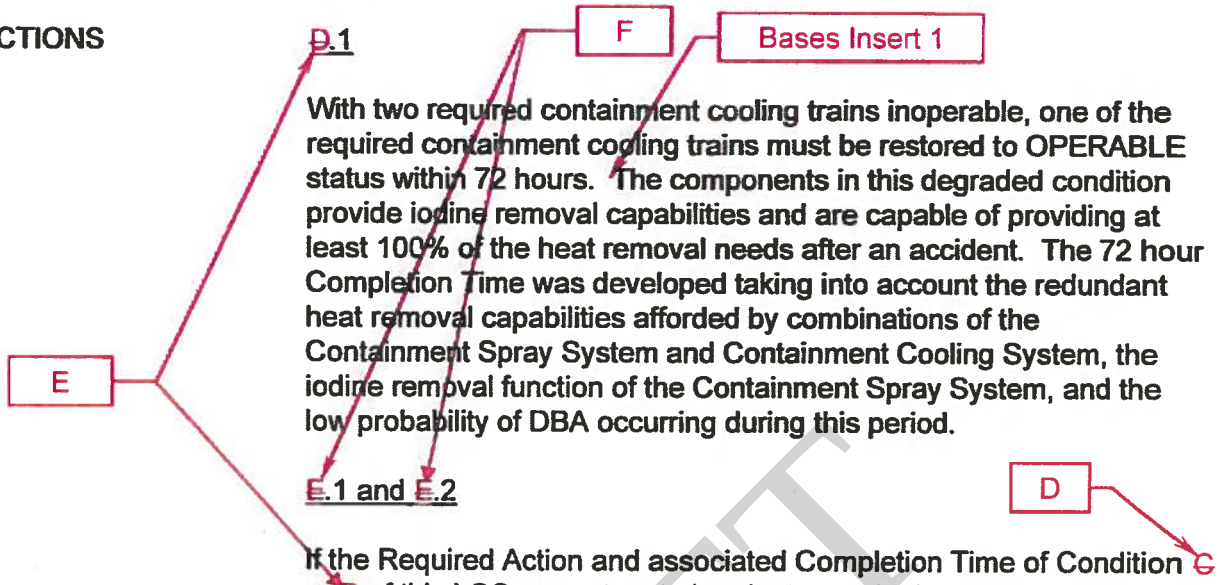
Bases Insert 1

With one of the required containment cooling trains inoperable, the inoperable required containment cooling train must be restored to OPERABLE status within 7 days. The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of DBA occurring during this period.

(continued)

BASES

ACTIONS



~~D~~.1

With two required containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours. The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of DBA occurring during this period.

~~E~~.1 and ~~E~~.2

If the Required Action and associated Completion Time of Condition ~~C~~ or ~~D~~ of this LCO are not met, the plant must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 7). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 7, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

(continued)

F

BASES

ACTIONS

E.1 and E.2 (continued)

Required Action E.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. 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.

G

E.1

With ~~two containment spray trains or~~ any combination of three or more containment spray and cooling trains inoperable, the unit is in a condition outside the accident analysis. Therefore, ~~LCO 3.0.3 must be entered immediately.~~

Bases Insert 10

Bases Insert 11

SURVEILLANCE REQUIREMENTS

SR 3.6.6.1

Verifying the correct alignment for manual, power operated, and automatic valves in the containment spray flow path provides assurance that the proper flow paths will exist for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these were verified to be in the correct position prior to locking, sealing, or securing. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown, that those valves outside containment (only check valves are inside containment) and capable of potentially being mispositioned are in the correct position. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.6.9 (continued)

required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 38, GDC 39, GDC 40, GDC 41, GDC 42, and GDC 43.
2. 10 CFR 50, Appendix K.
3. FSAR, Section 6.2.
4. FSAR, Section 7.3.
5. FSAR, Section 15.
6. ASME Code for Operation and Maintenance of Nuclear Power Plants.
7. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
8. (Add SE reference here.)

BASES

LCO (continued)

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 (Ref. 4) limits.

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1, and in MODES 2 and 3 except when one MSIV in each steam line is closed, when there is significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing the safety function.

In MODE 4, normally most of the MSIVs are closed, and the steam generator energy is low.

In MODE 5 or 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

A Note has been added to the ACTIONS to clarify the application of the Completion Time rules. The Conditions of this Specification may be entered independently for each steam line. The Completion Time(s) of the inoperable MSIV Systems will be tracked separately for each steam line starting from the time the Condition was entered for that steam line.

A.1

With one MSIV inoperable in one or more steam lines in MODE 1, action must be taken to restore the inoperable MSIV to OPERABLE status within 72 hours. Some repairs to the MSIV can be made with the unit at power. The 72 hour Completion Time is reasonable, considering the low probability of an accident occurring during this time that would require the MSIVs to close and the remaining OPERABLE MSIV in the steam line. This Completion Time is also consistent with the Completion Times provided for a single inoperable train in other ESF systems that contain redundant trains of equipment.

Bases Insert 1 →

(continued)

BASES

ACTIONS
(continued)

B.1

With two MSIVs inoperable in one or more steam lines in MODE 1, action must be taken to restore one MSIV to OPERABLE status in the affected steam line(s) within 4 hours. In this Condition, the affected steam line has no OPERABLE automatic isolation capability. The 4-hour Completion Time allows for minor repairs or trouble shooting that may prevent a unit shutdown to MODE 2 and is reasonable considering the low probability of an accident occurring during this time that would require the MSIVs to close and the reduced potential for a plant transient (shutdown to MODE 2) provided by the 4 hours allowed for restoration.

Bases Insert 1

Bases Insert 12

C.1

If the MSIV cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a Mode in which the ACTIONS provide the option to close the inoperable MSIV and accomplish the required safety function by isolating the affected steam line. To achieve this status, the unit must be placed in MODE 2 within 6 hours and Condition D or E entered. The Completion Time is reasonable, based on operating experience, to reach MODE 2 in an orderly manner without challenging unit systems.

D.1

Required Action D.1 is applicable when one or more steam lines have a single inoperable MSIV in MODE 2 or 3. Since the MSIVs are required OPERABLE in MODES 2 and 3, the inoperable MSIV(s) may either be restored to OPERABLE status or the affected steam line isolated by closing at least one MSIV in that steam line. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The 7 day Completion Time is reasonable considering the plant condition, the low probability of an event occurring that would require the MSIV to close, and the remaining OPERABLE redundant MSIV in the affected steam line(s).

For inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, and the affected steam line is isolated by a closed MSIV, the MSIV must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1 (continued)

accident and containment analyses. This Surveillance is normally performed while returning the unit to operation following a refueling outage.

The Frequency is in accordance with the Inservice Testing Program, which encompasses the ASME OM Code (Ref. 5). Operating experience has shown that these components usually pass the Surveillance when performed in accordance with the Inservice Testing Program. Therefore, the Frequency is acceptable from a reliability standpoint.

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. If desired, this allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated. This surveillance may be performed in lower modes but must be performed prior to entry into MODE 2.

REFERENCES

1. FSAR, Section 10.3.
2. FSAR, Section 6.2.
3. FSAR, Section 15.4.2.
4. 10 CFR 100.11.
5. ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).
6. (Add SE reference here.)

BASES

LCO (continued)

Failure to meet the LCO can result in the inability to cool the unit to RHR entry conditions following an event in which the condenser is unavailable for use with the Steam Dump System.

An ARV is considered OPERABLE (even if isolated) when it is capable of providing controlled relief of the main steam flow and capable of fully opening and closing on demand, either remotely or locally via manual control.

APPLICABILITY

In MODES 1, 2, and 3, the ARVs are required to be OPERABLE.

In MODE 4, the pressure and temperature limitations are such that the probability of an SGTR event requiring ARV operation is low. In addition, the RHR system is available to provide the decay heat removal function in MODE 4. Therefore, the ARVs are not required to be OPERABLE in MODE 4 to satisfy the safety analysis assumptions of the DBA. However, the capability to remove decay heat from a SG required to be OPERABLE in MODE 4 by LCO 3.4.6, "RCS Loops – MODE 4" is implicit in the requirement for an OPERABLE SG and may require the associated ARV be capable of removing that heat if the normal decay heat removal system (steam dump) is not available.

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONS

A.1

With one required ARV line inoperable, action must be taken to restore OPERABLE status within 7 days. The 7 day Completion Time allows for the redundant capability afforded by the remaining OPERABLE ARV lines, a nonsafety grade backup in the Steam Dump System, and MSSVs.

Bases Insert 1

~~B.1~~

~~With two or more ARV lines inoperable, action must be taken to restore all but one ARV line to OPERABLE status. Since the manual isolation valves can be closed to isolate an ARV, some repairs may~~

ACTIONS

~~B.1 (continued)~~

~~be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ARV lines, based on the availability of the Steam Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ARV lines.~~

Bases Insert 13

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

D

If the ARV lines cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 18 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

To perform a controlled cooldown of the RCS, the ARVs must be able to be opened either remotely or locally and throttled through their full range. This SR ensures that the ARVs are tested through a full control cycle at least once per fuel cycle. Performance of inservice testing or use of an ARV during a unit cooldown may satisfy this requirement. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.4.2

The function of the manual isolation valve is to isolate a failed open ARV. Cycling the manual isolation valve both closed and open demonstrates its capability to perform this function. Performance of inservice testing or use of the manual isolation valve during unit cooldown may satisfy this requirement. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Section 10.3.
2. FSAR, Section 15.4.3.
3. (Add reference to SE here.)

BASES

ACTIONS

A.1 (continued)

a. For the inoperability of a steam supply to the turbine driven AFW pump, the 7 day Completion time is reasonable since there is a redundant steam supply line for the turbine driven pump.

b. For the inoperability of a turbine driven AFW pump while in MODE 3 immediately subsequent to a refueling, the 7 day Completion time is reasonable due to the minimal decay heat levels in this situation.

c. For both the inoperability of a steam supply line to the turbine driven pump and an inoperable turbine driven AFW pump while in MODE 3 immediately following a refueling, the 7 day Completion time is reasonable due to the availability of redundant OPERABLE motor driven AFW pumps; and due to the low probability of an event requiring the use of the turbine driven AFW pump.

Bases Insert 1

Condition A is modified by a Note which limits the applicability of the Condition to when the unit has not entered MODE 2 following a refueling. Condition A allows one AFW train to be inoperable for 7 days vice the 72 hour Completion Time in Condition B. This longer Completion Time is based on the reduced decay heat following refueling and prior to the reactor being critical.

B.1

With one of the required AFW trains (pump or flow path) inoperable for reasons other than Condition A, action must be taken to restore OPERABLE status within 72 hours. A flow path is inoperable if it is blocked such that the required AFW flow cannot be delivered. This Condition includes the loss of two steam supply lines to the turbine driven AFW pump. The 72 hour Completion Time is reasonable, based on redundant capabilities afforded by the AFW System, time needed for repairs, and the low probability of a DBA occurring during this time period.

Bases Insert 1

Bases Insert 14

(continued)

BASES

ACTIONS
(continued)

D

C.1 and C.2 , or C.1

When Required Action A.1 or B.1 cannot be completed within the required Completion Time, or if two AFW trains are inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 12 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

In MODE 4, AFW is not required since the RHR system is available.

E

D.1

If all three AFW trains are inoperable, the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting a cooldown with nonsafety related equipment. In such a condition, the unit should not be perturbed by any action, including a power change, that might result in a trip. The seriousness of this condition requires that action be started immediately to restore one AFW train to OPERABLE status.

Required Action D.1 is modified by a Note indicating that all required MODE changes or power reductions are suspended until one AFW train is restored to OPERABLE status. In this case, LCO 3.0.3 is not applicable because it could force the unit into a less safe condition.

SURVEILLANCE
REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

(continued)

BASES

SURVEILLANCE

SR 3.7.5.4 (continued)

The second Note states that one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW system, OPERABILITY (i.e., the intended safety function) continues to be maintained.

SR 3.7.5.5

This SR verifies that the air stored in turbine-driven AFW pump steam admission valve air accumulators is sufficient to open valves Q1(2)N12V001A-A and Q1(2)N12V001B-B. Each steam admission valve has an air accumulator associated with it. The air accumulators provide sufficient air to ensure the operation of the steam admission valves for turbine-driven AFW pump during a loss of power or other failure of the normal air supply. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Section 6.5.
2. ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).
3. (Add SE reference here.)

APPLICABILITY

In MODES 1, 2, and 3, the CST is required to be OPERABLE.

In MODE 4, 5, or 6, the CST is not required because the AFW System is not required.

ACTIONS

A.1 and A.2

If the CST is not OPERABLE, the OPERABILITY of the backup supply (Service Water System) should be verified by administrative means within 4 hours and once every 12 hours thereafter. OPERABILITY of the backup feedwater supply must include verification that the flow paths from the Service Water supply to the AFW pumps are OPERABLE, and that the Service Water System is capable of supplying water to the AFW pumps. The CST must be restored to OPERABLE status within 7 days, because the Service Water System does not supply the preferred quality of SG feedwater and may be performing this function in addition to its normal functions. The 4 hour Completion Time is reasonable, based on operating experience, to verify the OPERABILITY of the backup water supply. Additionally, verifying the backup water supply every 12 hours is adequate to ensure the backup water supply continues to be available. The 7 day Completion Time is reasonable, based on an OPERABLE backup water supply being available, and the low probability of an event occurring during this time period requiring the CST.

Bases Insert 1

Bases Insert 15

B.1 and B.2

If the CST cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4, within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.6.1

This SR verifies that the CST contains the required volume of cooling water. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Section 9.2.6.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. AFW – FSD A-181010.
5. CALC. BM 95-0961-001, Rev. 5, Verification of CST Sizing Basis.
6. (Add reference to SE here.)

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, the CCW System is a normally operating system, which must be prepared to perform its post accident safety functions, primarily RCS heat removal, which is achieved by cooling the RHR heat exchanger.

In MODE 5 or 6, the OPERABILITY requirements of the CCW System are determined by the systems it supports.

ACTIONS

A.1

Required Action A.1 is modified by a Note indicating that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops—MODE 4," be entered if an inoperable CCW train results in an inoperable RHR loop. This note is only applicable in MODE 4. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

If one CCW train is inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE CCW train is adequate to perform the heat removal function. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this period.

Bases Insert 1

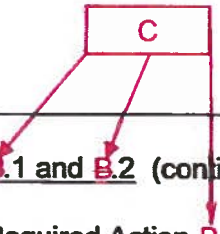
Bases Insert 16

C

~~B~~.1 and ~~B~~.2

If the CCW train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which overall plant risk is reduced. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 2). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 2, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

(continued)



BASES

ACTIONS

B.1 and B.2 (continued)

Required Action B.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

This SR is modified by a Note indicating that the isolation of the CCW flow to individual components may render those components inoperable but does not affect the OPERABILITY of the CCW System. The Note is applicable to CCW loads and does not include components required for CCW OPERABILITY.

Verifying the correct alignment for accessible manual, power operated, and automatic valves in the CCW flow path provides assurance that the proper flow paths exist for CCW operation. The accessibility of the CCW valves is evaluated on a case by case basis considering such things as ALARA concerns and personnel safety as well as valve enclosures or barricades blocking access to the valves. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.

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

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.7.2

This SR verifies proper automatic operation of the CCW valves on an actual or simulated Safety Injection actuation signal. The CCW System is a normally operating system that cannot be fully actuated as part of routine testing during normal operation. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.7.3

This SR verifies proper automatic operation of the CCW pumps on an actual or simulated actuation signal. The CCW System is a normally operating system that cannot be fully actuated as part of routine testing during normal operation. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Section 9.2.2.
2. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
3. (Add SE reference here.)

BASES

ACTIONS

A.1

If one SWS train is inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE SWS train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE SWS train could result in loss of SWS function. Required Action A.1 is modified by two Notes. The first Note indicates that the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources — Operating," should be entered if an inoperable SWS train results in an inoperable emergency diesel generator. The second Note indicates that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops — MODE 4," should be entered if an inoperable SWS train results in an inoperable decay heat removal train. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. The 72 hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time period.

Bases Insert 1

Bases Insert 17

C

B.1

With one automatic turbine building isolation valve inoperable in each SWS train, the inoperable valves must be restored to OPERABLE status within 72 hours. With the unit in this condition, the remaining OPERABLE SWS turbine building isolation valves in each train are adequate to perform the SWS non-essential load isolation function; however, the overall reliability of the function is reduced. The 72 hour Completion Time is based on the fact that the remaining OPERABLE automatic turbine building isolation valves in each SWS train ensure the SWS trains remain fully capable of performing the required safety function and the low probability of an event occurring during this time period that would require the isolation function of these valves.

D

C.1 and C.2

If the SWS train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which overall plant risk is reduced. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 4 within 12 hours.

(continued)

BASES

ACTIONS

D

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

Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 4, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action ~~C~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

This SR is modified by a Note indicating that the isolation of the SWS components or systems may render those components inoperable, but does not affect the OPERABILITY of the SWS. The Note is applicable to SWS loads and does not include components required for SWS OPERABILITY.

Verifying the correct alignment for accessible manual, power operated, and automatic valves in the SWS flow path provides assurance that the proper flow paths exist for SWS operation. The accessibility of the SWS valves is evaluated on a case by case basis

(continued)

BASES

REFERENCES

1. FSAR, Section 9.2.1.
2. FSAR, Section 6.2.
3. FSAR, Section 5.1.
4. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
5. (Add reference to SE here.)

BASES

ACTIONS

C.1, C.2.1, and C.2.2 (continued)

An alternative to Required Action C.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

D.1 and D.2

During movement of irradiated fuel assemblies, or during CORE ALTERATIONS, with two CRACS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

E.1

Bases Insert 18

If both CRACS trains are inoperable in MODE 1, 2, 3, or 4, the control room CRACS may not be capable of performing its intended function. Therefore, ~~LCO 3.0.3 must be entered immediately.~~

Bases Insert 19

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that the heat removal capability of the system is sufficient to remove the heat load assumed in the safety analyses in the control room. This SR consists of system testing. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Section 6.4.
2. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
3. (Add reference to SE here.)

BASES

ACTIONS
(continued)

A.1

C

If one train of a required ESF Room Cooler subsystem is inoperable, action must be taken to restore the subsystem train to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE ESF Room Cooler subsystem train is adequate to perform the heat removal function for its associated ESF equipment.

Bases Insert 1

~~B~~.1 and ~~B~~.2

Bases Insert 21

If the ESF Room Cooler subsystem train cannot be restored to OPERABLE status within the associated Completion Time ~~or two trains of the same ESF Room Cooler subsystem are inoperable~~, the unit must be placed in a MODE in which overall plant risk is reduced. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 2). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 2, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

C

Required Action ~~B~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.19.1

Verifying the correct alignment for manual valves servicing safety-related equipment provides assurance that the proper flow paths exist for ESF Room Cooler operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

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

SR 3.7.19.2

This SR verifies proper operation of the ESF Room Cooler fans on an actual or simulated actuation signal. Depending on the room cooler, this may be manual, high room temperature, an equipment running signal, or some combination. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

Each Room Cooler Fan can be placed in Run mode locally. With the Room Cooler in the Run mode, all automatic functions are being met and the Room Cooler is considered OPERABLE.

REFERENCES

1. FSAR, Section 9.4.
2. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
3. (Add SE reference here.)

BASES

ACTIONS

A.3 (continued)

this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

Bases Insert 1 →

B.1

The Condition B Required Actions are modified by a Note that is applicable when only one of the three individual DGs is inoperable. The note permits the use of the provisions of LCO 3.0.4c. The allowance provided by this note, to enter the MODE of applicability with a single inoperable DG, takes into account the capacity and capability of the remaining AC sources and the fact that operation is ultimately limited by the Condition B Completion Time for the inoperable DG set.

(continued)

BASES

ACTIONS
(continued)

B.4

Operation may continue in Condition B for a period that should not exceed 10 days.

In Condition B, the remaining OPERABLE DG set and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 10 day Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

Bases Insert 1

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure; and

b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Reference 6, with the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A.

Bases Insert 20 →

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems — Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG, without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized train.

Operation may continue in Condition D for a period that should not exceed 24 hours.

Bases Insert 1 →

(continued)

BASES

ACTIONS

D.1 and D.2 (continued)

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

E.1

With all or part of Train A DG set and Train B DG set inoperable, the capacity of the remaining standby AC sources is reduced depending on which combination of individual DGs is affected. Thus, with an assumed loss of offsite electrical power, standby AC sources may be insufficient to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

With all or part of each train of DG sets inoperable, operation may continue for a given unit for different periods of time depending on the combination of individual DGs that are inoperable. The length of time allowed increases with decreasing severity in the combinations of inoperable DGs. ~~One set must be restored to operable status in 2 hours if DGs 1-2A, 1C, and 1B on Unit 1 or DGs 1-2A, 1C, and 2B on Unit 2 are inoperable.~~ Operability of one set must be restored in 8 hours if DGs 1-2A and 1B on Unit 1 or DGs 1-2A and 2B on Unit 2 are inoperable. Operability of one set must be restored in 24 hours if DGs 1C and 1B on Unit 1 or DGs 1C and 2B on Unit 2 are inoperable.

Bases Insert 1 →

(continued)

BASES

ACTIONS
(continued)

F.1

Condition F provides the default Required Actions for the Conditions which address two inoperable offsite circuits or two inoperable DG sets. If the inoperable AC Sources cannot be restored to OPERABLE status within the applicable Completion Time, Required Action F.1 specifies that the unit be placed in MODE 3 within 6 hours. Once shut down, the unit is in a more stable condition and the time allowed to remain in MODE 3 is ultimately limited by the Required Actions and Completion Times applicable to a single inoperable AC Source based on the time that an AC Source initially became inoperable. In addition, the Required Actions applicable to one inoperable DG set or offsite circuit would remain applicable until both inoperable DG sets or offsite circuits are restored to OPERABLE status or the unit is placed in a MODE in which the LCO does not apply (MODE 5). The allowed Completion Times are reasonable to reach the required unit conditions from full power in an orderly manner and without challenging plant systems.

G.1

The sequencer(s) B1F, B2F, B1G, and B2G are an essential support system to both the offsite circuit and the DG associated with a given ESF bus. Furthermore, the sequencer is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus. Therefore, loss of an ESF bus sequencer affects every major ESF system in the train. The 12 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. This time period also ensures that the probability of an accident (requiring sequencer OPERABILITY) occurring during periods when the sequencer is inoperable is minimal.

Bases Insert 1

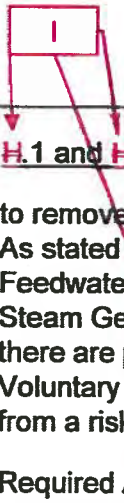
Bases Insert 22

~~H~~.1 and ~~H~~.2

I

If the inoperable AC electric power sources cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 13). In MODE 4 the Steam Generators and Residual Heat Removal System are available

(continued)



BASES

ACTIONS

~~H~~.1 and ~~H~~.2 (continued)

to remove decay heat, which provides diversity and defense in depth. As stated in Reference 13, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action ~~H~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

~~I.1~~

~~Condition I corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. This condition exists when any combination of sources from the categories in LCO 3.8.1 totaling three or more are not OPERABLE. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.~~

SURVEILLANCE REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, Appendix A, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.108 (Ref. 9), as addressed in the FSAR.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.19 (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. This surveillance would also be applicable after any modifications which could affect DG interdependence.

This SR is modified by a Note. The reason for the Note is to minimize wear on the DG during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. FSAR, Chapter 8.
3. Regulatory Guide 1.9, Rev. 1, 1971.
4. FSAR, Chapter 6.
5. FSAR, Chapter 15.
6. Regulatory Guide 1.93, Rev. 0, December 1974.
7. Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," July 2, 1984.
8. 10 CFR 50, Appendix A, GDC 18.
9. Regulatory Guide 1.108, Rev. 1, August 1977.
10. (Not used)
11. IEEE Standard 308-1971.
12. NEMA MG1-1967.
13. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
14. (Add reference to SE here.)

BASES

ACTIONS

A.1

Condition A represents one train of Auxiliary Building DC electrical power with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected train. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system train.

~~[For Unit 1 only for cycle 19] The second Completion time for Condition A represents the 1B train of Auxiliary Building DC electrical power subsystem due to an inoperable battery. With the 1B Auxiliary Building battery inoperable, the DC bus is being supplied by the OPERABLE battery charger. Any event that results in a loss of the AC bus supporting the battery charger will also result in the loss of DC to that train. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output breakers, etc.) rely upon the battery. The 12 hour limit allows sufficient time to effect restoration of the inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than 2.02 volts, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific completion times.~~

If one of the required DC electrical power subsystems is inoperable (e.g., inoperable battery, inoperable battery charger(s), or inoperable battery charger and associated inoperable battery), the remaining DC electrical power subsystem has the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure would, however, result in the complete loss of the remaining 125 VDC electrical power subsystems with attendant loss of ESF functions, in the case of the Auxiliary Building DC power subsystem, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 8) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the Auxiliary Building DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

Bases Insert 1 →

(continued)

BASES

ACTIONS
(continued)

B.1 and D.1

Conditions B and D represent one Auxiliary Building or SWIS DC electrical power subsystem with connection resistance not within the specified limit. Consistent with the guidance in IEEE-450, connection resistance not within the limit is an indication that the affected battery requires attention to restore the resistance to within the limit but is not a basis on which to declare the battery inoperable. Therefore, the 24 hour Completion Time allowed to restore the battery connection resistance to within the required limit is a reasonable time considering that variations in connection resistance do not mean the battery is incapable of performing its required safety function, but is an indication that the battery requires maintenance.

Bases Insert 1

C.1 and C.2

If the inoperable Auxiliary Building DC electrical power subsystem cannot be restored to OPERABLE status or the connection resistance restored to within the limit within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 11). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 11, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action C.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1

If a required SWIS DC electrical power subsystem is inoperable or the connection resistance is not restored to within the limit and the associated Completion Time has expired, the Service Water System train supported by the affected SWIS DC electrical power subsystem must be declared inoperable. The capability of the affected SWIS DC electrical power subsystem to fully support the associated train of Service Water is not assured. Therefore, consistent with the definition of OPERABILITY, the associated train of Service Water must be declared inoperable immediately, thereby limiting operation in this condition to the Completion Time associated with the affected Service Water System train.

Bases Insert 23

Bases Insert 24

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is applying a voltage to the battery to maintain it in a fully charged condition during normal operation. The float voltage of 2.2 V per cell or 132 V overall is higher than the nominal design voltage of 125 V and is consistent with the manufacturer's recommendations for maintaining a full charge. Verifying that terminal voltage is ≥ 127.8 V provides assurance that the average of all cell voltages is maintained greater than 2.13 V. Maintaining float voltage at the higher value of 2.2 V per cell prolongs cell life expectancy. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.8 (continued)

of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODES 1, 2, 3, or 4. Risk insights or deterministic methods may be used for this assessment.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6, March 10, 1971.
3. IEEE-308-1971.
4. FSAR, Section 8.3.
5. None.
6. FSAR, Chapter 6.
7. FSAR, Chapter 15.
8. Regulatory Guide 1.93, December 1974.
9. IEEE-450-1980.
10. Regulatory Guide 1.32, February 1972.
11. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
12. (Add reference to SE here.)

BASES

LCO (continued)

The intent of this Note is to limit the number of inverters that may be disconnected. Only those inverters associated with the single battery undergoing an equalizing charge may be disconnected. All other inverters must be aligned to their associated batteries, regardless of the number of inverters or unit design.

APPLICABILITY

The inverters are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Inverter requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.8, "Inverters — Shutdown."

ACTIONS

A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is re-energized from its Class 1E CVT.

For this reason a Note has been included in Condition A requiring the entry into the Conditions and Required Actions of LCO 3.8.9, "Distribution Systems — Operating." This ensures that the vital bus is re-energized within 8 hours. The associated static transfer switch normally provides a bumpless transfer of power to the alternate AC source (Class 1E CVT).

Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. The 24 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the AC vital bus

Bases Insert 1

(continued)

BASES

ACTIONS

A.1 (continued)

is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.

Bases Insert 25

~~B~~.1 and ~~B~~.2

C

If the inoperable devices or components cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 4, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action ~~B~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation of the RPS and ESFAS connected to the AC vital buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Chapter 8.
2. FSAR, Chapter 6.
3. FSAR, Chapter 15.
4. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
5. (Add reference to SE here.)

BASES

ACTIONS

A.1 (continued)

minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours.

Bases Insert 1

Condition A worst scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because of:

a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train, to the actions associated with taking the unit to shutdown within this time limit; and

b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

B.1

With one or more AC vital buses inoperable, and a loss of safety function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 8 hours by powering the bus from the associated inverter via inverted DC or Class 1E constant voltage transformer.

(continued)

BASES

ACTIONS

B.1 (continued)

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining vital buses and restoring power to the affected vital bus.

This 8 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have the Required Action Completion Times shorter than 8 hours if declared inoperable, is acceptable because of:

a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue;

b. The potential for decreased safety by requiring entry into numerous Applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train; and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 8 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

Bases Insert 1 →

C.1

With Auxiliary Building DC bus(es) in one train inoperable, the remaining Auxiliary Building DC electrical power distribution subsystems are capable of supporting the minimum safety functions

(continued)

BASES

ACTIONS

C.1 (continued)

necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the required DC buses must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

Condition C represents one train without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining trains and restoring power to the affected train.

Bases Insert 1

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue;

b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train; and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

Bases Insert 26

(continued)

BASES

ACTIONS
(continued)

~~D~~.1 and ~~D~~.2

If the inoperable distribution subsystem(s) addressed by Conditions A, B, or C cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 4, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

E

Required Action ~~D~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

F

~~E~~.1

With one SWIS DC electrical power distribution subsystem inoperable, the Service Water System train supported by the affected SWIS DC electrical power distribution subsystem must be declared inoperable. The capability of the affected SWIS DC electrical power distribution subsystem to fully support the associated train of Service Water is not assured. Therefore, consistent with the definition of OPERABILITY, the associated train of Service Water must be declared inoperable immediately, thereby limiting operation in this condition to the

F

BASES

ACTIONS

~~E.1~~ (continued)

Completion Time associated with the affected Service Water System train.

~~F.1~~

~~With two trains with inoperable distribution subsystems that result in a loss of safety function, adequate core cooling, containment OPERABILITY and other vital functions for DBA mitigation would be compromised, and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the required AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. Any change in the components being tested by this SR will require reevaluation of STI Evaluation Number 558904 in accordance with the Surveillance Frequency Control Program.

REFERENCES

1. FSAR, Chapter 6.
2. FSAR, Chapter 15.
3. Regulatory Guide 1.93, December 1974.
4. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.
5. (Add reference to SE here.)

Bases INSERT 1

Alternatively, a Completion Time can be determined using the Risk Informed Completion Time Program (Ref. xx).

Bases INSERT 2

This Condition is modified by two Notes. The first Note states it is not applicable when a Pressurizer Safety Valve is intentionally made inoperable. This Condition is not intended for voluntary removal of systems or components which would result in a loss of safety function. The Condition is only intended for a situation where a pressurizer safety valve is found inoperable. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this LCO Condition. The Risk Informed Completion Time for this LCO Condition can be no longer than 24 hours.

Bases INSERT 3

For Required Action F.2, a Completion Time could also be determined using the Risk Informed Completion Time Program.

Bases INSERT 4

This Condition is modified by two Notes. The first Note states it is not applicable when a second block valve is intentionally made inoperable. This Condition is not intended for the voluntary removal of systems or components from service which would result in a loss of safety function. This Condition is intended only for the case of the second block valve being found inoperable. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this LCO Condition. The Risk Informed Completion Time for this LCO Condition cannot exceed 24 hours.

Bases INSERT 5

C.1

With two or more accumulators inoperable for reasons other than boron concentration out of limits, the Required Action is to restore sufficient accumulators to OPERABLE status within 1 hour or, in accordance with the Risk Informed Completion Time Program, to regain the safety function. The Condition is modified by two Notes. The first Note states that the Condition is not applicable when two or more accumulators are intentionally made inoperable. The Required Action is not intended for voluntary removal of redundant components from service. The Required Action is only applicable if one accumulator is inoperable for any reason and additional accumulators are found to be inoperable, or if two or more accumulators are found to be inoperable at the same time. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this LCO Condition. The Risk Informed Completion Time for this LCO cannot exceed 24 hours.

Bases INSERT 6

Alternatively, a Completion Time may be determined using the Risk Informed Completion Time Program. However, a Risk Informed Completion Time may not be used for an inadequate water volume.

Bases INSERT 7

This Condition is modified by two Notes. The first Note states it is not applicable when the RWST is intentionally made inoperable. This Condition is not intended for voluntary removal of redundant systems or components from service. It is only intended for when the RWST is found inoperable. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this LCO Condition. The Risk Informed Completion Time for this LCO Condition can be no longer than 24 hours.

Bases INSERT 8

Condition B is modified by three Notes. The first Note states the Condition is only applicable to penetrations with two containment isolation valves. The second Note states the Condition is not applicable when the second containment isolation valve is intentionally made inoperable. The Condition is not intended for voluntary removal of removal of systems or components from service. The Condition is only intended for situations where the second containment isolation valve is found inoperable when the first containment isolation was inoperable for any reason, or when both isolation valves are simultaneously found inoperable. The third Note indicates those parts of Section 5.5.20 that are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 8a

The second Note states that the Condition is not applicable when the containment isolation valve is intentionally mode inoperable. The Condition is not intended for voluntary removal of systems or components from service. The Condition is only intended for situations where the containment isolation valve is found to be inoperable. The third Note indicates those parts of Section 5.5.20 that are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 9

B.1

With two containment spray trains inoperable, at least one containment spray train must be returned to OPERABLE status within 1 hour. Alternatively, a Completion Time can be determined using the Risk Informed Completion Time Program. Condition B is modified by two Notes. The first states that the Condition is not applicable when the second containment spray train in intentionally made inoperable.

The Condition is not intended for voluntary removal of systems or components from service. The Condition is only intended for situations where the second containment spray train is found inoperable when the first spray system was already inoperable for any reason, or for when two containment spray systems are discovered inoperable at the same time. The second Note indicates the parts of Section 5.5.20 that are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 10

one containment spray or cooling unit must be restored to OPERABLE status within 1 hour. Alternatively, a Completion Time can be determined using the Risk Informed Completion Time Program. The Condition is modified by two Notes. The first Note states that the Condition is not applicable when the third containment cooling or spray train is intentionally removed from service. The Condition is not intended for the voluntary removal of systems or components from service. The Condition is only intended for situations where the third containment cooling or spray train is removed from service, and two other cooling or spray trains were Inoperable for any reason. The Condition may also be used when any combination of three containment cooling or spray trains are found inoperable at the same time. The second Note indicates the parts of Section 5.5.20 which are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 11

If one containment cooling or spray train cannot be returned to OPERABLE status within the required Completion Time, LCO 3.0.3 must be entered immediately.

Bases INSERT 12

Condition B is modified by two Notes. The first one states that the Condition is not applicable when the second MSIV in a steam line is intentionally made inoperable. The Condition is not intended for the voluntary removal of systems or components from service. It is intended when the second MSIV is discovered inoperable when the first MSIV is inoperable for any reason. The second Note indicates those portions of Section 5.5.20 that are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 13

B.1

Required Action B.1 is applicable when there are two ARV lines inoperable. In this case, action must be taken to restore one ARV line to OPERABLE status. The 24 hour Completion time is reasonable because one ARV line is still available to conduct a cooldown following a SGTR event, the Steam Dump System and the MSSVs are available, and the low probability of an event occurring during this period that would require the ARV lines.

Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

C.1

With all three ARV lines inoperable, a cooldown following a SGTR event cannot be conducted through the ARV lines. Consequently, at least one ARV line must be returned to OPERABLE status within 1 hour.

Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

Condition C is modified by two Notes. The first Note states that it is not applicable when the third ARV line is intentionally removed from service. The Condition is not intended for voluntary removal of systems or components from service; it is intended only for situations where two ARV lines are inoperable for any reason, and the third line is intentionally made inoperable. The second Note describes which parts of Section 5.5.10 are applicable to this Condition.

The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 14

C.1

If two AFW trains are inoperable, the Required Action is to restore the inoperable AFW trains to OPERABLE status within 1 hour to regain a method of decay heat removal. The 1 hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one train. Alternatively, a Risk Informed Completion Time can be determined.

The Condition is modified by two Notes. The first Note states it is not applicable when the second AFW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Condition is intended only when the second AFW train is found inoperable with one AFW train already inoperable for any reason, or if two AFW trains are discovered inoperable at the same time. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this LCO Condition. The Risk Informed Completion Time for this LCO Condition can be no longer than 24 hours.

Bases INSERT 15

Condition A is modified by two Notes. The first Note states it is not applicable when the CST is intentionally removed from service. The Condition is not intended for voluntary removal of systems or components from service. The Condition is intended only when the CST is discovered inoperable. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 16

B.1

With both trains of CCW inoperable, the heat load capacity of the CCW system is seriously degraded such that the system may be incapable of providing an adequate heat sink for normal and accident conditions. Consequently, one hour is provide to restore the CCW trains to OPERABLE status. Alternatively, a Completion Time can be determined using the Risk Informed Completion Time Program.

The Condition is modified by two Notes. The first Note states it is not applicable when the second CCW train is intentionally made inoperable. This Required Action is not intended for voluntary removal of redundant systems or components from service. The Condition id intended only when the second CCW is found inoperable with one CCW train already inoperable, or is two CCW trains are discovered simultaneously inoperable. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", that are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 17

B.1

With both SWS trains inoperable , the SWS may be incapable of providing an adequate heat sink for safety related components during design basis accidents and transients. Consequently, one hour is provided to restore the SWS train to OPERABLE status. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by two Notes. The first Note states it is not applicable when the second SWS train is intentionally made inoperable. This Condition is not intended for voluntary removal of redundant systems or components from service. The Condition is intended only when the second SWS train is discovered inoperable when the first train is already inoperable for reason. The Condition may also be used if both SWS trains are discovered inoperable simultaneously. The second Note indicates those portions of Section 5.5.20, "Risk Informed Completion Time Program", that are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 18

... one CRACs train must be returned to OPERABLE status within 1 hour. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program.

The Condition is modified by two Notes. The first Note states that the Condition is not applicable when the second CRACs train is intentionally removed from service. The Condition is not intended for the voluntary removal of redundant systems and components from service. Rather it is intended for when the second CRACs train is discovered inoperable when the first CRACs train is already inoperable for any reason. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program", that are applicable to this LCO Condition.

The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 19

F.1

If one CRACs train cannot be returned to OPERABLE status within the required Completion Time, LCO 3.0.3 must be immediately entered.

Bases INSERT 20

Alternatively for Condition C.2, a Completion Time may be determined in accordance with the Risk Informed Completion Time Program.

Bases INSERT 21

With two trains of the same ESF Room Cooler subsystems inoperable, the ability to cool the room housing ESF equipment sufficiently is jeopardized. The system may be rendered incapable of performing its accident mitigation function. Consequently, 1 hour is provided to restore one cooler to OPERABLE status. Alternatively, a Completion Time can be determined using the Risk Informed Completion Time Program. (Ref. 3).

The Condition is modified by two Notes. The first Note states that this Condition is not applicable when a second ESF train is intentionally made inoperable, and a first ESF train is already inoperable for any reason. The Condition is not intended for voluntary removal of redundant equipment from service. The Condition may also be used when two ESF Room Cooler subsystems from the same system are found inoperable simultaneously. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time Program', that are applicable to this LCO Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 22

H.1

Condition H corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. This Condition exists when any combination of sources from the categories in LCO 3.8.1 totaling three or more are not OPERABLE. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, at least one AC source must be returned to Operable status within one hour or, alternatively, in accordance with the Risk Informed Completion Time Program.

The Condition is modified by two Notes. The first Note states that the Condition is not applicable when a third AC source is intentionally made inoperable, when two AC sources are already inoperable for any reason. The Condition is not intended for voluntary removal of redundant systems or components from service. The Condition may also be used when three or more AC sources are discovered inoperable simultaneously. The second Note indicates the parts of Section 5.5.20, "Risk Informed Completion Time

Program", that are applicable to this LCO Condition. The Risk Informed Completion for this Condition may not exceed 24 hours.

Bases INSERT 23

F.1

With two DC electrical power sources inoperable that result in a loss of power, the Required Action is to restore at least one of the required sources to OPERABLE status within one hour. The one hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one DC electrical power source. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program (Ref. xx).

The Condition is modified by two Notes. The first Note states it is not applicable when the second DC source is intentionally made inoperable. The Condition is not intended for the voluntary removal of redundant systems or components from service. The Condition is only applicable if one DC electrical source is inoperable for any reason and a second DC source is found to be inoperable, or if two DC sources are found to be inoperable at the same time. The second Note indicates the parts of Section 5.5.20 that are applicable to this LCO Condition. The Risk Informed Completion Time for this Condition may be no longer than 24 hours.

Bases INSERT 24

G.1

If one DC source cannot be restored to OPERABLE status within the Completion Time of Condition E, the unit must be placed in Mode 3 within 6 hours and in Mode 4 within 12 hours.

Bases INSERT 25

B.1

With two or more inverters inoperable the Required Action is to restore at least one of the required inverters to OPERABLE status within one hour. The one hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of at least one required inverter. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program (Ref. xx).

The Condition is modified by two Notes. The first Note states it is not applicable when two or more required inverters are intentionally made inoperable. This Condition is not intended for voluntary removal of redundant systems and components from service. The Condition is only applicable if one required inverter is inoperable for any reason and a second inverter is discovered in operable, or if two inverters are simultaneously found inoperable. The second Note indicates the parts of Section 5.5.20. "Risk Informed Completion Time Program", which are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Bases INSERT 26

G.1

With two or more electrical power distribution subsystems that result in a loss of safety function, the Required Action is to restore sufficient electrical power distribution subsystems within one hour to restore safety function. The one hour Completion Time is acceptable because it minimizes risk while allowing time for restoration of sufficient electrical power distribution subsystems. Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time Program (Ref. xx).

The Condition is modified by two Notes. The first Note states it is not applicable when two or more electrical distribution subsystems are intentionally made inoperable. This Condition is not intended for voluntary removal of redundant systems or components from service. The Condition is only applicable if one electrical power distribution subsystem is inoperable for any reason, and second subsystem is found to be inoperable, or if two electrical power distribution subsystems are simultaneously discovered inoperable. The second Note indicates those parts of Section 5.5.20, "Risk Informed Completion Time Program", which are applicable to this Condition. The Risk Informed Completion Time for this Condition may not exceed 24 hours.

Farley Nuclear Plant Units 1 and 2
License Amendment Request to Revise Technical Specifications to Implement NEI 06-09, Revision 0, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines"

Enclosure 1

List of Revised Required Actions to Corresponding PRA Functions

Table of Contents

1.0 Introduction and Summary

Section 4.0, Item 2 of the Final Safety Evaluation for NEI 06-09 (Revision 0-A, Reference 1) identifies the following License Amendment Request (LAR) content needed on applicable Technical Specifications (TSs), comparison of the TS functions to the probabilistic risk assessment (PRA) functions, and comparison of design basis assumptions to the scope of the PRA:

- The LAR will provide identification of the TS Limiting Conditions for Operations (LCO) and action requirements to which the Risk Informed Completion Time (RICT) Program will apply.

- The LAR will provide a comparison of the TS functions to the PRA modeled functions of the structures, systems, and components (SSCs) subject to those LCO Actions.

- The comparison should justify that the scope of the PRA model, including applicable success criteria such as number of SSCs required, flowrate, etc., are consistent licensing basis assumptions (i.e., 10 CFR 50.46 ECCS flow rates) for each of the TS requirements, or an appropriate disposition or programmatic restriction will be provided.

This enclosure provides confirmation that the Farley Nuclear Plant (FNP) PRA models include the necessary scope of structures, systems, and components (SSCs) and their functions to address each proposed application of the Risk Informed Completion Time (RICT) Program to the TS LCO Conditions. The scope of the comparison includes each of the TS LCO conditions and associated required actions applicable to RICT Program implementation at FNP Units 1 and 2.

Table E1.1 below lists each TS LCO Condition to which the RICT Program is proposed to be applied and documents the following information regarding the TSs with the associated safety analyses, the analogous PRA functions and the results of the comparison:

- Column “TS LCO Condition”: Lists all of the LCOs and Condition statements within the scope of the RICT Program.

- Column “SSCs Covered by TS LCO Condition”: The SSCs addressed by each Action requirement.

- Column “SSCs Modeled in PRA”: Indicates whether the SSCs addressed by the TS LCO Condition are included in the PRA.

- Column “Function Covered by TS LCO Condition”: A summary of the required functions from the design basis analyses.

- Column "PRA Success Criteria": The function success criteria modeled in the PRA, as specified in the referenced PRA documentation and verified in the PRA model files.

- Column "Disposition": Justification or resolution to address any inconsistencies between the TS and PRA functions, regarding the scope of SSCs and the success criteria. Where the PRA scope of SSCs is not consistent with the TS, additional information is provided to describe how the LCO Condition can be evaluated using appropriate surrogate events. Differences in the success criteria for TS functions are addressed to demonstrate the PRA criteria provide a realistic estimate of the actual risk of the TS Condition as required by NEI 06-09 and PRA standards for Capability Category (CC) II.

The corresponding SSCs for each TS LCO and the associated TS functions are identified and compared to the PRA. This description also includes the design success criteria and the applicable PRA success criteria. Any difference between the PRA scope or PRA success criteria are described in the table. Scope differences are justified by identifying appropriate surrogate events which permit a risk evaluation to be completed using the Configuration Risk Management Program (CRMP) tool for the RICT Program. Differences in success criteria typically arise due to the requirement in the PRA standards (for example, SC-B1) to make PRAs realistic rather than bounding, whereas design basis criteria are necessarily conservative and bounding. The use of realistic success criteria is necessary to conform to CC II of the PRA standards as required by NEI 06-09 (Reference 1).

The calculated RICTs, provided in Table E1.2, demonstrate the effect on CDF and LERF for each individual condition to which the RICT Program applies (assuming no other SSCs modeled in the PRA outside the scope of the applicable TS LCO Condition are unavailable). These calculations were performed based on the use of separate zero-maintenance annual average PRA models which include the internal events PRA model, internal fire PRA model that reflects NFP-805 plant modifications, seismic bounding delta CDF/LERF values and main control room abandonment bounding delta CDF/LERF values. Use of the main control room abandonment bounding values may be discontinued in the future if the fire PRA models are revised to include detailed modeling of main control room abandonment risk contribution. In addition, the RICT calculations in Table E1.2 assume that a single SSC impacts the applicable TS LCO Condition for most cases; however, in some cases, more than one SSC was considered to impact the TS LCO Condition to ensure a worst case RICT can be generated for conditions that allow more than one train inoperable but do not meet the criteria for a loss of function. In such cases there are two entries for that LCO. These estimates are based on a Unit 1 model calculation and are considered applicable to Unit 2 for the purpose of providing an estimate due to the close similarity between the Unit 1 and Unit 2 models. The actual RICT values during program implementation will be calculated

based on the actual unit and plant configuration and the on-record version of the CRMP model available which represents the as-built and as-operated plant, as required by NEI 06-09 and the NRC Safety Evaluation. For the values presented in the “RICT Calculated column of Table E1.2, the equipment removed from service for the calculation is the piece of equipment associated with the applicable LCO Condition.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.4.10 Pressurizer Safety Valves A. One pressurizer safety valve inoperable. (TS LOF)	3 PSVs	Yes	Prevent RCS pressure from exceeding safety limit	3 of 3 PSVs	Same as Design Success criteria for limiting transient (ATWT with initial reactor power > 40%)	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria. TS LOF PRA Functionality Requirements: : • **1 PSV Inoperable requires 3 PSVs PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.4.11 Pressurizer Power Operated Relief Valves (PORV) B. One PORV inoperable and not capable of being cycled.	2 PORVs	Yes	Depressurize the RCS in certain transients	1) 1 of 2 PORVs for opening. 2) 2 of 2 PORVs must not have excessive leakage.	1) SAME or more restrictive 2) Function not specifically modeled	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria and in some cases are more restrictive when the PORVs are used to mitigate some beyond design basis scenarios The Function 2 success criteria of “2 of 2 PORVs must not have excessive leakage” have no consequence on the likelihood of mitigating a worst case ATWT event. As a result the success criteria in the PRA are consistent with the design basis criteria.
3.4.11 Pressurizer Power Operated Relief Valves (PORV) C. One Block Valve inoperable	2 Block Valves	Yes	Isolate the flow path through a PORV with excessive leakage.	Associated block valve closed to prevent leakage	Same as Design Success criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.4.11 Pressurizer Power Operated Relief Valves (PORV) E. Two PORVs inoperable and not capable of being manually cycled (TS LOF)	See LCO Condition 3.4.11.B					See LCO Condition 3.4.11.B TS LOF PRA Functionality Requirements: : • **2 PORV Inoperable requires at least 1 PORV PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.4.11 Pressurizer Power Operated Relief Valves (PORV) F. Two blocks valves inoperable ----------NOTES---------- 1. Not applicable when the second block valve is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.4.11.C					See LCO Condition 3.4.11.C.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.5.1 Accumulators A. Two or more Accumulators inoperable for reasons other than boron concentration not within limits (TS LOF) ----------NOTES---------- 1. Not applicable when two or more ECCS accumulators are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	ECCS Accumulators	ECCS Accumu-lator valves as surrogate	Supply borated water to the reactor vessel during LOCA blowdown phase.	2 of 3 accumulators	For LLOCA and MLOCA accidents 2 of 2 Accumulators to 2 of 2 intact cold legs For SLOCA and Consequential LOCA 2 out of 3 Accumulators to 2 out of 3 cold legs.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria. TS LOF PRA Functionality Requirements: • **2 Accumulators Inoperable requires at least 1 Accumulator PRA Functional** • **3 Accumulators Inoperable requires at least 2 Accumulators PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.5.2 ECCS – Operating A. One or more trains inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available	3 Centrifugal charging pumps (CCPs) 2 RHR pumps 2 RHR heat exchangers	Yes	Provide core cooling and negative reactivity for: 1) LOCA 2) Rod Ejection Accident 3) Loss of secondary coolant accident 4) Steam Generator Tube Rupture	1 of 3 CCPs 1 of 2 RHR pumps	LHI (Low-Head Injection) 1 of 2 LHSI pumps deliver flow to 2 intact RCS CLs HHI (High-Head Injection) 1 of 3 CCPs deliver flow to 2 intact RCS CLs HLR (Hot Leg Recirculation) 1 of 2 LHSI pumps deliver flow to 1 intact RCS Hot Leg (HL) LHR (Low-Head Recirculation) 1 of 2 LHSI pumps deliver flow to 2 intact RCS CLs LTC (Long Term Cooling - HHR) 1 of 3 CCPs delivers flow to 2 intact RCS CLs LTC (Long Term Cooling – LHR) 1 of 2 RHR trains deliver flow to 2 intact RCS CLs SIT (SI Termination) Operator terminates CCPs and establishes normal charging	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria and in some cases mitigate some beyond design basis scenarios like SIT (SI Termination) where Operator terminates CCPs and establishes normal charging.
3.5.4 Refueling Water Storage Tank B. RWST inoperable for reasons other than Condition A. (TS LOF) ----------NOTES---------- 1. Not applicable when the RWST is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	RWST	Yes	Supply borated water to ECCS and Containment Spray during LOCA phase for 1) negative reactivity for reactor shutdown, and 2) core and containment cooling and containment depressurization	Boron concentration limits and temperature limits met.	Same as Design Success Criteria	TS LOF PRA Functionality Requirements: • **RWST is required to be PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.6.2 Containment Air Locks C. One or more containment airlock doors open for reasons other than Conditions A or B	Containment Airlock Doors	Yes	Control of Post-Accident Containment Leakage Rates	Post-Accident Containment Leakage Rates within limits	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria
3.6.3 Containment Isolation Valves A. One or more penetration flow paths with one containment isolation valve inoperable except for purge valve penetration leakage not within limit ----------NOTE---------- Only applicable to penetration flow paths with two containment isolation valves.	Two isolation devices	Yes	Isolate Containment within assumed time limits to prevent excessive RCS loss and establish containment pressure boundary post-accident	One Containment isolation valve closed within stroke time limits, if applicable.	Same as Design Success Criteria	The PRA does not explicitly model the impact of excessive stroke time. This condition can be addressed for the RICT Program by assuming the inoperable containment isolation valve(s) to be unavailable (failed open) in the PRA model if it is open. Therefore, this LCO condition can be evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.6.3 Containment Isolation Valves B. One or more penetration flow paths with two containment isolation valves inoperable except for purge valve penetration leakage not within limit ----------NOTES---------- Only applicable to penetration flow paths with two containment isolation valves. Not applicable when the second Containment Isolation valve is intentionally made inoperable The following Section 5.5.20 Constraints apply: parts b, c2, c3, d, e, f, g, and h	See LCO Condition 3.6.3.A					

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.6.3 Containment Isolation Valves C. One or more penetration flow paths with one containment isolation valve inoperable. --------NOTES----- Only applicable to penetration flow paths with one containment isolation valve and a closed system. Not applicable when the second Containment Isolation valve is intentionally made inoperable The following Section 5.5.20 Constraints apply: parts b, c2, c3, d, e, f, g, and h	Penetration flow paths with one isolation valve and a closed system	Yes	See LCO Condition 3.6.3.A	Containment isolation valve closed within stroke time limits, if applicable. Closed system intact.	See LCO Condition 3.6.3.A	See LCO Condition 3.6.3.A
3.6.6 Containment Spray and Cooling Systems A. One containment spray train inoperable	2 Containment Spray Systems	Yes	Provides a spray of cold borated water into the upper regions of containment to reduce the containment pressure and temperature and to reduce fission products	1 of 2 Containment Spray trains	Same as Design Success Criteria	The PRA models the containment heat removal function consistently with the DBA. However, the PRA does not model the fission product removal functions. Use of RICT for this TS Condition is contingent on the sufficiency and availability of the fission product removal functions.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.6.6 Containment Spray and Cooling Systems B. Two containment spray trains inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when the second containment spray train is intentionally made inoperable 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.6.6.A					See LCO Condition 3.6.6.A TS LOF PRA Functionality Requirements: : • **One containment spray system is required to be PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.6.6 Containment Spray and Cooling Systems D. One containment cooling train inoperable.	2 Containment cooling trains	Yes	Limits the ambient containment air temperature during normal unit operation to less than the design limit.	1 of two containment cooling trains	2 of 4 CCS Fan Coolers (FCs) The CCS functions during normal operations are not modeled but PRA modeling is more restrictive and supports DBA.	SSCs modeled in the PRA using a more restrictive success criteria for the DBA than the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria
3.6.6 Containment Spray and Cooling Systems E. Two containment cooling trains inoperable.	See LCO Condition 3.6.6.D					See LCO Condition 3.6.6.D

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.6.6 Containment Spray and Cooling Systems G. Any combination of three or more trains inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when three or more combinations of trains are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.6.6.A and 3.6.6.D					See Condition LCO Condition 3.6.6.A and 3.6.6.D TS LOF PRA Functionality Requirements: • **2 Containment Spray trains and 1 containment cooling train Inoperable requires at least 1 containment spray train PRA Functional** • **2 Containment cooling trains and 1 containment spray train Inoperable requires at least 1 containment cooling train PRA Functional** • **2 Containment Spray trains and 2 containment cooling train Inoperable requires at least 1 containment spray train and 1 containment cooling train PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.7.2 Main Steam Isolation valves A. One or more steam lines with one MSIV inoperable in MODE 1.	2 MSIVs per steam line	Yes	Isolate steam flow from the secondary side of the steam generators in a High Energy Line Break.	One MSIV closes in each steam line	(1) SGI (SG Isolation) for SSB: 1 of 2 MSIVs closed on all three SGs to prevent blowdown of the intact SGs (2) SGI (Ruptured SG Isolation) for SGTR: • 1 of 2 MSIVs closed on ruptured SG OR • 1 of 2 MSIVs on each of 2 intact SGs closed to prevent blowdown of the ruptured SG.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool and EOOS model. The success criteria in the PRA are consistent with the design basis criteria

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.7.2 Main Steam Isolation valves B. One or more main steam lines with two MSIVs inoperable in MODE 1. (TS LOF) ----------NOTES---------- 1. Not applicable when second MSIV in a line is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.7.2.A					See LCO Condition 3.7.2.A TS LOF PRA Functionality Requirements: • **1 main steam line with two MSIVs inoperable requires at least 1 MSIV PRA Functional in each steamline** • **2 main steam lines with two MSIVs inoperable requires at least 1 MSIV PRA Functional in each steamline** • **3 main steam lines with two MSIVs inoperable requires at least 1 MSIV PRA Functional in each steamline** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.7.4 Atmospheric Relief Valves A. One required ARV line inoperable.	3 Atmospheric Relief Valves	Yes	Cools the unit to RHR entry conditions if the preferred heat sink via the steam dump system to the main condenser becomes unavailable.	One ARV remains available to conduct a unit cooldown following a SGTR.	Same as Design Basis Criteria except for ATWT conditions, then 4 of 4 ARV Lines.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria with exception noted below PRA SC differs from the DB SC, the PRA SC are judged to be more realistic and restrictive than those assumed in the DB analysis.
3.7.4 Atmospheric Relief Valves B. Two required ARV lines inoperable.	See LCO Condition 3.7.4.A					

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.7.4 Atmospheric Relief Valves C. Three required ARV lines inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when second MSIV in a line is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.7.4.A.					See LCO Condition 3.7.4.A. TS LOF PRA Functionality Requirements • **3 ARVs lines inoperable requires 1 ARV lines to be PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: OPERATOR FAILS TO LOCALLY OPEN ATMOS RELIEF VLVS ON LOSS OF SUPPORT • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.7.5 Auxiliary Feedwater System A. One steam supply to turbine driven AFW pump inoperable	2 steam supplies	Yes	Provide a steam supply to the turbine driven auxiliary feedwater pump.	1 of 2 steam supplies available	Same as Design Basis Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool and EOOS model. The success criteria in the PRA are consistent with the design basis criteria
3.7.5 Auxiliary Feedwater System B. One AFW train inoperable for reasons other than Condition A.	2 motor driven auxiliary feedwater pumps, and 1 turbine driven.	Yes	Supply feedwater to the steam generators to remove heat.	2 of 3 AFW pumps	1 of 3 except for ATWT conditions, where more restrictive criteria of 3 of 3 are applied	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are based on a realistic analysis and for all initiators except ATWT are less restrictive than the design basis criteria, and more conservative for mitigation of beyond design basis ATWT scenarios.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.7.5 Auxiliary Feedwater System C. Two AFW trains inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when the second AFW train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.7.5.B					See LCO Condition 3.7.5.B TS LOF PRA Functionality Requirements: • **2 AFW trains are required to be PRA Functional.** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.7.6 Condensate Storage Tank A. CST Inoperable (LOF) ----------NOTES---------- 1. Not applicable when the CST is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	One condensate storage tank	Yes	Provides a safety grade source of water to the Steam Generators. Also provides a passive flow of water to the Auxiliary Feedwater (AFW) System.	CST Operable	CST available OR Plant Service Water suction source to AFW pumps available.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. Since this is a TS LOF Condition, PRA parameter success criteria are overridden by design basis parameters for the purpose of establishing PRA functionality. An NRC approval is sought as part of this LAR submittal to credit use of plant service water as modeled in the PRA as an alternate source of water to recover degraded CST design basis parameters for establishing PRA Functionality. The PRA success criteria are consistent with the design basis criteria. LOF PRA Functionality Requirements: • **1 CST Inoperable requires 1 CST OR Plant Service Water suction source to AFW pumps available to recover degraded CST design basis parameters.** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: Failure of OPERATOR to align SW TO AFW Pump Suction • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.7.7 Component Cooling Water A. One CCW train inoperable	2 trains of CCW each with one full capacity pump.	Yes	The CCW System provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient.	One of two CCW trains	Same as Design Success Criteria except the initial containment temperature assumed in the PRA Success Criteria analysis is 125°F, max design basis containment sump temp assumed is 132.8°F.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria for the number of pump trains required. The inlet sump temperature in the PRA is a function of the realistic accident progression conditions experienced for the accident sequence being analyzed by MAAP. Realistic success criteria are used consistent with the PRA standards for CC II.
3.7.7 Component Cooling Water B. Two CCW trains inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when second CCW train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.7.7.A.					See LCO Condition 3.7.7.A TS LOF PRA Functionality Requirements: : • **2 CCW trains Inoperable requires at least 1 CCW train PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function: • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.7.8 Service Water System A. One SWS Train inoperable	2 SWS trains each consisting of 2 50% capacity pumps and 1 50% capacity shared pump.	Yes	Provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient.	One SWS train, in conjunction with the CCW System and a 100% capacity containment cooling system.	(1) 1 SW train with 1 SW pump per train for non-LOSP/non-SI conditions, (2) 1 SW train with 1 SW pumps per train for LOSP prior to the need for RHR cooling and if the dilution bypass valves are not open, and (3) 1 SW train with 2 SW pumps per train for SI conditions.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are less restrictive than the design basis criteria for non-LOSP/non-SI conditions, but are consistent with the design basis criteria for other conditions, and are more realistic and consistent with the PRA standards for CC II which requires use of realistic analysis to support a RI application.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.7.8 Service Water System B. Two SWS Trains inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when second CCW train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.7.8.A					See LCO Condition 3.7.8.A TS LOF PRA Functionality Requirements: : • 2 **Service Water trains Inoperable requires at least 1 Service Water train PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function: • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.7.11 Control Room Air Conditioning System (CRACS) E. Two CRACs trains inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when second CRACS train is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	Two independent and redundant trains of the Control Room Air Conditioning System	Yes	Provides temperature control for the FNP common control room by maintaining an adequate control room temperature for 30 days of continuous occupancy.	One CRACS train	Not Modeled- Documented in PRA basis as not needed to prevent to core damage.	See LCO Condition 3.7.11.A TS LOF PRA Functionality Requirements: • **2 CRACS trains requires at least 1 CRACS train to be PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: examples of simple and uncomplicated actions include opening doors and starting the opposite train cooler with at least 16 hours available to prevent a reactor trip on loss of control room cooling. • SSCs not modeled in PRA for Function: None

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.7.19 Engineered Safety Features (ESF) Room Coolers A. One required ESF Room Cooler subsystem Train inoperable	Two ESF Room Cooler and Safety-Related Chiller Trains		Room cooling for ESF equipment provided by ESF Room Coolers. The Room Coolers are divided into subsystems and each subsystem has two 100% capacity trains.	1 of 2 trains.	Same as Design Success Criteria	Charging Pump A and C belong to Train A and B, respectively. Charging Pump B is the swing pump and can align to either train. Only one pump per train is necessary for operability of HHSI. The swing pump and its associated cooler can be powered from either Train A or B. ESF Room Cooler Subsystems are: • Motor Driven Auxiliary Feedwater (MDAFW) Pump Rooms • Charging Pump Rooms • Containment Spray (CS) Pump Rooms • Component Cooling Water (CCW) Pumps Room • Auxiliary Building DC Switchgear / Battery Charger Rooms • Load Control Center (LCC) Rooms (LCC D and E Rooms) The ESF room coolers are considered support equipment for ESF equipment in the above rooms with the exception of the CCW Pumps Room
3.7.19 Engineered Safety Features (ESF) Room Coolers B. Two trains of the same ESF Room Cooler subsystem inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when second ESF room cooler is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.7.19.A					See LCO Condition 3.7.19.A TS LOF PRA Functionality Requirements: • **2 ESF room cooler trains of the same subsystem requires at least 1 ESF room cooler train to be PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.8.1 AC Sources – Operating A. One required offsite circuit inoperable	Breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus(es).	Yes	Transmit power from offsite transmission network to onsite Class 1E ESF buses	1 of 2 circuits.	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.
3.8.1 AC Sources – Operating B. One DG set inoperable	2 DG Sets, each set comprised of 2 DGs.	Yes	Upon loss of preferred power, supply ESF loads in time to mitigate consequences of a DBA	1 of 2 DG Sets.	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria
3.8.1 AC Sources – Operating C. Two required offsite circuits inoperable	See LCO Condition 3.8.1.A					See LCO Condition 3.8.1.A

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.8.1 AC Sources – Operating D. One required offsite circuit inoperable. <u>AND</u> One DG set inoperable.	Breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus(es), and 2 sets of DGs, each set comprised of 2 DGs.	See LCO Conditions 3.8.1.A and 3.8.1.B				See LCO Conditions 3.8.1.A and 3.8.1.B
3.8.1 AC Sources – Operating E. Two DG sets inoperable	See LCO Condition 3.8.1.A					See LCO Conditions 3.8.1.A and 3.8.1.C
3.8.1 AC Sources – Operating G. One Automatic Load Sequencer inoperable	2 sequencers	Yes	1) Provides a pre-determined sequence of loading the DGs, and 2) Also actuates the ESF loads on the offsite circuits when offsite power is available.	1 of 2 sequencers for both functions 1 and 2	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.8.1 AC Sources H. Three or more required AC Sources inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when three or more AC sources are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Conditions 3.8.1.A and 3.8.1.B					See LCO Conditions 3.8.1.A and 3.8.1.B TS LOF PRA Functionality Requirements: • **3 AC Sources Inoperable: 2 DG trains and 1 offsite AC source inoperable (1 offsite source operable) requires at least 1 offsite AC source or 1 DG train PRA Functional** • **3 AC Sources Inoperable: 1 DG train (1 offsite AC operable) and 2 offsite AC sources inoperable requires at least 1 DG trains or 1 offsite AC source PRA Functional** • **4 AC sources inoperable: 2 DG Trains and 2 Offsite AC sources Inoperable requires at least 1 DG train and 1 offsite source PRA Functional; OR** • **4 AC sources inoperable: 2 DG Trains and 2 Offsite AC sources Inoperable requires at least 2 DG trains PRA Functional; OR** • **4 AC sources inoperable: 2 DG Trains and 2 Offsite AC sources Inoperable requires at least 2 Offsite AC sources PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None
3.8.4 DC Sources – Operating A. One Auxiliary Building DC electrical power subsystem inoperable	2 trains of Auxiliary DC system	Yes	Supplies DC power to various ESF systems throughout the plant.	1) 1 of 2 trains	1) Same as Design Success Criteria with the exception that PRA models reactor trip on loss of AB DC train.	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria except that PRA models reactor trip on loss of AB DC train. This is consistent with the plant practice of initiating a reactor trip on loss of AB DC train

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.8.4 DC Sources – Operating B. One Auxiliary Building DC electrical power subsystem with battery connection resistance not within limit.	See LCO Condition 3.8.4.A					
3.8.4 DC Sources – Operating D. One required SWIS DC electrical power subsystem battery connection resistance not within limit.	Four 125 VDC batteries with battery chargers (Shared between the two units).	Yes	Provide a reliable source of power for controls, power loads, annunciation and alarms	1 of 2 subsystems.	1) 1 of 2 trains supporting 2 of 2 SW Pumps per train	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria except that PRA additionally requires 2 of 2 SW pumps per train.
3.8.4 DC Sources – Operating F. Two or more DC electrical subsystems inoperable that result in a loss of function (TS LOF) ----------NOTES---------- 1. Not applicable when second DC power electrical subsystem is intentionally removed from service. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.8.4.A					See LCO Condition 3.8.4.A TS LOF PRA Functionality Requirements: • **Two DC electrical subsystems inoperable requires at least one DC electrical power subsystem to be PRA functional** • **Three DC electrical subsystems inoperable requires at least 1 DC electrical power subsystem to be PRA functional**

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.8.7 Inverters – Operating A. One required inverter inoperable	4 Class 1E inverters	Yes	Provides reliable AC electrical power to the vital buses	One train with 2 of 2 inverters, (each train redundant).	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria
3.8.7 Inverters - Operating B. Two or more required inverters inoperable (TS LOF) ----------NOTES---------- 1. Not applicable when second required inverter is intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Condition 3.8.7.A					See LCO Condition 3.8.7.A TS LOF PRA Functionality Requirements: • **One required inverter in each train inoperable requires one train to have two inverters to be PRA functional** • **Two required inverters inoperable (both in one train) requires two inverters on the opposite train** • **Three required inverters inoperable (two on one train and one on opposite train) requires either one in the opposite train to be PRA functional.**
3.8.9 Distribution Systems - Operating A. One or more AC electrical distribution subsystems inoperable	Two trains each of AC Safety buses	Yes	Provide necessary power to ESF systems	1 of 2 AC trains	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.
3.8.9 Distribution Systems - Operating B. One or more AC Vital buses inoperable	Two AC Vital distribution panels per train	Yes	Provide necessary power to Essential Instrumentation.	1 Train with 2 of 2 distribution panels (each train redundant)	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.

Table E1.1
Revised TS LCO Conditions to Corresponding PRA Functions

TS LCO Condition	SSCs Covered by TS LCO Condition	SSCs Modeled in PRA	Function Covered by TS LCO Condition	Design Success Criteria	PRA Success Criteria	Disposition
3.8.9 Distribution Systems- Operating C. One Auxiliary Building DC electrical power distribution subsystem inoperable	Two DC Distribution Panels per train	Yes	Provides a source of DC power for control and instrumentation during normal conditions and design basis events.	2 of 2 Distribution Panels in one train. (each train redundant)	Same as Design Success Criteria	SSCs are modeled consistent with the TS scope and so can be directly evaluated using the CRMP tool. The success criteria in the PRA are consistent with the design basis criteria.
3.8.9 Distribution Systems -Operating D. Two trains with inoperable distribution subsystems that result in a loss of safety function (TS LOF) ----------NOTES---------- 1. Not applicable when two or more electrical power distribution trains are intentionally made inoperable. 2. The following Section 5.5.20 constraints are applicable: parts b, c2, c3, d, e, f, g and h	See LCO Conditions 3.8.9.A thru 3.8.9 C					See LCO Conditions 3.8.9.A thru 3.8.9 C LOF PRA Functionality Requirements: : • 2 **trains inoperable requires at least one 1 train PRA Functional** • Design basis criteria for parameters overrides PRA SC criteria for parameters for Function • Manual actions credited in PRA for Function: None • Manual actions not credited in PRA for Function: None • SSCs not modeled in PRA for Function: None

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.4.10 Pressurizer Safety Valves A. One pressurizer safety valve inoperable. (TS LOF)	1PZRV8010A---D (PRA Functional) (PRESSURIZER SV 8010A FAILS TO OPEN DUE TO RANDOM FAULTS)	30.0 (30.0)
3.4.11 Pressurizer Power Operated Relief Valves (PORV) B. One PORV inoperable and not capable of being cycled.	1PZAV444B----D (HARDWARE FAULTS OF PORV 444B)	30.0 (30.0)
3.4.11 Pressurizer Power Operated Relief Valves (PORV) C. One Block Valve inoperable	1PZMV8000B---K (PRESSURIZER PORV BLOCK VALVE 8000B FAILS TO CLOSE)	30.0 (30.0)
3.4.11 Pressurizer Power Operated Relief Valves (PORV) E. Two PORVs inoperable and not capable of being manually cycled (TS LOF)	1PZAV444B----D (HARDWARE FAULTS OF PORV 444B)	30.0 (30.0)
3.4.11 Pressurizer Power Operated Relief Valves (PORV) F. Two block valves inoperable	1PZMV8000A---K (PRESSURIZER PORV BLOCK VALVE 8000A FAILS TO CLOSE) and 1PZMV8000B---K (PRESSURIZER PORV BLOCK VALVE 8000B FAILS TO CLOSE)	30.0 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.5.1 Accumulators C. Two or more Accumulators inoperable for reasons other than boron concentrations not within limits (TS LOF)	1HHMV8808A---V (ACCUMULATOR 1A ISOLATION VALVE)	30.0 (30.0)
3.5.2 ECCS – Operating A. One or more trains inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available	1LHPMP001A---A (RHR/LHI PUMP P-001A FAILS TO START DUE TO RANDOM FAILURE)	14.4 (10.7)
3.5.2 ECCS – Operating A. One or more trains inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available	1HHPMP002A---A (CHG PUMP P002A FAILS TO START)	30.0 (25.0)
3.5.4 Refueling Water Storage Tank B. RWST inoperable for reasons other than Condition A. (TS LOF)	1SITKF16T501-R (PRA Functional) (RWST RUPTURES) 1HHCV8926----D (PRA Functional) (RWST TO CHARGING PUMPS CHECK VALVE 8926 FAILS TO OPEN)	30.0 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.6.2 Containment Air Locks C. One or more containment airlock doors open for reasons other than Conditions A or B	ADMN-PEN-NI (surrogate) (ADMINISTRATIVELY CONTROLLED PENETRATIONS NOT ISOLATED)	30.0 (5.3)
3.6.3 Containment Isolation Valves A. One or more penetration flow paths with one containment isolation valve inoperable except for purge valve penetration leakage not within limit	1CICVB13V038-K (CHECK VALVE QnB31V038 FAILS TO CLOSE)	30.0 (7.1)
3.6.3 Containment Isolation Valves A. One or more penetration flow paths with one containment isolation valve inoperable except for purge valve penetration leakage not within limit	1CICVG21V204-K (CHECK VALVE QnG21V204 FAILS TO CLOSE)	30.0 (26.2)
3.6.3 Containment Isolation Valves A. One or more penetration flow paths with two containment isolation valves inoperable except for purge valve penetration leakage not within limit	1CIAVB13V040-K (AOV QnB31V040 FAILS TO CLOSE (HARDWARE)) and 1CICVB13V038-K (CHECK VALVE QnB31V038 FAILS TO CLOSE)	30.0 (5.3)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.6.3 Containment Isolation Valves C. One or more penetration flow paths with one containment isolation valve inoperable.	ADMN-PEN-NI (surrogate) (ADMINISTRATIVELY CONTROLLED PENETRATIONS NOT ISOLATED)	30.0 (5.3)
3.6.6 Containment Spray and Cooling Systems A. One containment spray train inoperable	Not Modeled since not needed for core damage prevention. 30 day back stop applies	30.0 (30.0)
3.6.6 Containment Spray and Cooling Systems B. Two containment spray trains inoperable (TS LOF)	Not Modeled since not needed for core damage prevention. 30 day back stop applies	30.0 (30.0)
3.6.6 Containment Spray and Cooling Systems D. One containment cooling train inoperable.	1FCMOH001D---F (FAN MOTOR D FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS) ,1FCMOH001C---F (FAN MOTOR C FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS)	30.0 (30.0)
3.6.6 Containment Spray and Cooling Systems E. Two containment cooling trains inoperable.	1FCMOH001D---F(FAN MOTOR D FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS),1FCMOH001C---F (FAN MOTOR C FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS),1FCMOH001A---F (FAN MOTOR A FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS),1FCMOH001B---F (FAN MOTOR B FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS)	15.7 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.6.6 Containment Spray and Cooling Systems G. Any combination of three or more trains inoperable (TS LOF)	1FCMOH001D---F(FAN MOTOR D FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS),1FCMOH001C---F (FAN MOTOR C FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS),1FCMOH001A---F (FAN MOTOR A FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS),1FCMOH001B---F (FAN MOTOR B FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS)	15.7 (30.0)
3.6.6 Containment Spray and Cooling Systems G. Any combination of three or more trains inoperable (TS LOF)	1FCMOH001D---F (FAN MOTOR D FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS) ,1FCMOH001C---F (FAN MOTOR C FAILS TO SWITCH SPEEDS DUE TO RANDOM FAULTS)	30.0 (30.0)
3.7.2 Main Steam Isolation valves A. One or more steam lines with one MSIV inoperable in MODE 1.	1MSHV3369A---K (MSIV HV-3369A FAILS TO CLOSE DUE TO HARDWARE FAULTS), 1MSHV3369B---K, HV-3369B FAILS TO CLOSE DUE TO HARDWARE FAULTS), 1MSHV3369C---K (HV-3369C FAILS TO CLOSE DUE TO HARDWARE FAULTS),	30.0 (30.0)
3.7.2 Main Steam Isolation valves B. One or more main steam lines with two MSIVs inoperable in MODE 1. (TS LOF)	1MSHV3369A---K (MSIV HV-3369A FAILS TO CLOSE DUE TO HARDWARE FAULTS)	30.0 (30.0)
3.7.2 Main Steam Isolation valves B. One or more main steam lines with two MSIVs inoperable in MODE 1. (TS LOF)	1MSHV3369A---K (MSIV HV-3369A FAILS TO CLOSE DUE TO HARDWARE FAULTS), 1MSHV3369B---K, HV-3369B FAILS TO CLOSE DUE TO HARDWARE FAULTS),	30.0 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.7.2 Main Steam Isolation valves B. One or more main steam lines with two MSIVs inoperable in MODE 1. (TS LOF)	1MSHV3369A---K (MSIV HV-3369A FAILS TO CLOSE DUE TO HARDWARE FAULTS), 1MSHV3369B---K, HV-3369B FAILS TO CLOSE DUE TO HARDWARE FAULTS),1MSHV3369C---K (HV-3369C FAILS TO CLOSE DUE TO HARDWARE FAULTS),	30.0 (30.0)
3.7.4 Atmospheric Relief Valves A. One required ARV line inoperable.	1MSAVPV3371A-D (SG ARV PV3371A FAILS TO OPEN DUE TO RANDOM FAULTS)	30.0 (30.0)
3.7.4 Atmospheric Relief Valves B. Two or more required ARV lines inoperable	1MSAVPV3371A-D (SG ARV PV3371A FAILS TO OPEN DUE TO RANDOM FAULTS) AND 1MSAVPV3371B-D (SG ARV PV3371B FAILS TO OPEN DUE TO RANDOM FAULTS)	30.0 (30.0)
3.7.4 Atmospheric Relief Valves C. Three required ARV lines inoperable. (TS LOF)	1MSAVPV3371A-D (SG ARV PV3371A FAILS TO OPEN DUE TO RANDOM FAULTS) AND 1MSAVPV3371B-D (SG ARV PV3371B FAILS TO OPEN DUE TO RANDOM FAULTS)	30.0 (30.0)
3.7.5 Auxiliary Feedwater System A. One steam supply to turbine driven AFW pump inoperable	1AFXV005B----V (L.O. MANUAL VALVE V005B FAILS CLOSED (IN SEGMENT TI)	30.0 (30.0)
3.7.5 Auxiliary Feedwater System B. One AFW train inoperable for reasons other than Condition A.	1AFPM001B----A (MDP B FAILS TO START DUE TO RANDOM FAULTS)	11.4 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.7.5 Auxiliary Feedwater System B. One AFW train inoperable for reasons other than Condition A.	1AFPT002-----A (TDP P002 FAILS TO START DUE TO RANDOM FAULTS)	24.5 (17.6)
3.7.5.Auxiliary Feedwater System C. Two AFW trains inoperable (TS LOF)	1AFPT002-----A (TDP P002 FAILS TO START DUE TO RANDOM FAULTS)	24.5 (17.6)
3.7.5.Auxiliary Feedwater System C. Two AFW trains inoperable (TS LOF)	1AFPM001B----A (MDP B FAILS TO START DUE TO RANDOM FAULTS)	11.4 (30.0)
3.7.6 Condensate Storage Tank A. CST Inoperable (TS LOF)	1AFTK-CST-TR-R (CST EXCESSIVE LEAKAGE REQUIRING MAKEUP PRIOR TO 24 HOURS)	11.7 (16.5)
3.7.6 Condensate Storage Tank A. CST Inoperable (TS LOF)	1AFCV007A----V (CHECK VALVE V007A TRANSFERS CLOSED)	30.0 (30.0)
3.7.7 Component Cooling Water A. One CCW train inoperable	1CCPM001C----A (CCW PUMP C FAILS TO START DUE TO RANDOM FAULTS) AND 1CCPM001B----A (CCW PUMP B FTS DUE TO RANDOM FAULTS)	30.0 (30.0)
3.7.7 Component Cooling Water A. One CCW train inoperable	1CCPM001C----A (CCW PUMP C FAILS TO START DUE TO RANDOM FAULTS)	30.0 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.7.7 Component Cooling Water B. Two CCW trains inoperable (TS LOF)	1CCPM001C----A (CCW PUMP C FAILS TO START DUE TO RANDOM FAULTS) AND 1CCPM001B----A (CCW PUMP B FTS DUE TO RANDOM FAULTS)	30.0 (30.0)
3.7.8 Service Water System A. One SWS Train inoperable	1SWPM1A------A (SW PUMP 1A RANDOMLY FAILS TO START), 1SWPM1B------A (SW PUMP 1B RANDOMLY FAILS TO START)	26.1 (30.0)
3.7.8 Service Water System B. Two SWS Trains inoperable (TS LOF)	1SWPM1A------A (SW PUMP 1A RANDOMLY FAILS TO START), 1SWPM1B------A (SW PUMP 1B RANDOMLY FAILS TO START)	26.1 (30.0)
3.7.11 Control Room Air Conditioning System (CRACS) E. Two CRACs trains inoperable (TS LOF)	Not Modeled- Documented in PRA basis heat up analysis as not needed to prevent to core damage.	30.0 (30.0)
3.7.19 Engineered Safety Features (ESF) Room Coolers A. One required ESF Room Cooler subsystem Train inoperable	1HHMOM001A---X (CHG PMP A FAN COOLER FAILS TO RUN DUE TO RANDOM FAULTS), 1LHMOM003A---X (RHR PUMP 1A FAN COOLER FAILS TO RUN DUE TO RANDOM FAULTS), 1CSMOM002A---X (CS PUMP Q1E13P001A ROOM COOLER RANDOMLY FAILS TO RUN), 1AFMOH005A-TRX (MDAFW PUMP A ROOM COOLER FTR DUE TO RANDOM FAULTS)	9.1 (9.6)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.7.19 Engineered Safety Features (ESF) Room Coolers A. One required ESF Room Cooler subsystem Train inoperable	1HHMOM001C---X (PMP C FAN COOLER FAILS TO RUN DUETO RANDOM FAULTS) AND 1LHMOM003B---X (RHR PUMP 1B FAN COOLER FAILS TO RUN DUE TO RANDOM FAULTS) AND 1CSMOM002B---X (CS PUMP Q1E13P001B ROOM COOLER RANDOMLY FAILS TO RUN) AND 1AFMOH005B-TRX (MDAFW PUMP B ROOM COOLER FTR DUE TO RANDOM FAULTS)	9.1 (28.5)
3.7.19 Engineered Safety Features (ESF) Room Coolers B. Two trains of the same ESF Room Cooler subsystem inoperable	1HHMOM001A---X (CHG PMP A FAN COOLER FAILS TO RUN DUE TO RANDOM FAULTS), 1LHMOM003A---X (RHR PUMP 1A FAN COOLER FAILS TO RUN DUE TO RANDOM FAULTS), 1CSMOM002A---X (CS PUMP Q1E13P001A ROOM COOLER RANDOMLY FAILS TO RUN), 1AFMOH005A-TRX (MDAFW PUMP A ROOM COOLER FTR DUE TO RANDOM FAULTS)	9.1 (9.6)
3.7.19 Engineered Safety Features (ESF) Room Coolers B. Two trains of the same ESF Room Cooler subsystem inoperable	1HHMOM001C---X (PMP C FAN COOLER FAILS TO RUN DUETO RANDOM FAULTS) AND 1LHMOM003B---X (RHR PUMP 1B FAN COOLER FAILS TO RUN DUE TO RANDOM FAULTS) AND 1CSMOM002B---X (CS PUMP Q1E13P001B ROOM COOLER RANDOMLY FAILS TO RUN) AND 1AFMOH005B-TRX (MDAFW PUMP B ROOM COOLER FTR DUE TO RANDOM FAULTS)	9.1 (28.5)
3.8.1 AC Sources – Operating A. One required offsite circuit inoperable	1ACTRSUT1B---F (START UP TRANSFORMER 1B RANDOM FAILURE)	12.8 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.8.1 AC Sources – Operating B. One DG set inoperable	BDGGER43A501AAL (DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE)	30.0 (30.0)
3.8.1 AC Sources – Operating C. Two required offsite circuits inoperable	1ACTRSUT1B---F (START UP TRANSFORMER 1B RANDOM FAILURE),AND 1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE)	1.5 (7.0)
3.8.1 AC Sources – Operating D. One required offsite circuit inoperable. <u>AND</u> One DG set inoperable.	1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE), BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), AND BDGGEDIESEL1CAS (DIESEL 1C FAILS TO START ON DEMAND)	0.2 (1.9)
3.8.1 AC Sources – Operating E. Two DG sets inoperable	1DGGER43A502BAL (DIESEL 1B FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), AND BDGGEDIESEL1CAS(DIESEL 1C FAILS TO START ON DEMAND)	4.4 (30.0)
3.8.1 AC Sources – Operating G. One Automatic Load Sequencer inoperable	1ACARB1G52GX-F (SEQ B1G RELAY 52GX FAILS DUE TO RANDOM CAUSE) & 1ACARB1G4G---F (RANDOM FAILURE OF SEQ B1G RELAY 4G) & 1ACARB1GXG---F (SEQ B1G RELAY XG FAILS DUE TO RANDOM CAUSE) & 1ACCNB1G68G13U (SEQ. B1G AUX. RELAY 68G1 CONTACTS 3,4 SPURIOUSLY OPEN)	19.3 (30.0)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.8.1 AC Sources H. Three or more required AC Sources inoperable (TS LOF)	1ACTRSUT1B---F ((START UP TRANSFORMER 1B RANDOM FAILURE), and 1ACTRSUT1A---F ((START UP TRANSFORMER 1A RANDOM FAILURE)	1.5 (6.9)
3.8.1 AC Sources H. Three or more required AC Sources inoperable (TS LOF)	1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE) AND BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), AND BDGGEDIESEL1CAS (DIESEL 1C FAILS TO START ON DEMAND)	0.2 (1.9)
3.8.1 AC Sources H. Three or more required AC Sources inoperable (TS LOF)	1ACTRSUT1B---F AND 1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE)	1.5 (7.4)
3.8.1 AC Sources H. Three or more required AC Sources inoperable (TS LOF)	BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), AND BDGGEDIESEL1CAS (DIESEL 1C FAILS TO START ON DEMAND), 1DGGER43A502BAL (DIESEL 1B FAILS TO START ON DEMAND DUE TO RANDOM FAILURE)AND BDGGER43A504BAS (DIESEL 2C FAILS TO START ON DEMAND)	0.5 (13.8)
3.8.1 AC Sources H. Three or more required AC Sources inoperable (TS LOF)	1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE)AND BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), AND BDGGEDIESEL1CAS (DIESEL 1C FAILS TO START ON DEMAND)	0.2 (1.9)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.8.4 DC Sources – Operating A. One Auxiliary Building DC electrical power subsystem inoperable	1DCBSR42B001AF (RANDOM FAILURE OF DC BUS 1A)	1.4 (1.2)
3.8.4 DC Sources – Operating B. One Auxiliary Building DC electrical power subsystem with battery connection resistance not within limit.	1DCBYR42E002AF (AUXILIARY BUILDING BATTERY 1A FAILS DUE TO RANDOM FAULT)	30.0 (30.0)
3.8.4 DC Sources – Operating D. One required SWIS DC electrical power subsystem battery connection resistance not within limit.	BDCBYR42B523CF (3.8.4 SERVICE WATER BATTERY #3 FAILURE)	30.0 (30.0)
3.8.4 DC Sources – Operating F. Two or more DC electrical subsystems inoperable that result in a loss of function (TS LOF)	1DCBSR42B001AF (RANDOM FAILURE OF DC BUS 1A)	1.4 (1.2)
3.8.7 Inverters – Operating A. One required inverter inoperable	1DCBSR42B001AF (RANDOM FAILURE OF DC BUS 1A)	1.4 (1.2)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF(LERF) Limit

TS LCO/Condition	Selected Equipment Description	RICT Calculated for Selected Equipment in Days - CDF(LERF)
3.8.7 Inverters - Operating B. Two or more required inverters inoperable	1ACIVR21E009AF(INVERTER 1A FAILURE),1ACIVE009B-I2F(INVERTER 1B RANDOM FAILURE)	30.0 (30.0)
3.8.9 Distribution Systems Operating A. One or more AC electrical distribution subsystems inoperable	1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE), BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), BDGGEDIESEL1CAS (DIESEL 1C FAILS TO START ON DEMAND)	0.2 (1.9)
3.8.9. Distribution Systems Operating B. One or more AC Vital buses inoperable	1ACBSL001A-I2F(VITAL AC PANEL 1A FAILURE), AND 1ACBSL001B-I1F (VITAL AC PANEL 1B FAILURE)	30.0 (30.0)
3.8.9. Distribution Systems Operating C. One Auxiliary Building DC electrical power distribution subsystem inoperable	1DCBSB001ADGSF (125V DC BUS 1A RANDOMLY FAILS (DG START SUPPORT))	15.0 (30.0)
3.8.9. Distribution Systems Operating D. Two trains with inoperable distribution subsystems that result in a loss of safety function (TS LOF)	1ACTRSUT1A---F (START UP TRANSFORMER 1A RANDOM FAILURE), BDGGER43A501AAL(DIESEL 1/2A FAILS TO START ON DEMAND DUE TO RANDOM FAILURE), BDGGEDIESEL1CAS (DIESEL 1C FAILS TO START ON DEMAND)	0.2 (1.8)

2.0 References

1. Letter from Jennifer M. Golder (NRC) to Biff Bradley (NEI), ”Final Safety Evaluation for Nuclear Energy Institute (NEI) Topical Report (TR) NEI 06-09, 'Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines,'” dated May 17, 2007 (ADAMS Accession No. ML071200238).

2. Nuclear Energy Institute (NEI) Topical Report (TR) NEI 06-09, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," Revision 0-A, October 2012 (ADAMS Accession No. ML12286A322).