



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 13, 2026

Mr. Cleveland Reasoner  
Chief Executive Officer  
and Chief Nuclear Officer  
Wolf Creek Nuclear Operating Corporation  
P.O. Box 411  
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION, UNIT 1 - ISSUANCE OF  
AMENDMENT NO. 247 RE: REVISION TO TECHNICAL SPECIFICATIONS TO  
ADOPT TSTF-505, REVISION 2, "PROVIDE RISK-INFORMED EXTENDED  
COMPLETION TIMES" (EPID L-2024-LLA-0170)

Dear Mr. Reasoner:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 247 to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station, Unit 1 (Wolf Creek). The amendment consists of changes to the technical specifications in response to your application dated December 17, 2024, as supplemented by letters dated January 8 and April 9, 2026.

The amendment revises the Wolf Creek technical specifications to permit the use of risk-informed completion times for actions to be taken when limiting conditions for operation (LCO) are not met. The changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times," dated July 2, 2018. The amendment also approves the adoption of the related TSTF-439, Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO."

A copy of the related safety evaluation is enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

***/RA/***

Samson S. Lee, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosures:

1. Amendment No. 247 to NPF-42
2. Safety Evaluation

cc: Listserv



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 247  
License No. NPF-42

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Wolf Creek Generating Station, Unit 1 (the facility) Renewed Facility Operating License No. NPF-42 filed by the Wolf Creek Nuclear Operating Corporation (the Corporation), dated December 17, 2024, as supplemented by letters dated January 8 and April 9, 2026, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-42 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 247, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 229, both of which are attached hereto, are hereby incorporated in the license. The Corporation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 180 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael Mahoney, Acting Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to Renewed Facility  
Operating License and  
the Technical Specifications

Date of Issuance: May 13, 2026

ATTACHMENT TO LICENSE AMENDMENT NO. 247 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

Replace the following pages of Renewed Facility Operating License No. NPF-42 and the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

REMOVE

4

INSERT

4

Technical Specifications

<u>Remove</u>	<u>Insert</u>	<u>Remove</u>	<u>Insert</u>
1.3-1	1.3-1	3.3-20	3.3-20
1.3-2	1.3-2	3.3-21	3.3-21
1.3-6	1.3-6	3.3-22	3.3-22
1.3-7	1.3-7	3.3-23	3.3-23
1.3-12	1.3-12	3.3-24	3.3-24
1.3-13	1.3-13	3.3-25	3.3-25
---	1.3-14	3.3-26	3.3-26
3.3-1	3.3-1	3.3-27	3.3-27
3.3-2	3.3-2	3.3-28	3.3-28
3.3-3	3.3-3	3.3-29	3.3-29
3.3-4	3.3-4	3.3-30	3.3-30
3.3-5	3.3-5	3.3-31	3.3-31
3.3-6	3.3-6	3.3-32	3.3-32
3.3-7	3.3-7	3.3-33	3.3-33
3.3-8	3.3-8	3.3-34	3.3-34
3.3-9	3.3-9	3.3-35	3.3-35
3.3-10	3.3-10	3.3-36	3.3-36
3.3-11	3.3-11	3.3-37	3.3-37
3.3-12	3.3-12	3.3-38	3.3-38
3.3-13	3.3-13	3.3-39	3.3-39
3.3-14	3.3-14	3.3-40	3.3-40
3.3-15	3.3-15	3.3-41	3.3-41
3.3-16	3.3-16	3.3-42	3.3-42
3.3-17	3.3-17	3.3-43	3.3-43
3.3-18	3.3-18	3.3-44	3.3-44
3.3-19	3.3-19	3.3-45	3.3-45

Technical Specifications (continued)

<u>Remove</u>	<u>Insert</u>	<u>Remove</u>	<u>Insert</u>
3.3-46	3.3-46	3.5-4	3.5-4
3.3-47	3.3-47	3.5-5	3.5-5
3.3-48	3.3-48	3.5-6	3.5-6
3.3-49	3.3-49	3.5-7	3.5-7
3.3-50	3.3-50	3.5-8	3.5-8
3.3-51	3.3-51	3.5-9	3.5-9
3.3-52	3.3-52	3.5-10	3.5-10
3.3-53	3.3-53	3.5-11	3.5-11
3.3-54	3.3-54	3.5-12	3.5-12
3.3-55	3.3-55	3.5-13	3.5-13
3.3-56	3.3-56	---	3.5-14
3.3-57	3.3-57	3.6-5	3.6-5
3.3-58	3.3-58	3.6-8	3.6-8
3.3-59	3.3-59	3.6-9	3.6-9
3.3-60	3.3-60	3.6-16	3.6-16
---	3.3-61	3.6-17	3.6-17
---	3.3-62	3.6-18	3.6-18
3.4-21	3.4-21	3.6-19	3.6-19
3.4-24	3.4-24	3.7-5	3.7-5
3.4-25	3.4-25	3.7-6	3.7-6
3.4-26	3.4-26	3.7-7	3.7-7
3.4-27	3.4-27	3.7-8	3.7-8
3.4-28	3.4-28	3.7-13	3.7-13
3.4-29	3.4-29	3.7-14	3.7-14
3.4-30	3.4-30	3.7-15	3.7-15
3.4-31	3.4-31	3.7-16	3.7-16
3.4-32	3.4-32	3.7-17	3.7-17
3.4-33	3.4-33	3.7-18	3.7-18
3.4-34	3.4-34	3.7-19	3.7-19
3.4-35	3.4-35	3.7-20	3.7-20
3.4-36	3.4-36	3.7-21	3.7-21
3.4-37	3.4-37	3.7-22	3.7-22
3.4-38	3.4-38	3.7-23	3.7-23
3.4-39	3.4-39	3.7-24	3.7-24
3.4-40	3.4-40	3.7-25	3.7-25
3.4-41	3.4-41	3.7-26	3.7-26
3.4-42	3.4-42	3.7-27	3.7-27
3.4-43	3.4-43	3.7-28	3.7-28
3.4-44	3.4-44	3.7-29	3.7-29
3.4-45	3.4-45	3.7-30	3.7-30
---	3.4-46	3.7-31	3.7-31
		3.7-32	3.7-32

Technical Specifications (continued)

<u>Remove</u>	<u>Insert</u>	<u>Remove</u>	<u>Insert</u>
3.7-33	3.7-33	3.8-22	3.8-22
3.7-34	3.7-34	3.8-23	3.8-23
3.7-35	3.7-35	3.8-24	3.8-24
3.7-36	3.7-36	3.8-25	3.8-25
3.7-37	3.7-37	3.8-26	3.8-26
3.7-38	3.7-38	3.8-27	3.8-27
3.7-39	3.7-39	3.8-28	3.8-28
3.7-40	3.7-40	3.8-29	3.8-29
3.7-41	3.7-41	3.8-30	3.8-30
3.7-42	3.7-42	3.8-31	3.8-31
3.7-43	3.7-43	3.8-32	3.8-32
3.7-44	3.7-44	3.8-33	3.8-33
3.7-45	3.7-45	3.8-34	3.8-34
3.7-46	3.7-46	3.8-35	3.8-35
3.7-47	3.7-47	3.8-36	3.8-36
---	3.7-48	3.8-37	3.8-37
3.8-2	3.8-2	3.8-38	3.8-38
3.8-4	3.8-4	3.8-39	3.8-39
3.8-5	3.8-5	3.8-40	3.8-40
3.8-6	3.8-6	---	3.8-41
3.8-7	3.8-7	---	3.8-42
3.8-8	3.8-8	---	3.8-43
3.8-9	3.8-9	5.0-23	5.0-23
3.8-10	3.8-10	5.0-24	5.0-24
3.8-11	3.8-11	5.0-25	5.0-25
3.8-12	3.8-12	5.0-26	5.0-26
3.8-13	3.8-13	5.0-27	5.0-27
3.8-14	3.8-14	5.0-28	5.0-28
3.8-15	3.8-15	5.0-29	5.0-29
3.8-16	3.8-16	5.0-30	5.0-30
3.8-17	3.8-17	5.0-31	5.0-31
3.8-18	3.8-18	5.0-32	5.0-32
3.8-19	3.8-19	5.0-33	5.0-33
3.8-20	3.8-20	---	5.0-34
3.8-21	3.8-21		

- (5) The Operating Corporation, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) The Operating Corporation, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission, now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) Maximum Power Level
- The Operating Corporation is authorized to operate the facility at reactor core power levels not in excess of 3565 megawatts thermal (100% power) in accordance with the conditions specified herein.
- (2) Technical Specifications and Environmental Protection Plan
- The Technical Specifications contained in Appendix A, as revised through Amendment No. 247, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 229, both of which are attached hereto, are hereby incorporated in the license. The Corporation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
- (3) Antitrust Conditions
- Evergy Kansas South, Inc. and Evergy Metro, Inc. shall comply with the antitrust conditions delineated in Appendix C to this license.
- (4) Environmental Qualification (Section 3.11, SSER #4, Section 3.11, SSER #5)\*
- Deleted per Amendment No. 141.

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\*The parenthetical notation following the title of many license conditions denotes the section of the supporting Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO.</p> <p>Unless otherwise specified, the Completion Time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The “otherwise specified” exceptions are varied, such as a Required Action Note or Surveillance Requirement Note that provides an alternative time to perform specific tasks, such as testing, without starting the Completion Time. While utilizing the Note, should a Condition be applicable for any reason not addressed by the Note, the Completion Time begins. Should the time allowance in the Note be exceeded, the Completion Time begins at that point. The exceptions may also be incorporated into the Completion Time. For example, LCO 3.8.1, “AC Sources – Operating,” Required Action B.3, requires declaring required feature(s) supported by an inoperable diesel generator, inoperable when its redundant required feature(s) is inoperable. The Completion Time states, “4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s).” In this case the Completion Time does not begin until the conditions in the Completion Time are satisfied.</p> <p>Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.</p> <p>If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the discovery of the situation that required entry into the Condition, unless otherwise specified.</p>

(continued)

### 1.3 Completion Time

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DESCRIPTION  
(continued)

Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition, unless otherwise specified.

However, when a subsequent train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

- a. Must exist concurrent with the first inoperability; and
- b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

- a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or
- b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ."

(continued)

1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours
C. One Function X train inoperable.	C.1 Restore Function X train to OPERABLE status.	72 hours
<u>AND</u>	<u>OR</u>	
One Function Y train inoperable.	C.2 Restore Function Y train to OPERABLE status.	72 hours

(continued)

### 1.3 Completion Times

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#### EXAMPLES

#### EXAMPLE 1.3-3 (continued)

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

It is possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so would be inconsistent with the basis of the Completion Times. Therefore, there shall be administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the Completion Times for those Conditions are not inappropriately extended.

(continued)

1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each “Once per 8 hours thereafter” interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time 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.

(continued)

1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-8

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Restore subsystem To OPERABLE status	7 days  <u>OR</u> In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.  <u>AND</u> B.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 B must also be entered.

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.

(continued)

### 1.3 Completion Times

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EXAMPLES

EXAMPLE 1.3-8 (continued)

If the 7 day Completion Time clock of Condition A has expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.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 B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition B is entered, Condition A is exited, and therefore, the Required Actions of Condition B may be terminated.

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IMMEDIATE COMPLETION TIME      When “Immediately” is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

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3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

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

APPLICABILITY:    According to Table 3.3.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or trains.	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One Power Range Neutron Flux - High channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. -----</p> <p>D.1 -----NOTE----- Only required when the Power Range Neutron Flux input to QPTR is inoperable. -----</p> <p>Perform SR 3.2.4.2.</p>	<p>12 hours from discovery of THERMAL POWER &gt; 75% RTP</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p>
	<p><u>AND</u></p> <p>D.2 Place channel in trip.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One channel inoperable.</p>	<p>-----NOTE-----                      The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.                      -----</p> <p>E.1 Place channel in trip.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>F. One Intermediate Range Neutron Flux channel inoperable.</p>	<p>F.1 Reduce THERMAL POWER to &lt; P-6.</p> <p><u>OR</u></p> <p>F.2 Increase THERMAL POWER to &gt; P-10.</p>	<p>24 hours</p> <p>24 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two Intermediate Range Neutron Flux channels inoperable.</p>	<p>G.1 -----NOTE----- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----- Suspend operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>G.2 Reduce THERMAL POWER to &lt; P-6.</p>	<p>Immediately</p> <p>2 hours</p>
<p>H. One Source Range Neutron Flux channel inoperable.</p>	<p>H.1 -----NOTE----- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----- Suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>
<p>I. Two Source Range Neutron Flux channels inoperable.</p>	<p>I.1 Open reactor trip breakers (RTBs).</p>	<p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. One Source Range Neutron Flux channel inoperable.	J.1 Restore channel to OPERABLE status.	48 hours
K. Required Action and associated Completion Time of Condition C or J not met.	K.1 Initiate action to fully insert all rods.  <u>AND</u>  K.2 Place the Rod Control System in a condition incapable of rod withdrawal.	Immediately    1 hour
L. One channel inoperable.	-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----  L.1 Place channel in trip.	72 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
M. Required Action and associated Completion Time of Condition L not met.	M.1 Reduce THERMAL POWER to < P-7.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>N. One Low Fluid Oil Pressure Turbine Trip channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>N.1 Place channel in trip.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>O. One or more Turbine Stop Valve Closure Turbine Trip channel(s) inoperable.</p>	<p>O.1 Place channel(s) in trip.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>P. Required Action and associated Completion Time of Condition N or O not met.</p>	<p>P.1 Reduce THERMAL POWER to &lt; P-9.</p>	<p>4 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Q. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>Q.1 Restore train to OPERABLE status.</p>	<p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>R. One RTB train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. -----</p> <p>R.1 Restore train to OPERABLE status.</p>	<p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>S. One or more required channel(s) inoperable.</p>	<p>S.1 Verify interlock is in required state for existing unit conditions.</p>	<p>1 hour</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
T. One or more required channel(s) or train inoperable.	T.1 Verify interlock is in required state for existing unit conditions.	1 hour
U. Required Action and associated Completion Time of Condition T not met.	U.1 Be in MODE 2.	6 hours
V. One trip mechanism inoperable for one RTB.	V.1 Restore trip mechanism to OPERABLE status.	48 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
W. Required Action and associated Completion Time of Condition B, D, E, Q, R, S, or V not met.	W.1 Be in MODE 3.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>X. One channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p>	
	<p>X.1 Place channel in trip.  <u>OR</u></p>	<p>72 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program</p>
	<p>X.2.1 Be in Mode 2 with <math>k_{eff} &lt; 1.0</math>.  <u>AND</u></p>	<p>78 hours</p>
	<p>X.2.2.1 Initiate action to fully insert all rods.  <u>AND</u></p>	<p>78 hours</p>
	<p>X.2.2.2 Initiate action to place the Rod Control System in a condition incapable of rod withdrawal.  <u>OR</u></p>	<p>78 hours</p>
	<p>X.2.3 Initiate action to borate the RCS to greater than all rods out (ARO) critical boron concentration.</p>	<p>78 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>Y. One channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>Y.1 Place channel in trip.</p>	<p>72 hours</p>
<p>Z. Required Action and associated Completion Time of Condition Y not met.</p> <p><u>OR</u></p> <p>Two or more channels inoperable.</p>	<p>Z.1.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p>Z.1.2 Initiate action to place the Rod Control System in a condition incapable of rod withdrawal.</p> <p><u>OR</u></p> <p>Z.2 Initiate action to borate the RCS to greater than all rods out (ARO) critical boron concentration.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.1 Perform CHANNEL CHECK.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2	<p>-----NOTES----- Not required to be performed until 24 hours after THERMAL POWER is <math>\geq</math> 15% RTP. -----</p> <p>Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculation results exceed power range channel output by more than + 2% RTP.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.3	<p>-----NOTES----- Not required to be performed until 24 hours after THERMAL POWER is <math>\geq</math> 50% RTP. -----</p> <p>Compare results of the core power distribution measurements to Nuclear Instrumentation System (NIS) AFD. Adjust NIS channel if absolute difference is <math>\geq</math> 3%.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.4	<p>-----NOTE----- This Surveillance must be performed on the reactor trip bypass breaker for the local manual shunt trip only prior to placing the bypass breaker in service. -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.6</p> <p>-----NOTE----- Not required to be performed until 72 hours after achieving equilibrium conditions with THERMAL POWER <math>\geq</math> 75 % RTP. -----</p> <p>Calibrate excore channels to agree with core power distribution measurements.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.7</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3.</li> <li>2. Source range instrumentation shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.</li> </ol> <p>-----</p> <p>Perform COT.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.8</p> <p>-----NOTE----- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. -----</p> <p>Perform COT.</p>	<p>-----NOTE----- Only required when not performed within the Frequency specified in the Surveillance Frequency Control Program ----- (continued)</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.8 (continued)</p>	<p>Prior to reactor startup</p> <p><u>AND</u></p> <p>Twelve hours after reducing power below P-10 for power and intermediate instrumentation</p> <p><u>AND</u></p> <p>Four hours after reducing power below P-6 for source range instrumentation</p> <p><u>AND</u></p> <p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.9</p> <p>-----NOTE-----</p> <p>Verification of setpoint is not required.</p> <p>-----</p> <p>Perform TADOT.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.10	<p>-----NOTE-----  This Surveillance shall include verification that the time constants are adjusted to the prescribed values.  -----  Perform CHANNEL CALIBRATION.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.11	<p>-----NOTES-----  1. Neutron detectors are excluded from CHANNEL CALIBRATION.  2. This Surveillance shall include verification that the time constants are adjusted to the prescribed values.  3. Power and intermediate range detector plateau voltage verification is not required to be performed until 72 hours after achieving equilibrium conditions with THERMAL POWER <math>\geq</math> 95% RTP.  -----  Perform CHANNEL CALIBRATION.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.12	Not Used.	
SR 3.3.1.13	Perform COT.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.14	<p>-----NOTE----- Verification of setpoint is not required. -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.15	<p>-----NOTE----- Verification of setpoint is not required. -----</p> <p>Perform TADOT.</p>	Prior to exceeding the P-9 interlock whenever the unit has been in MODE 3, if not performed in the previous 31 days
SR 3.3.1.16	<p>-----NOTE----- Neutron detectors are excluded from response time testing. -----</p> <p>Verify RTS RESPONSE TIMES are within limits.</p>	In accordance with the Surveillance Frequency Control Program

Table 3.3.1-1 (page 1 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE <sup>(a)</sup>
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.14	NA
	3(b), 4(b), 5(b)	2	C	SR 3.3.1.14	NA
2. Power Range Neutron Flux					
a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 112.3% RTP
b. Low	1(c), 2(f)	4	X	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ 28.3% RTP
	2(h), 3(i)	4	Y, Z	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ 28.3% RTP
3. Power Range Neutron Flux Rate – High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 6.3% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	1(c), 2(d)	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 35.3% RTP

(continued)

- (a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
- (b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.
- (c) Below the P-10 (Power Range Neutron Flux) interlock.
- (d) Above the P-6 (Intermediate Range Neutron Flux) interlock.
- (f) With  $k_{eff} \geq 1.0$ .
- (h) With  $k_{eff} < 1.0$ , and all RCS cold leg temperatures  $\geq 500^\circ$  F, and RCS boron concentration  $\leq$  the rods out (ARO) critical boron concentration, and Rod Control System capable of rod withdrawal or one or more rods not fully inserted.
- (i) With all RCS cold leg temperatures  $\geq 500^\circ$  F, and RCS boron concentration  $\leq$  the ARO critical boron concentration, and Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

Table 3.3.1-1 (page 2 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
5. Source Range Neutron Flux	2(e)	2	H, I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 1.6 E5 cps
	3(b), 4(b), 5(b)	2	I, J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11	≤ 1.6 E5 cps
6. Overtemperature ΔT	1,2	4	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	Refer to Note 1 (Page 3.3-20)
7. Overpower ΔT	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	Refer to Note 2 (Page 3.3-21)
8. Pressurizer Pressure					
a. Low	1(g)	4	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 1930 psig
b. High	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≤ 2395 psig
9. Pressurizer Water Level - High	1(g)	3	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 93.9% of instrument span
10. Reactor Coolant Flow - Low	1(g)	3 per loop	L	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 88.9% of normalized flow

(continued)

- (a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
- (b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.
- (e) Below the P-6 (Intermediate Range Neutron Flux) interlock.
- (g) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
11. Not Used.					
12. Undervoltage RCPs	1(g)	2/bus	L	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ 10355 Vac
13. Underfrequency RCPs	1(g)	2/bus	L	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ 57.1 Hz
14. Steam Generator (SG) Water Level Low-Low (l)	1,2	4 per gen	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 22.3% of Narrow Range Instrument Span
15. Not Used.					
16. Turbine Trip					
a. Low Fluid Oil Pressure	1(j)	3	N	SR 3.3.1.10 SR 3.3.1.15	≥ 534.20 psig
b. Turbine Stop Valve Closure	1(j)	4	O	SR 3.3.1.10 SR 3.3.1.15	≥ 1% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	Q	SR 3.3.1.14	NA
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(e)	2	S	SR 3.3.1.11 SR 3.3.1.13	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	T	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 51.3% RTP

(continued)

- (a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.  
(e) Below the P-6 (Intermediate Range Neutron Flux) interlocks.  
(g) Above the P-7 (Low Power Reactor Trips Block) interlock.  
(l) The applicable MODES for these channels are more restrictive in Table 3.3.2-1. (See Function 6.d.)  
(j) Above the P-9 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 4 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
18. (continued)					
d. Power Range Neutron Flux, P-9	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ 53.3% RTP
e. Power Range Neutron Flux, P-10	1,2	4	S	SR 3.3.1.11 SR 3.3.1.13	≥ 6.7% RTP and ≤ 13.3% RTP
f. Turbine Impulse Pressure, P-13	1	2	T	SR 3.3.1.10 SR 3.3.1.13	≤ 12.4% turbine power
19. Reactor Trip Breakers (RTB) (k)	1,2	2 trains	R	SR 3.3.1.4	NA
	3(b), 4(b), 5(b)	2 trains	C	SR 3.3.1.4	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms (k)	1,2	1 each per RTB	V	SR 3.3.1.4	NA
	3(b), 4(b), 5(b)	1 each per RTB	C	SR 3.3.1.4	NA
21. Automatic Trip Logic	1,2	2 trains	Q	SR 3.3.1.5	NA
	3(b), 4(b), 5(b)	2 trains	C	SR 3.3.1.5	NA

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.

(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

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

Table 3.3.1-1 (page 5 of 6)  
Reactor Trip System Instrumentation

Note 1: Overtemperature  $\Delta T$

The Overtemperature  $\Delta T$  Function Allowable Value shall not exceed the following Trip Setpoint by more than 1.3% of  $\Delta T$  span.

$$\Delta T \frac{(1 + \tau_1 s)}{(1 + \tau_2 s)} \left( \frac{1}{1 + \tau_3 s} \right) \leq \Delta T_0 \left\{ K_1 - K_2 \frac{(1 + \tau_4 s)}{(1 + \tau_5 s)} \left[ T \left( \frac{1}{(1 + \tau_6 s)} \right) - T' \right] + K_3 (P - P') - f_1(\Delta I) \right\}$$

Where:  $\Delta T$  is measured RCS  $\Delta T$ , °F.  
 $\Delta T_0$  is the indicated  $\Delta T$  at RTP, °F.  
 $s$  is the Laplace transform operator, sec<sup>-1</sup>.  
 $T$  is the measured RCS average temperature, °F.  
 $T'$  is the nominal  $T_{avg}$  at RTP, ≤ \*.

$P$  is the measured pressurizer pressure, psig.  
 $P'$  is the nominal RCS operating pressure ≥ \* psig.

$K_1 = *$	$K_2 = */^\circ\text{F}$	$K_3 = */\text{psig}$
$\tau_1 = * \text{ sec}$	$\tau_2 = * \text{ sec}$	$\tau_3 = * \text{ sec}$
$\tau_4 = * \text{ sec}$	$\tau_5 = * \text{ sec}$	$\tau_6 = * \text{ sec}$

$f_1(\Delta I) =$	* { * % + (q <sub>t</sub> - q <sub>b</sub> ) }	when q <sub>t</sub> - q <sub>b</sub> < * % RTP
	0% of RTP	when * % RTP ≤ q <sub>t</sub> - q <sub>b</sub> ≤ * % RTP
	* {(q <sub>t</sub> - q <sub>b</sub> ) - * % }	when q <sub>t</sub> - q <sub>b</sub> > * % RTP

where q<sub>t</sub> and q<sub>b</sub> are percent RTP in the upper and lower halves of the core, respectively, and q<sub>t</sub> + q<sub>b</sub> is the total THERMAL POWER in percent RTP.

The values denoted with \* are specified in the COLR.

Table 3.3.1-1 (page 6 of 6)  
Reactor Trip System Instrumentation

Note 2: Overpower  $\Delta T$

The Overpower  $\Delta T$  Function Allowable Value shall not exceed the following Trip Setpoint by more than 2.6% of  $\Delta T$  span.

$$\Delta T \frac{(1 + \tau_1 s)}{(1 + \tau_2 s)} \left( \frac{1}{1 + \tau_3 s} \right) \leq \Delta T_o \left\{ K_4 - K_5 \frac{(\tau_7 s)}{(1 + \tau_7 s)} \left( \frac{1}{1 + \tau_6 s} \right) T - K_6 \left[ T \frac{1}{(1 + \tau_6 s)} - T'' \right] - f_2(\Delta I) \right\}$$

Where:  $\Delta T$  is measured RCS  $\Delta T$ , °F.

$\Delta T_o$  is the indicated  $\Delta T$  at RTP, °F.

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

$T$  is the measured RCS average temperature, °F.

$T''$  is the indicated  $T_{\text{avg}}$  at RTP (Calibration temperature for  $\Delta T$  instrumentation),  $\leq$  \* °F.

$K_4 = *$

$K_5 = *$  /°F for increasing  $T_{\text{avg}}$   
\* /°F for decreasing  $T_{\text{avg}}$

$K_6 = *$  /°F when  $T > T''$   
\* /°F when  $T \leq T''$

$\tau_1 = *$  sec

$\tau_2 = *$  sec

$\tau_3 = *$  sec

$\tau_6 = *$  sec

$\tau_7 = *$  sec

$f_2(\Delta I) = *$

The values denoted with \* are specified in the COLR.

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2            The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY:    According to Table 3.3.2-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One train inoperable.</p>	<p>-----NOTE-----            One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.            -----</p> <p>C.1      -----NOTE-----            Only required if Function 3.a.(2) is inoperable.            -----</p> <p>Place and maintain containment purge supply and exhaust valves in closed position.</p> <p><u>AND</u></p> <p>C.2      Restore train to OPERABLE status.</p>	<p>Immediately</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>D.1 Place channel in trip.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>E. One Containment Pressure channel inoperable.</p>	<p>-----NOTE----- One additional channel may be bypassed for up to 12 hours for surveillance testing. -----</p> <p>E.1 Place channel in bypass.</p>	<p>72 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. One channel or train inoperable.</p>	<p>F.1 Restore channel or train to OPERABLE status.</p>	<p>48 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program</p>
<p>G. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>G.1 Restore train to OPERABLE status</p>	<p>24 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>H. One channel inoperable.</p>	<p>-----NOTE-----                      The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.                      -----</p> <p>H.1 Place channel in trip.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. One or more Main Feedwater Pump trip channel(s) inoperable.</p>	<p>-----NOTE----- One inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels. -----</p> <p>I.1 Place channel(s) in trip.</p>	<p>1 hour</p> <p><u>OR</u></p> <p>-----NOTE----- Not applicable when two channels on one pump are inoperable -----</p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>J. Required Action and associated Completion Time of Condition H or I not met.</p>	<p>J.1 Be in MODE 3.</p>	<p>6 hours</p>
<p>K. One channel inoperable.</p>	<p>-----NOTE----- One additional channel may be tripped for up to 12 hours for surveillance testing. -----</p> <p>K.1 Place channel in bypass.</p>	<p>72 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. Required Action and associated Completion Time of Condition B, C, or K not met.	L.1 Be in MODE 3.  <u>AND</u>  L.2 Be in MODE 5.	6 hours     36 hours
M. One or more required channel(s) inoperable.	M.1 Verify interlock is in required state for existing unit condition.	1 hour
N. One channel inoperable.	N.1 Place channel in trip.     <u>AND</u>  N.2 Restore channel to OPERABLE status.	1 hour  <u>OR</u>  In accordance with the Risk Informed Completion Time Program  During performance of next COT

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>O. One train inoperable.</p>	<p>-----NOTE----- One train may be bypassed for up to 2 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>O.1 Restore train to OPERABLE status.</p>	<p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>P. One or more channels inoperable.</p>	<p>P.1 Declare associated auxiliary feedwater pump(s) inoperable.</p>	<p>Immediately</p>
<p>Q. One or both train(s) inoperable.</p>	<p>Q.1 Restore train(s) to OPERABLE status.</p>	<p>48 hours</p> <p><u>OR</u></p> <p>-----NOTE----- Not applicable when both trains are inoperable -----</p> <p>In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. Required Action and associated Completion Time of Condition D, E, F, G, M, O, or Q not met.	R.1 Be in MODE 3.	6 hours
	<u>AND</u> R.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.2 Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.3 -----NOTE----- The continuity check may be excluded. ----- Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.4	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.5	Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.6	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.7	<p>-----NOTE----- Verification of relay setpoints not required. -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.8	<p>-----NOTE----- Verification of setpoint not required for manual initiation functions. -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.9	<p>-----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values.</p> <hr/> <p>Perform CHANNEL CALIBRATION.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.10	<p>-----NOTE----- Not required to be performed for the turbine driven AFW pump until 24 hours after SG pressure is <math>\geq 900</math> psig.</p> <hr/> <p>Verify ESF RESPONSE TIMES are within limits.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.11	<p>-----NOTE----- Verification of setpoint not required.</p> <hr/> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.12	Perform COT.	In accordance with the Surveillance Frequency Control Program

Table 3.3.2-1 (page 1 of 5)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
1. Safety Injection					
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c. Containment Pressure - High 1	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 4.5 psig
d. Pressurizer Pressure - Low	1,2,3 <sup>(b)</sup>	4	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 1820 psig
e. Steam Line Pressure Low	1,2,3 <sup>(b)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 571 psig <sup>(c)</sup>
2. Containment Spray					
a. Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c. Containment Pressure High - 3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 28.3 psig

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.

(b) Above the P-11 (Pressurizer Pressure) interlock and below P-11 unless the Function is blocked.

(c) Time constants used in the lead/lag controller are  $t_1 \geq 50$  seconds and  $t_2 \leq 5$  seconds.

Table 3.3.2-1 (page 2 of 5)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.8	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
b. Phase B Isolation					
(1) Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.8	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
(3) Containment Pressure - High 3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 28.3 psig
4. Steam Line Isolation					
a. Manual Initiation	1,2 <sup>(i)</sup> , 3 <sup>(l)</sup>	2	F	SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2 <sup>(i)</sup> , 3 <sup>(i)</sup>	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c. Automatic Actuation Logic (MSFIS)	1,2 <sup>(l)</sup> , 3 <sup>(l)</sup>	2 trains	G	SR 3.3.2.6	NA
d. Containment Pressure - High 2	1,2 <sup>(i)</sup> , 3 <sup>(l)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 18.3 psig

(continued)

- (a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
- (i) Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
- (l) Except when all MSIVs are closed and de-activated.

Table 3.3.2-1 (page 3 of 5)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
4. Steam Line Isolation (continued)					
e. Steam Line Pressure					
(1) Low	1,2 <sup>(i)</sup> ,3 <sup>(b)(i)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 571 psig <sup>(c)</sup>
(2) Negative Rate - High	3 <sup>(g)(i)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 125 <sup>(h)</sup> psi
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2 <sup>(j)</sup> ,3 <sup>(i)</sup>	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
b. Automatic Actuation Logic (MSFIS)	1,2 <sup>(k)</sup> ,3 <sup>(k)</sup>	2 trains	G	SR 3.3.2.6	NA
c. SG Water Level -High High (P-14)	1,2 <sup>(j)</sup>	4 per SG	H	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 79.7% of Narrow Range Instrument Span
d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

- (a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
- (b) Above the P-11 (Pressurizer Pressure) Interlock and below P-11 unless the Function is blocked.
- (c) Time constants used in the lead/lag controller are  $t_1 \geq 50$  seconds and  $t_2 \leq 5$  seconds.
- (g) Below the P-11 (Pressurizer Pressure) Interlock; however, may be blocked below P-11 when safety injection on low steam line pressure is not blocked.
- (h) Time constant utilized in the rate/lag controller is  $\geq 50$  seconds.
- (i) Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
- (j) Except when all MFIVs are closed and de-activated; and all MFRVs are closed and de-activated or closed and isolated by a closed manual valve; and all MFRV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
- (k) Except when all MFIVs are closed and de-activated.

Table 3.3.2-1 (page 4 of 5)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
6. Auxiliary Feedwater					
a. Manual Initiation	1,2,3	1 per pump	P	SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c. Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	O	SR 3.3.2.3	NA
d. SG Water Level Low - Low	1,2,3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 22.3% of Narrow Range Instrument Span
e. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
f. Loss of Offsite Power	1,2,3	2 trains	Q	SR 3.3.2.7 SR 3.3.2.10	NA
g. Trip of all Main Feedwater Pumps	1	2 per pump	I	SR 3.3.2.8	NA
h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	3	N	SR 3.3.2.1 SR 3.3.2.9 SR 3.3.2.10 SR 3.3.2.12	≥ 20.53 psia

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.

Table 3.3.2-1 (page 5 of 5)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE(a)
7. Automatic Switchover to Containment Sump					
a. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
b. Refueling Water Storage Tank (RWST) Level - Low Low	1,2,3,4	4	K	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 35.5% of instrument span
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
8. ESFAS Interlocks					
a. Reactor Trip, P-4(m)	1,2,3	2 per train, 2 trains	F	SR 3.3.2.11	NA
b. Pressurizer Pressure, P-11	1,2,3	3	M	SR 3.3.2.5 SR 3.3.2.9	≤ 1979 psig

(a) The Allowable Value defines the Limiting Safety System Settings. See the Bases for the Trip Setpoints.

(m) The functions of the Reactor Trip, P-4 interlock required to meet the LCO are:

- Trips the main turbine – MODES 1 and 2
- Isolates MFW with coincident low  $T_{avg}$  – MODES 1 and 2
- Allows manual block of the automatic reactivation of SI after a manual reset of SI – MODES 1, 2, and 3
- Prevents opening of MFIVs if closed on SI or SG Water Level – High High – MODES 1, 2, and 3

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3            The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY:    MODES 1, 2 and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.8.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two or more required channels inoperable.	C.1 Restore all but one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3-1.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 4.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3-1.	F.1 Initiate action in accordance with Specification 5.6.8.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
 SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.  
 -----

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.3.2	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----  Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.3-1 (page 1 of 1)  
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1
1.	Neutron Flux	2	E
2.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2	E
3.	RCS Cold Leg Temperature (Wide Range)	2	E
4.	RCS Pressure (Wide Range)	2	E
5.	Reactor Vessel Water Level	2	F
6.	Containment Normal Sump Water Level	2	E
7.	Containment Pressure ( Normal Range)	2	E
8.	Steam Line Pressure	2 per steam generator	E
9.	Containment Radiation Level (High Range)	2	F
10.	Not Used		
11.	Pressurizer Water Level	2	E
12.	Steam Generator Water Level (Wide Range)	4	E
13.	Steam Generator Water Level (Narrow Range)	2 per steam generator	E
14.	Core Exit Temperature - Quadrant 1	2(a)	E
15.	Core Exit Temperature - Quadrant 2	2(a)	E
16.	Core Exit Temperature - Quadrant 3	2(a)	E
17.	Core Exit Temperature - Quadrant 4	2(a)	E
18.	Auxiliary Feedwater Flow Rate	4	E
19.	Refueling Water Storage Tank Level	2	E

(a) A channel consists of two core exit thermocouples (CETs).

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown System

LCO 3.3.4 The Remote Shutdown System Functions in Table 3.3.4-1 and the required auxiliary shutdown panel (ASP) controls shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each Function and required ASP control.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.  <u>OR</u>  One or more required ASP controls inoperable.	A.1 Restore required Function and required ASP controls to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.2	Verify each required auxiliary shutdown panel control circuit and transfer switch is capable of performing the intended function.	In accordance with the Surveillance Frequency Control Program
SR 3.3.4.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Neutron detectors are excluded from CHANNEL CALIBRATION.</li> <li>2. Reactor Trip Breakers and RCP breakers are excluded from CHANNEL CALIBRATION.</li> </ol> <p>-----</p> <p>Perform CHANNEL CALIBRATION for each required instrumentation channel.</p>	In accordance with the Surveillance Frequency Control Program

Table 3.3.4-1 (page 1 of 1)  
Remote Shutdown System Functions

FUNCTION	REQUIRED CHANNELS
1. Source Range Neutron Flux <sup>a</sup>	1
2. Reactor Trip Breaker Position	1 per trip breaker
3. Pressurizer Pressure	1
4. RCS Wide Range Pressure	1
5. RCS Hot Leg Temperature	1
6. RCS Cold Leg Temperature	1
7. SG Pressure	1 per SG
8. SG Level	1 per SG
9. AFW Flow Rate	1
10. RCP Breakers	1 per pump
11. AFW Suction Pressure	1
12. Pressurizer Level	1

a. Not required OPERABLE in MODE 1 or in MODE 2 above the P-6 setpoint.

3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

LCO 3.3.5 Four channels per 4-kV NB bus of the loss of voltage Function and four channels per 4-kV NB bus of the degraded voltage Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,  
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more Functions with one channel per bus inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. -----</p> <p>A.1 Place channel in trip.</p>	<p>6 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more Functions with two or more channels per bus inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Declare associated load shedder and emergency load sequencer (LSELS) inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.5.1 Not Used.</p>	
<p>SR 3.3.5.2 -----NOTE----- Verification of time delays is not required. -----</p> <p>Perform TADOT.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.5.3	<p>Perform CHANNEL CALIBRATION with nominal Trip Setpoint and Allowable Value as follows:</p> <p>a. Loss of voltage Allowable Value <math>\geq 90.0V</math>, 120V bus with a time delay of 1.0 + 0.15, -0.1 sec.</p> <p>Loss of voltage nominal Trip Setpoint 91.28V, 120V bus with a time delay of 1.0 sec.</p> <p>b. Degraded voltage Allowable Value <math>\geq 107.5V</math>, 120V bus.</p> <p>1. Accident time delay (SIS) 8.0 + 0.5, -0.6 sec. 2. Non-accident time delay (No SIS) 56 +8.5, -7.6 sec.</p> <p>Degraded voltage nominal Trip Setpoint 108.46V, 120V bus.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.4	Verify LOP DG Start ESF RESPONSE TIMES are within limits.	In accordance with the Surveillance Frequency Control Program

3.3 INSTRUMENTATION

3.3.6 Containment Purge Isolation Instrumentation

LCO 3.3.6 The Containment Purge Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable in MODE 1, 2, 3, or 4. -----</p> <p>One or more Functions with one or more channels or trains inoperable.</p>	<p>A.1 Place and maintain containment purge supply and exhaust valves in closed position.</p>	<p>Immediately</p>

(continued)



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.2	<p>-----NOTE----- The continuity check may be excluded. -----</p> <p>Perform ACTUATION LOGIC TEST.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.3	Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.4	<p>-----NOTE----- Verification of setpoint is not required. -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.6	Verify Containment Purge Isolation ESF RESPONSE TIMES are within limits.	In accordance with the Surveillance Frequency Control Program

Table 3.3.6-1 (page 1 of 1)  
Containment Purge Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1,2,3,4, (a),(b)	2	SR 3.3.6.4	NA
2. Automatic Actuation Logic and Actuation Relays (BOP ESFAS)	1,2,3,4, (a),(b)	2 trains	SR 3.3.6.2 SR 3.3.6.6	NA
3. Containment Atmosphere - Gaseous Radioactivity	1,2,3,4, (a),(b)	1	SR 3.3.6.1 SR 3.3.6.3 SR 3.3.6.5	(c)
4. Containment Isolation - Phase A	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a, for all initiation functions and requirements.			

- (a) During CORE ALTERATIONS.
- (b) During movement of irradiated fuel assemblies within containment.
- (c) Trip setpoint concentration value ( $\mu\text{Ci}/\text{cm}^3$ ) is to be established such that the actual submersion rate would not exceed 9 mR/h in the containment building.

3.3 INSTRUMENTATION

3.3.7 Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation

LCO 3.3.7            The CREVS actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

APPLICABILITY:    According to Table 3.3.7-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1 Place one CREVS train in Control Room Ventilation Isolation Signal (CRVIS) mode.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Not applicable to Function 3. -----</p> <p>One or more Functions with two channels or two trains inoperable.</p>	<p>B.1.1 Place one CREVS train in the CRVIS mode.</p> <p><u>AND</u></p> <p>B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.10, "Control Room Emergency Ventilation System (CREVS)," for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.</p> <p><u>OR</u></p> <p>B.2 Place both trains in CRVIS mode.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>C. Both radiation monitoring channels inoperable.</p>	<p>C.1.1 Enter applicable Conditions and Required Actions of LCO 3.7.10, "Control Room Emergency Ventilation System (CREVS)," for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.</p> <p><u>AND</u></p> <p>C.1.2 Place one CREVS train in CRVIS mode.</p> <p><u>OR</u></p> <p>C.2 Place both trains in CRVIS mode.</p>	<p>Immediately</p> <p>1 hour</p> <p>1 hour</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time for Condition A, B or C not met in MODE 1, 2, 3, or 4.	D.1 Be in MODE 3.	6 hours
	<u>AND</u> D.2 Be in MODE 5.	36 hours
E. Required Action and associated Completion Time for Condition A, B or C not met during movement of irradiated fuel assemblies or during CORE ALTERATIONS.	E.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> E.2 Suspend movement of irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.7-1 to determine which SRs apply for each CREVS Actuation Function.

SURVEILLANCE	FREQUENCY
SR 3.3.7.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.2 Perform COT.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.7.3	<p>-----NOTE----- The continuity check may be excluded. -----</p> <p>Perform ACTUATION LOGIC TEST.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.4	<p>-----NOTE----- Verification of setpoint is not required. -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.7.6	<p>-----NOTE----- Radiation monitor detectors are excluded from response time testing. -----</p> <p>Verify Control Room Ventilation Isolation ESF RESPONSE TIMES are within limits.</p>	In accordance with the Surveillance Frequency Control Program

Table 3.3.7-1 (page 1 of 1)  
CREVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	1, 2, 3, 4, (a) and (c)	2	SR 3.3.7.4	NA
2. Automatic Actuation Logic and Actuation Relays (BOP ESFAS)	1, 2, 3, 4, (a) and (c)	2 trains	SR 3.3.7.3 SR 3.3.7.6	NA
3. Control Room Radiation- Control Room Air Intakes	1, 2, 3, 4, (a) and (c)	2	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.5 SR 3.3.7.6	(b)
4. Containment Isolation - Phase A	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a, for all initiation functions and requirements.			

- (a) During movement of irradiated fuel assemblies.
- (b) Trip Setpoint concentration value ( $\mu\text{Ci}/\text{cm}^3$ ) is to be established such that the actual submersion dose rate would not exceed 2 mR/hr in the control room.
- (c) During CORE ALTERATIONS.

3.3 INSTRUMENTATION

3.3.8 Emergency Exhaust System (EES) Actuation Instrumentation

LCO 3.3.8 The EES actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

-----NOTES-----

1. LCO 3.0.3 is not applicable.
  2. Separate Condition entry is allowed for each Function.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1 Place one EES train in the Fuel Building Ventilation Isolation Signal (FBVIS) mode.	7 days

(continued)



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time for Condition A, B or C not met during movement of irradiated fuel assemblies in the fuel building.	D.1 Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.8-1 to determine which SRs apply for each EES Actuation Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.8.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.2 Perform COT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.3 -----NOTE----- The continuity check may be excluded. ----- Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.4	<p>-----NOTE-----  Verification of setpoint is not required.  -----  Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.8.5	Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

Table 3.3.8-1 (page 1 of 1)  
EES Actuation Instrumentation

	FUNCTION	APPLICABLE MODES OR SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1.	Manual Initiation	(a)	2	SR 3.3.8.4	NA
2.	Automatic Actuation Logic and Actuation Relays (BOP ESFAS)	(a)	2 trains	SR 3.3.8.3	NA
3.	Fuel Building Exhaust Radiation - Gaseous	(a)	2	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	(b)

(a) During movement of irradiated fuel assemblies in the fuel building.

(b) Trip Setpoint concentration value ( $\mu\text{Ci}/\text{cm}^3$ ) is to be established such that the actual submersion dose rate would not exceed 4 mR/hr in the fuel building.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required group of pressurizer heaters inoperable.	B.1 Restore required group of pressurizer heaters to OPERABLE status.	72 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 4.	6 hours  12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.9.1 Verify pressurizer water level is $\leq 92\%$ .	In accordance with the Surveillance Frequency Control Program
SR 3.4.9.2 Verify capacity of each required group of pressurizer heaters is $\geq 150$ kW.	In accordance with the Surveillance Frequency Control Program

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 and 2,  
MODE 3 with all RCS cold leg temperatures > 368°F.

ACTIONS

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

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.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours
		<u>OR</u> In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One block valve inoperable.</p>	<p>-----NOTE-----            Required Actions do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2.            -----</p> <p>C.1 Place associated PORV in manual control.</p> <p><u>AND</u></p> <p>C.2 Restore block valve to OPERABLE status.</p>	<p>1 hour</p> <p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Two PORVs inoperable and not capable of being manually cycled.</p>	<p>E.1 Close associated block valves.</p>	<p>1 hour</p>
	<p><u>AND</u></p>	
	<p>E.2 Remove power from associated block valves.</p>	<p>1 hour</p>
	<p><u>AND</u></p>	
	<p>E.3 Be in MODE 3.</p>	<p>6 hours</p>
	<p><u>AND</u></p>	
	<p>E.4 Be in MODE 4.</p>	<p>12 hours</p>
	<p><u>AND</u></p>	
<p>F. More than one block valve inoperable.</p>	<p>-----NOTE----- Required Actions do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2. -----</p>	
	<p>F.1 Place associated PORVs in manual control.</p>	<p>1 hour</p>
	<p><u>AND</u></p>	
	<p>F.2 Restore one block valve to OPERABLE status.</p>	<p>2 hours</p>
	<p><u>AND</u></p>	
<p>G. Required Action and associated Completion Time of Condition F not met.</p>	<p>G.1 Be in MODE 3.</p>	<p>6 hours</p>
	<p><u>AND</u></p> <p>G.2 Be in MODE 4.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.11.1</p> <p>-----NOTE-----                      Not required to be performed with block valve closed                      in accordance with the Required Actions of this LCO.                      -----</p> <p>Perform a complete cycle of each block valve.</p>	<p>In accordance with                      the Surveillance                      Frequency Control                      Program</p>
<p>SR 3.4.11.2</p> <p>Perform a complete cycle of each PORV.</p>	<p>In accordance with                      the Inservice                      Testing Program</p>

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.12 Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of zero safety injection pumps, one Emergency Core Cooling System (ECCS) centrifugal charging pump, and the normal charging pump capable of injecting into the RCS and the accumulators isolated and one of the following pressure relief capabilities:

- a. Two power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR, or
- b. Two residual heat removal (RHR) suction relief valves with setpoints  $\geq 436.5$  psig and  $\leq 463.5$  psig, or
- c. One PORV with a lift setting within the limits specified in the PTLR and one RHR suction relief valve with a setpoint  $\geq 436.5$  psig and  $\leq 463.5$  psig, or
- d. The RCS depressurized and an RCS vent of  $\geq 2.0$  square inches.

-----NOTES-----

1. Two ECCS centrifugal charging pumps may be made capable of injecting for  $\leq 1$  hour for pump swap operation.
  2. Two safety injection pumps and two ECCS centrifugal charging pumps may be made capable of injecting into the RCS: (a) in MODE 3 with any RCS cold leg temperature  $\leq 368^\circ\text{F}$  and ECCS pumps OPERABLE pursuant to LCO 3.5.2, "ECCS - Operating," and (b) for up to 4 hours after entering MODE 4 from MODE 3 or until the temperature of one or more RCS cold leg decreases below  $325^\circ\text{F}$ , whichever comes first.
  3. One or more safety injection pumps may be made capable of injecting into the RCS in MODES 5 and 6 when the RCS water level is below the top of the reactor vessel flange for the purpose of protecting the decay heat removal function.
  4. Accumulator may be unisolated when accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.
-

APPLICABILITY: MODE 3, with any RCS cold leg temperature  $\leq 368^{\circ}\text{F}$ ,  
MODE 4,  
MODE 5,  
MODE 6 when the reactor vessel head is on.

ACTIONS

-----NOTE-----  
LCO 3.0.4b. is not applicable when entering MODE 4 or MODE 3.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more safety injection pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of zero safety injection pumps are capable of injecting into the RCS.	Immediately
B. Two ECCS centrifugal charging pumps capable of injecting into the RCS.	B.1 Initiate action to verify a maximum of one ECCS centrifugal charging pump and the normal charging pump capable of injecting into the RCS.	Immediately
C. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	C.1 Isolate affected accumulator.	1 hour

(continued)



**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of zero safety injection pumps are capable of injecting into the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.2	Verify a maximum of one ECCS centrifugal charging pump and the normal charging pump capable of injecting into the RCS.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.3	Verify each accumulator is isolated when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.4	Verify RHR suction isolation valves are open for each required RHR suction relief valve.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.5	Verify required RCS vent $\geq 2.0$ square inches open.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	Verify PORV block valve is open for each required PORV.	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.7	Not Used.	
SR 3.4.12.8	<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after decreasing any RCS cold leg temperature to <math>\leq 368^{\circ}\text{F}</math>.</p> <p>-----</p> <p>Perform a COT on each required PORV, excluding actuation.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.4.12.9	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE;
- b. 1 gpm unidentified LEAKAGE;
- c. 10 gpm identified LEAKAGE; and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressure boundary LEAKAGE exists.	A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.	4 hours
B. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	B.1 Reduce LEAKAGE to within limits.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.  <u>OR</u>  Primary to secondary LEAKAGE not within limit.	C.1 Be in MODE 3.  <u>AND</u>	6 hours
	C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>Not required to be performed until 12 hours after establishment of steady state operation.</li> <li>Not applicable to primary to secondary LEAKAGE.</li> </ol> <p>-----</p> <p>Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.13.2 -----NOTE-----</p> <p>Not required to be performed until 12 hours after establishment of steady state operation.</p> <p>-----</p> <p>Verify primary to secondary LEAKAGE is <math>\leq</math> 150 gallons per day through any one SG.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1, 2, and 3,  
MODE 4, except valves in the residual heat removal (RHR) flow path when in, or during the transition to or from, the RHR mode of operation.

ACTIONS

-----NOTES-----

1. Separate Condition entry is allowed for each flow path.
  2. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary. -----</p>	
	<p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one deactivated remote manual or check valve.</p>	4 hours
	<p><u>AND</u> A.2. Restore RCS PIV to within limits.</p>	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time for Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.</p>	<p>6 hours  36 hours</p>
<p>C. RHR suction isolation valve interlock function inoperable.</p>	<p>C.1 Isolate the affected penetration by use of one deactivated remote manual valve.</p>	<p>4 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.14.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed in MODES 3 and 4.</li> <li>2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation.</li> <li>3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided.</li> </ol> <p>-----</p> <p>Verify leakage from each RCS PIV is equivalent to <math>\leq 0.5</math> gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure <math>\geq 2215</math> psig and <math>\leq 2255</math> psig.</p>	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, and if leakage testing has not been performed in the previous 9 months</p> <p><u>AND</u></p> <p>Within 24 hours following check valve actuation due to flow through the valve</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.14.2	Verify RHR suction isolation valve interlock prevents the valves from being opened with a simulated or actual RCS pressure signal $\geq 425$ psig except when the valves are open to satisfy LCO 3.4.12.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

- a. The containment sump level and flow monitoring system;
- b. One containment atmosphere particulate radioactivity monitor; and
- c. One containment air cooler condensate monitoring system.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required containment sump level and flow monitoring system inoperable.</p>	<p>A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. -----</p> <p>Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.2 Restore required containment sump level and flow monitoring system to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>-----NOTE----- The Completion Time is extended beyond the 30 days until startup from a plant shutdown or startup from Refueling Outage 20. -----</p> <p>30 days</p>

(continued)



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required containment atmosphere particulate radioactivity monitor inoperable.</p> <p><u>AND</u></p> <p>Required containment cooler condensate monitoring system inoperable.</p>	<p>D.1 Restore required containment atmosphere particulate radioactivity monitor to OPERABLE status.</p> <p><u>OR</u></p> <p>D.2 Restore required containment cooler condensate monitoring system to OPERABLE status.</p>	<p>30 days</p> <p>30 days</p>
<p>E. Required Action and associated Completion Time not met.</p>	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>F. All required monitoring methods inoperable.</p>	<p>F.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere particulate radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.2	Perform COT of the required containment atmosphere particulate radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump level and flow monitoring system.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere particulate radioactivity monitor.	In accordance with the Surveillance Frequency Control Program
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the required containment cooler condensate monitoring system.	In accordance with the Surveillance Frequency Control Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. DOSE EQUIVALENT I-131 not within limit.</p>	<p>-----NOTE----- LCO 3.0.4c. is applicable. -----</p> <p>A.1 Verify DOSE EQUIVALENT I-131 <math>\leq 60 \mu\text{Ci/gm}</math>.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limit.</p>	<p>Once per 4 hours</p> <p>48 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>DOSE EQUIVALENT XE-133 not within limit.</p> <p><u>OR</u></p> <p>DOSE EQUIVALENT I-131 <math>&gt; 60 \mu\text{Ci/gm}</math>.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	<p>-----NOTE----- Only required to be performed in MODE 1. -----</p> <p>Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity <math>\leq 500 \mu\text{Ci/gm}</math>.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
SR 3.4.16.2	<p>-----NOTE----- Only required to be performed in MODE 1. -----</p> <p>Verify reactor coolant DOSE EQUIVALENT I-131 specific activity <math>\leq 1.0 \mu\text{Ci/gm}</math>.</p>	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>Between 2 and 6 hours after a THERMAL POWER change of <math>\geq 15\%</math> RTP within a 1 hour period</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube plugging criteria shall be plugged in accordance with the Steam Generator Program.

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

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SG tubes satisfying the tube plugging criteria and not plugged in accordance with the Steam Generator Program.	A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection.	7 days
	<u>AND</u> A.2 Plug the affected tube(s) in accordance with the Steam Generator Program.	Prior to entering MODE 4 following the next refueling outage or SG tube inspection
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u> SG tube integrity not maintained.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

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, both safety injection (SI) 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. Operation in MODE 3 with ECCS pumps made incapable of injecting pursuant to LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," is allowed for up to 4 hours or until the temperature of all RCS cold legs exceeds 375°F, whichever comes first.
- 

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable.	A.1 Restore train(s) to OPERABLE status.	72 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 4.	6 hours    12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	C.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY																								
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed.	In accordance with the Surveillance Frequency Control Program																								
	<table border="1"> <thead> <tr> <th><u>Number</u></th> <th><u>Position</u></th> <th><u>Function</u></th> </tr> </thead> <tbody> <tr> <td>BN HV-8813</td> <td>Open</td> <td>Safety Injection to RWST Isolation Valve</td> </tr> <tr> <td>EM HV-8802A</td> <td>Closed</td> <td>SI Hot Legs 2 &amp; 3 Isolation Valve</td> </tr> <tr> <td>EM HV-8802B</td> <td>Closed</td> <td>SI Hot Legs 1 &amp; 4 Isolation Valve</td> </tr> <tr> <td>EM HV-8835</td> <td>Open</td> <td>Safety Injection Cold Leg Isolation Valve</td> </tr> <tr> <td>EJ HV-8840</td> <td>Closed</td> <td>RHR/SI Hot Leg Recirc Isolation Valve</td> </tr> <tr> <td>EJ HV-8809A</td> <td>Open</td> <td>RHR to Accum Inject Loops 1 &amp; 2 Isolation Valve</td> </tr> <tr> <td>EJ HV-8809B</td> <td>Open</td> <td>RHR to Accum Inject Loops 3 &amp; 4 Isolation Valve</td> </tr> </tbody> </table>		<u>Number</u>	<u>Position</u>	<u>Function</u>	BN HV-8813	Open	Safety Injection to RWST Isolation Valve	EM HV-8802A	Closed	SI Hot Legs 2 & 3 Isolation Valve	EM HV-8802B	Closed	SI Hot Legs 1 & 4 Isolation Valve	EM HV-8835	Open	Safety Injection Cold Leg Isolation Valve	EJ HV-8840	Closed	RHR/SI Hot Leg Recirc Isolation Valve	EJ HV-8809A	Open	RHR to Accum Inject Loops 1 & 2 Isolation Valve	EJ HV-8809B	Open	RHR to Accum Inject Loops 3 & 4 Isolation Valve
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EJ HV-8809B	Open	RHR to Accum Inject Loops 3 & 4 Isolation Valve																								
SR 3.5.2.2	<p>-----NOTE-----                      Not required to be met for system vent flow paths opened under administrative control.                      -----</p> <p>Verify each ECCS 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.</p>	In accordance with the Surveillance Frequency Control Program																								
SR 3.5.2.3	Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program																								
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program																								

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY												
SR 3.5.2.5	Verify each ECCS 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 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program												
SR 3.5.2.7	<p>Verify, for each ECCS throttle valve listed below, each mechanical position stop is in the correct position.</p> <p style="text-align: center;"><u>Valve Number</u></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>EM-V0095</td> <td>EM-V0107</td> <td>EM-V0089</td> </tr> <tr> <td>EM-V0096</td> <td>EM-V0108</td> <td>EM-V0090</td> </tr> <tr> <td>EM-V0097</td> <td>EM-V0109</td> <td>EM-V0091</td> </tr> <tr> <td>EM-V0098</td> <td>EM-V0110</td> <td>EM-V0092</td> </tr> </table>	EM-V0095	EM-V0107	EM-V0089	EM-V0096	EM-V0108	EM-V0090	EM-V0097	EM-V0109	EM-V0091	EM-V0098	EM-V0110	EM-V0092	In accordance with the Surveillance Frequency Control Program
EM-V0095	EM-V0107	EM-V0089												
EM-V0096	EM-V0108	EM-V0090												
EM-V0097	EM-V0109	EM-V0091												
EM-V0098	EM-V0110	EM-V0092												

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS -Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

-----NOTE-----  
An RHR subsystem may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned to the ECCS mode of operation.  
-----

APPLICABILITY: MODE 4.

ACTIONS

-----NOTE-----  
LCO 3.0.4b. is not applicable to ECCS centrifugal charging pump subsystem.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately
B. Required ECCS centrifugal charging pump (CCP) subsystem inoperable.	B.1 Restore required ECCS CCP subsystem to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 5.	24 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	<p>The following SRs are applicable for all equipment required to be OPERABLE:</p> <p>SR 3.5.2.1                      SR 3.5.2.7  SR 3.5.2.3  SR 3.5.2.4</p>	In accordance with applicable SRs

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**

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. RWST boron concentration not within limits.</p> <p><u>OR</u></p> <p>RWST borated water temperature not within limits.</p>	<p>A.1 Restore RWST to OPERABLE status.</p>	<p>8 hours</p>
<p>B. RWST inoperable for reasons other than Condition A.</p>	<p>B.1 Restore RWST to OPERABLE status.</p>	<p>1 hour</p>
<p>C. Required Action and associated Completion Time not met.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	<p>-----NOTE-----            Only required to be performed when ambient air temperature is &lt; 37°F or &gt; 100°F.            -----</p> <p>Verify RWST borated water temperature is <math>\geq 37^{\circ}\text{F}</math> and <math>\leq 100^{\circ}\text{F}</math>.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.2	Verify RWST borated water volume is $\geq 394,000$ gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.4.3	Verify RWST boron concentration is $\geq 2400$ ppm and $\leq 2500$ ppm.	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.5 Seal Injection Flow

LCO 3.5.5 Reactor coolant pump seal injection flow to each RCP seal shall be within the limits of Figure 3.5.5-1.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Seal injection flow not within limit.	A.1 Adjust manual seal injection throttle valves to give a flow within the limits of Figure 3.5.5-1.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
<p>SR 3.5.5.1</p> <p>-----NOTE-----            Not required to be performed until 4 hours after the Reactor Coolant System pressure stabilizes at <math>\geq 2215</math> psig and <math>\leq 2255</math> psig.            -----</p> <p>Verify manual seal injection throttle valves are adjusted to give a flow within the limits of Figure 3.5.5-1.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

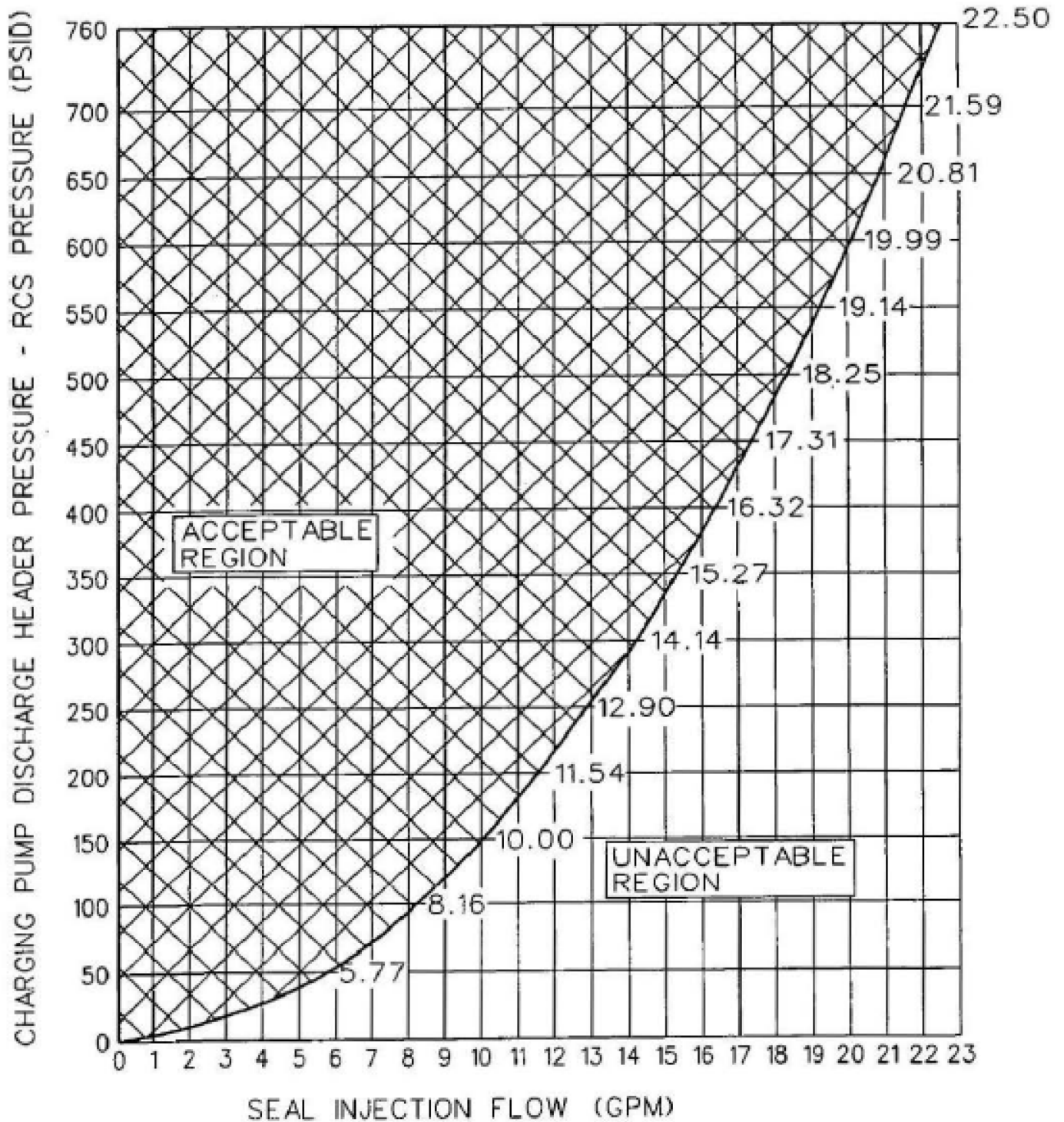


Figure 3.5.5-1 (page 1 of 1)  
Seal Injection Flow Limits

ACTIONS (continued)

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p>	<p>A.2 -----NOTES-----</p> <ol style="list-style-type: none"> <li data-bbox="781 1268 1117 1430">1. Isolation devices in high radiation areas may be verified by use of administrative means.</li> <li data-bbox="781 1472 1127 1667">2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.</li> </ol> <p>-----</p>	<p>24 hours for Category 4 CIVs</p> <p><u>AND</u></p> <p>48 hours for Category 5 CIVs</p> <p><u>AND</u></p> <p>72 hours for Category 6 CIVs</p> <p><u>AND</u></p> <p>7 days for Category 7 CIVs</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p>	<p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days following isolation for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>
<p>B. -----NOTE----- Only applicable to penetration flow paths with two containment isolation valves. -----</p> <p>One or more penetration flow paths with two containment isolation valves inoperable except for containment purge valve leakage not within limit.</p>	<p>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.</p>	<p>1 hour</p>
<p>C. Two or more penetration flow paths with one containment isolation valve inoperable for reasons other than Condition D.</p>	<p>C.1 Isolate all but one penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>4 hours</p>

(continued)

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  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 5.	6 hours    84 hours
C. One containment cooling train inoperable.	C.1 Restore containment cooling train to OPERABLE status.	7 days  <u>OR</u>  In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Two containment cooling trains inoperable.</p>	<p>D.1 Restore one containment cooling train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>E. Required Action and associated Completion Time of Condition C or D not met.</p>	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>F. Two containment spray trains inoperable.</p> <p><u>OR</u></p> <p>Any combination of three or more trains inoperable.</p>	<p>F.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	<p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>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.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.2	Operate each containment cooling train fan unit for $\geq 15$ minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.3	Not Used.	
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray 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 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.7	Verify each containment cooling train starts automatically and minimum cooling water flow rate is established on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage
SR 3.6.6.9	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs) and MSIV Bypass Valves

LCO 3.7.2 Four MSIVs and their associated actuator trains, and four MSIV bypass valves shall be OPERABLE.

- NOTE-----
1. All MSIVs and their associated actuator trains may be inoperable in MODES 2 and 3 when closed and de-activated.
  2. One or more MSIV bypass valves may be inoperable when closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves.
- 

APPLICABILITY: MODE 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV actuator train inoperable.	A.1 Restore MSIV actuator train to OPERABLE status.	7 days  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
B. Two MSIV actuator trains inoperable for different MSIVs when the inoperable actuator trains are not in the same separation group.	B.1 Restore one MSIV actuator train to OPERABLE status.	72 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Two MSIV actuator trains inoperable when the inoperable actuator trains are in the same separation group.</p>	<p>C.1 Restore one MSIV actuator train to OPERABLE status.</p>	<p>24 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program</p>
<p>D. Two actuator trains for one MSIV inoperable.</p>	<p>D.1 Declare the affected MSIV inoperable.</p>	<p>Immediately</p>
<p>E. Three or more MSIV actuator trains inoperable.  <u>OR</u>  Required Action and associated Completion Time of Condition A, B, or C not met.</p>	<p>E.1 Declare each affected MSIV inoperable.</p>	<p>Immediately</p>
<p>F. One MSIV inoperable in MODE 1.</p>	<p>F.1 Restore MSIV to OPERABLE status.</p>	<p>8 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Required Action and associated Completion Time of Condition F not met.</p>	<p>G.1 Be in MODE 2.</p>	<p>6 hours</p>
<p>H. -----NOTE----- Separate Condition entry is allowed for each MSIV bypass valve. ----- One or more MSIV bypass valves inoperable.</p>	<p>H.1 Close or isolate MSIV bypass valve.  <u>AND</u> H.2 Verify MSIV bypass valve is closed or isolated.</p>	<p>8 hours  Once per 7 days</p>
<p>I. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIV inoperable in MODE 2 or 3.</p>	<p>I.1 Close MSIV.  <u>AND</u> I.2 Verify MSIV is closed.</p>	<p>8 hours  Once per 7 days</p>
<p>J. Required Action and associated Completion Time of Condition H or I not met.</p>	<p>J.1 Be in MODE 3.  <u>AND</u> J.2 Be in MODE 4.</p>	<p>6 hours  12 hours</p>

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	<p>-----NOTE----- Only required to be performed in MODES 1 and 2. -----</p> <p>Verify the isolation time of each MSIV is within limits.</p>	In accordance with the Inservice Testing Program
SR 3.7.2.2	<p>-----NOTE----- Only required to be performed in MODES 1 and 2. -----</p> <p>Verify each actuator train actuates the MSIV to the isolation position on an actual or simulated actuation signal.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.3	Verify each MSIV bypass valve actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.2.4	Verify isolation time of each MSIV bypass valve is within limit.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief Valves (ARVs)

LCO 3.7.4 Four ARV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ARV line inoperable for reasons other than excessive leakage.	A.1 Restore required ARV line to OPERABLE status.	7 days  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
B. Two ARV lines inoperable for reasons other than excessive leakage.	B.1 Restore all but one required ARV line to OPERABLE status.	72 hours
C. Three or more ARV lines inoperable for reasons other than excessive leakage.	C.1 Restore all but two ARV lines to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. With one or more of the ARVs inoperable because of excessive seat leakage.	D.1 Initiate action to close the associated block valve(s).	Immediately
	<u>AND</u>	
	D.2 Restore ARV(s) to OPERABLE status.	30 days
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	E.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.4.1 Verify one complete cycle of each ARV.	In accordance with the Inservice Testing Program
SR 3.7.4.2 Verify one complete cycle of each ARV block valve.	In accordance with the Surveillance Frequency Control Program

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 when entering MODE 1.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
B. One ESW supply to turbine driven AFW pump inoperable.	B.1 Restore ESW supply to OPERABLE status.	72 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One AFW train inoperable for reasons other than Condition A or B.</p>	<p>C.1 Restore AFW train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>D. Required Action and associated Completion Time for Condition A, B, or C not met.</p> <p><u>OR</u></p> <p>Two AFW trains inoperable.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>
<p>E. Three AFW trains inoperable.</p>	<p>E.1</p> <p>-----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.  -----</p> <p>Initiate action to restore one AFW train to OPERABLE status.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	<p>-----NOTE----- Not required to be performed for the AFW flow control valves until the system is placed in standby or THERMAL POWER is &gt; 10% RTP. -----</p> <p>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.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	<p>-----NOTE----- Not required to be performed for the turbine driven AFW pump until 24 hours after <math>\geq 900</math> psig in the steam generator. -----</p> <p>Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.</p>	In accordance with the Inservice Test Program
SR 3.7.5.3	Verify each AFW automatic valve 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 3.7.5.4	<p>-----NOTE----- Not required to be performed for the turbine driven AFW pump until 24 hours after <math>\geq 900</math> psig in the steam generator. -----</p> <p>Verify each AFW pump starts automatically on an actual or simulated actuation signal.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.5	Verify proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.	Prior to entering MODE 2 whenever unit has been in MODE 5 or 6 for > 30 days

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST contained water volume shall be  $\geq$  281,000 gal.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. CST contained water volume not within limit.</p>	<p>A.1 Verify by administrative means OPERABILITY of backup water supply.</p> <p><u>AND</u></p> <p>A.2 Restore CST contained water volume to within limit.</p>	<p>4 hours</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>7 days</p>
<p>B. Required Action and associated Completion Time not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.6.1      Verify the CST contained water volume is $\geq 281,000$ 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.	<p>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. -----</p> <p>Restore CCW train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
B. Required Action and associated Completion Time of Condition A not met.	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.7.1</p> <p>-----NOTE----- Isolation of CCW flow to individual components does not render the CCW System inoperable. -----</p> <p>Verify each CCW 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.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.7.2</p> <p>Verify each CCW 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.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.7.3</p> <p>Verify each CCW pump starts automatically on an actual or simulated actuation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.7 PLANT SYSTEMS

3.7.8 Essential Service Water (ESW) System

LCO 3.7.8 Two ESW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One ESW train inoperable.</p>	<p>A.1</p> <p>-----NOTES-----</p> <p>1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by ESW System.</p> <p>2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by ESW System.</p> <p>-----</p> <p>Restore ESW train to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>

(continued)

ACTIONS (continued)

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.8.1 -----NOTE----- Isolation of ESW System flow to individual components does not render the ESW System inoperable. -----</p> <p>Verify each ESW 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.</p>	In accordance with the Surveillance Frequency Control Program
<p>SR 3.7.8.2 Verify each ESW 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.</p>	In accordance with the Surveillance Frequency Control Program
<p>SR 3.7.8.3 Verify each ESW pump starts automatically on an actual or simulated actuation signal.</p>	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Plant inlet water temperature of UHS not within limit.</p>	<p>A.1 Verify water level of main cooling lake <math>\geq</math> 1075 ft. mean sea level.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p>
	<p><u>AND</u></p> <p>A.2 Verify plant inlet water temperature of UHS is <math>\leq</math> 94°F.</p>	<p>Once per hour</p>
<p>B. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>UHS inoperable for reasons other than Condition A.</p>	<p>B.1 Be in MODE 3.</p>	<p>6 hours</p>
	<p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is $\geq$ 1070 ft mean sea level.	In accordance with the Surveillance Frequency Control Program
SR 3.7.9.2	Verify plant inlet water temperature of UHS is $\leq$ 90°F.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS trains shall be OPERABLE.

-----NOTE-----  
The control room envelope (CRE) and control building envelope (CBE) boundaries may be opened intermittently under administrative controls that ensure the building boundary can be closed consistent with the safety analysis.  
-----

APPLICABILITY: MODES 1, 2, 3, and 4,  
During CORE ALTERATIONS,  
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREVS train inoperable for reasons other than Condition B.	A.1 Restore CREVS train to OPERABLE status.	7 days
B. One or more CREVS trains inoperable due to an inoperable CRE boundary or an inoperable CBE boundary in MODES 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u>	
	B.2 Verify mitigating actions to ensure CRE occupant radiological exposures will not exceed limits and CRE occupants are protected from chemical and smoke hazards.	24 hours
	<u>AND</u>	
	B.3 Restore CRE boundary and CBE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies or during CORE ALTERATIONS.</p>	<p>D.1 Place OPERABLE CREVS train in CRVIS mode.</p> <p><u>OR</u></p> <p>D.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>D.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>E. Two CREVS trains inoperable during movement of irradiated fuel assemblies or during CORE ALTERATIONS.</p> <p><u>OR</u></p> <p>One or more CREVS trains inoperable due to an inoperable CRE boundary or an inoperable CBE boundary during movement of irradiated fuel assemblies or during CORE ALTERATIONS.</p>	<p>E.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>E.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p> <p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.10.1 Operate each CREVS train pressurization filter unit for $\geq 15$ continuous minutes with the heaters operating and each CREVS train filtration filter unit for $\geq 15$ continuous minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.2 Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3 Verify each CREVS train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.10.4 Perform required unfiltered air leakage testing of the CRE and CBE boundaries in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Habitability Program

3.7 PLANT SYSTEMS

3.7.11 Control Room Air Conditioning System (CRACS)

LCO 3.7.11 Two CRACS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,  
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRACS train inoperable.	A.1 Restore CRACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies .</p>	<p>C.1 Place OPERABLE CRACS train in operation.</p> <p><u>OR</u></p> <p>C.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>C.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>D. Two CRACS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.</p>	<p>D.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>D.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p> <p>Immediately</p>
<p>E. Two CRACS trains inoperable in MODE 1, 2, 3, or 4.</p>	<p>E.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

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

#### 3.7.12 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

NOT USED

3.7 PLANT SYSTEMS

3.7.13 Emergency Exhaust System (EES)

LCO 3.7.13 Two EES trains shall be OPERABLE.

-----NOTE-----  
The auxiliary building or fuel building boundary may be opened intermittently under administrative controls that ensure the building boundary can be closed consistent with the safety analysis.  
-----

APPLICABILITY: MODES 1, 2, 3, and 4,  
During movement of irradiated fuel assemblies in the fuel building.

-----NOTE-----  
The SIS mode of operation is required only in MODES 1, 2, 3, and 4. The FBVIS mode of operation is required only during movement of irradiated fuel assemblies in the fuel building.  
-----

ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable to the FBVIS mode of operation.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EES train inoperable.	A.1 Restore EES train to OPERABLE status.	7 days
B. Two EES trains inoperable due to inoperable auxiliary building boundary in MODE 1, 2, 3, or 4.	B.1 Initiate actions to implement mitigating actions.  <u>AND</u>	Immediately  (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. (continued)</p>	<p>B.2 Verify mitigating actions ensure main control room occupants do not exceed 10 CFR 50 Appendix A GDC 19 limits.</p> <p><u>AND</u></p> <p>B.3 Restore building boundary to OPERABLE status.</p>	<p>24 hours</p> <p>24 hours</p>
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>Two EES trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the fuel building.</p>	<p>D.1 Place OPERABLE EES train in operation in FBVIS mode.</p> <p><u>OR</u></p> <p>D.2 Suspend movement of irradiated fuel assemblies in the fuel building.</p>	<p>Immediately</p> <p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two EES trains inoperable for reasons other than Condition B during movement of irradiated fuel assemblies in the fuel building.	E.1 Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.13.1 Operate each EES train for $\geq 15$ continuous minutes with the heaters operating.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.2 Perform required EES filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.3 Verify each EES train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.13.4	Verify one EES train can maintain a negative pressure $\geq 0.25$ inches water gauge with respect to atmospheric pressure in the auxiliary building during the SIS mode of operation.	In accordance with the Surveillance Frequency Control Program
SR 3.7.13.5	Verify one EES train can maintain a negative pressure $\geq 0.25$ inches water gauge with respect to atmospheric pressure in the fuel building during the FBVIS mode of operation.	In accordance with the Surveillance Frequency Control Program

### 3.7 PLANT SYSTEMS

#### 3.7.14 Penetration Room Exhaust Air Cleanup System (PREACS)

NOT USED

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Water Level

LCO 3.7.15 The fuel storage pool water level shall be  $\geq 23$  ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 -----NOTE----- LCO 3.0.3 is not applicable. -----  Suspend movement of irradiated fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.15.1 Verify the fuel storage pool water level is $\geq 23$ ft above the top of the irradiated fuel assemblies seated in the storage racks.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Boron Concentration

LCO 3.7.16 The fuel storage pool boron concentration shall be  $\geq$  2165 ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool and a fuel storage pool verification has not been performed since the last movement of fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME	
<p>A. Fuel storage pool boron concentration not within limit.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p>		
	<p>A.1 Suspend movement of fuel assemblies in the fuel storage pool.</p>		<p>Immediately</p>
	<p><u>AND</u></p>		
	<p>A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.</p>		<p>Immediately</p>
<p><u>OR</u></p>			
<p>A.2.2 Verify by administrative means that a non-Region 1 fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.</p>	<p>Immediately</p>		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.16.1      Verify the fuel storage pool boron concentration is within limit.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.17 Spent Fuel Assembly Storage

LCO 3.7.17            The combination of initial enrichment and burnup of each spent fuel assembly stored in Region 2 or 3 shall be within the Acceptable Domain of Figure 3.7.17-1 or in accordance with Specification 4.3.1.1.

APPLICABILITY:    Whenever any fuel assembly is stored in Region 2 or 3 of the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1            -----NOTE----- LCO 3.0.3 is not applicable. -----  Initiate action to move the noncomplying fuel assembly to Region 1.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.17.1        Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.17-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in Region 2 or 3

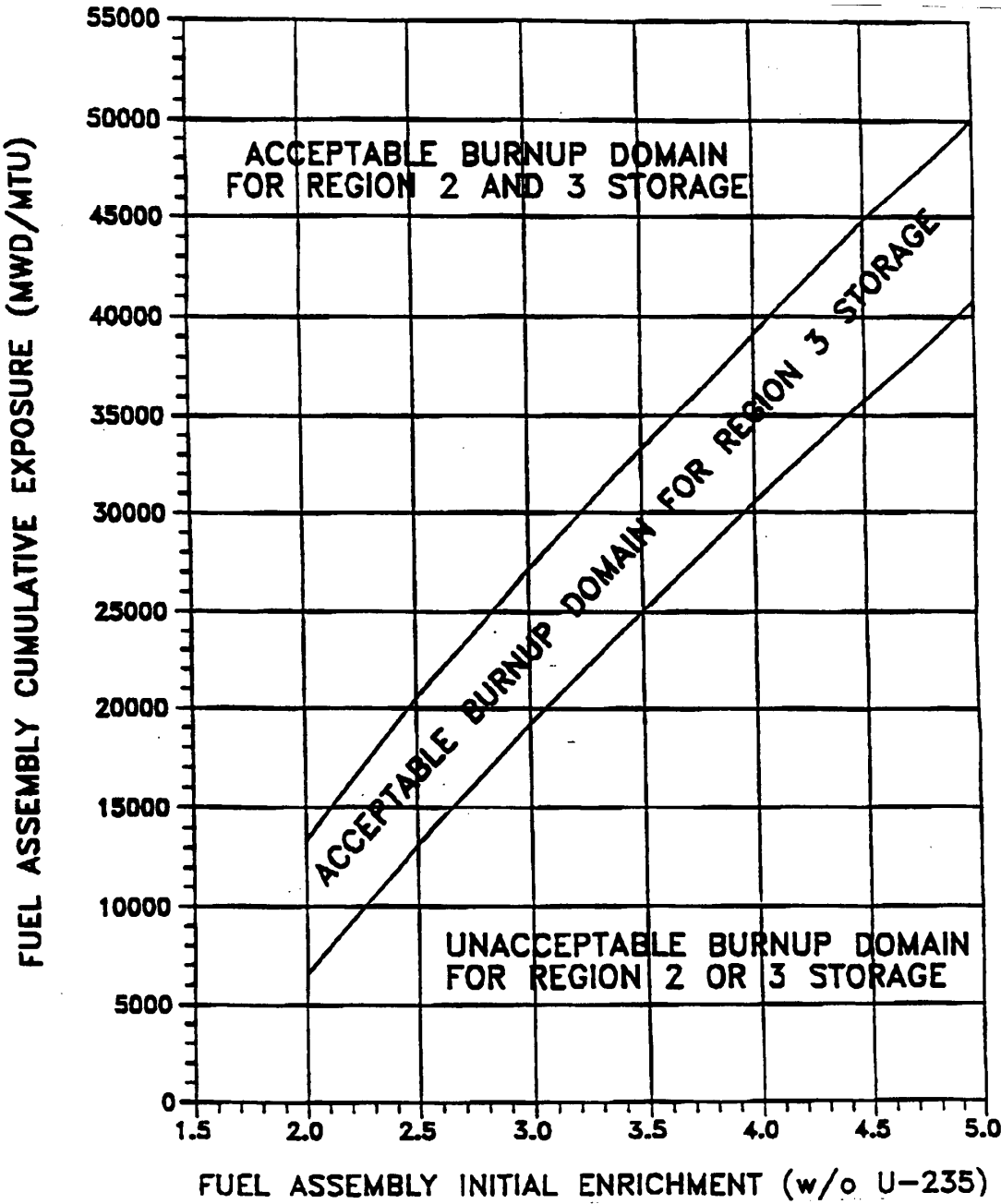


Figure 3.7.17-1 (page 1 of 1)  
Minimum Required Fuel Assembly Burnup as a Function  
of Initial Enrichment to Permit Storage in Regions 2 and 3

3.7 PLANT SYSTEMS

3.7.18 Secondary Specific Activity

LCO 3.7.18            The specific activity of the secondary coolant shall be  $\leq 0.10 \mu\text{Ci/gm}$  DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1      Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2      Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.18.1      Verify the specific activity of the secondary coolant is $\leq 0.10 \mu\text{Ci/gm}$ DOSE EQUIVALENT I-131.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.19 Secondary System Isolation Valves (SSIVs)

LCO 3.7.19 Each SSIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3, except when the SSIV is closed and de-activated, or is closed and isolated by a closed manual valve, or the flow path is isolated by a combination of closed manual valve(s) and closed de-activated automatic valve(s).

ACTIONS

-----NOTE-----

1. Separate Condition entry is allowed for each SSIV.
  2. SSIVs may be unisolated intermittently under administrative controls.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SSIVs inoperable.	A.1 Close or isolate SSIV.	7 days
	<u>AND</u> A.2 Verify SSIV is closed or isolated.	Once per 7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.7.19.1	Verify each automatic SSIV in the flow path is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.19.2	Verify the isolation time of each automatic SSIV is within limit.	In accordance with the Inservice Testing Program
SR 3.7.19.3	Verify each automatic SSIV in the flow path actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

3.7 PLANT SYSTEMS

3.7.20 Class 1E Electrical Equipment Air Conditioning (A/C) System

LCO 3.7.20 Two Class 1E electrical equipment A/C trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Class 1E electrical equipment A/C train inoperable.	A.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u>	
	A.2 Verify room area temperatures $\leq 90^{\circ}$ F.	1 hour <u>AND</u> Once per 4 hours thereafter
	<u>AND</u>	
	A.3 Restore Class 1E electrical equipment A/C train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	B.2 Be in MODE 5.	36 hours
C. Two Class 1E electrical equipment A/C trains inoperable.	C.1 Enter LCO 3.0.3	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.20.1	Verify each Class 1E electrical equipment A/C train actuates on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.20.2	Verify each Class 1E electrical equipment A/C train has the capability to remove the assumed heat load.	In accordance with the Surveillance Frequency Control Program

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>A.3 Restore offsite circuit to OPERABLE status.</p>	<p>24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)</p> <p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
B. One DG inoperable.	<p>B.1 Perform SR 3.8.1.1 for the offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Verify the required Station Blackout (SBO) DGs are available.</p> <p><u>AND</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. (continued)</p>	<p>B.5.1 Restore DG to OPERABLE status.</p> <p><u>OR</u></p> <p>B.5.2 -----NOTE----- Only applicable to planned maintenance once per cycle, per train, or unplanned corrective maintenance. -----</p> <p>Restore DG to OPERABLE status.</p>	<p>72 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p> <p>14 days</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>C. Required Action B.2 and associated Completion Time not met.</p>	<p>C.1 Restore DG to OPERABLE status.</p> <p><u>OR</u></p>	<p>72 hours from Condition B entry</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Restore DG to OPERABLE status.	<p>-----NOTE----- Only allowed once within any given extended DG Completion Time -----</p> <p>24 hours from Condition C entry</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
	<u>OR</u>	
	C.3 Restore required SBO DGs to available status.	72 hours from Condition B entry
	<u>OR</u>	<p>-----NOTE----- Only allowed once within any given extended DG Completion Time -----</p> <p>24 hours from Condition C entry</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Two offsite circuits inoperable.</p>	<p>D.1 -----NOTE----- In MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. ----- Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>D.2 Restore one offsite circuit to OPERABLE status.</p>	<p>12 hours from discovery of Condition D concurrent with inoperability of redundant required features</p> <p>24 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p>
<p>E. One offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition E is entered with no AC power source to any train. -----</p> <p>E.1 Restore offsite circuit to OPERABLE status.</p> <p><u>OR</u></p>	<p>12 hours</p> <p><u>OR</u></p> <p>In accordance with the Risk Informed Completion Time Program</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.2 Restore DG to OPERABLE status.	12 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
F. Two DGs inoperable.	F.1 Restore one DG to OPERABLE status.	2 hours
G. One load shedder and emergency load sequencer inoperable.	G.1 Declare affected DG and offsite circuit inoperable.  <u>AND</u>  G.2 Restore load shedder and emergency load sequencer to OPERABLE status.	Immediately    12 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>H. Required Action and associated Completion Time of Condition A, C, D, E, F, or G not met.</p> <p><u>OR</u></p> <p>Required Actions B.1, B.3, B.4.1, B.4.2, B.5.1, and B.5.2 and associated Completion Time not met.</p>	<p>H.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>H.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>I. Three or more required AC sources inoperable.</p>	<p>I.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Performance of SR 3.8.1.7 satisfies this SR.</li> <li>2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.</li> <li>3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.</li> </ol> <p>-----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V, and frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. DG loadings may include gradual loading as recommended by the manufacturer.</li> <li>2. Momentary transients outside the load range do not invalidate this test.</li> <li>3. This Surveillance shall be conducted on only one DG at a time.</li> <li>4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7.</li> </ol> <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for <math>\geq 60</math> minutes at a load <math>\geq 5650</math> kW and <math>\leq 6201</math> kW.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.4</p> <p>Verify each fuel oil transfer pump starts on low level in the associated day tank standpipe.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each day tank.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.6</p> <p>Verify each fuel oil transfer system operates to transfer fuel oil from the storage tank to the day tank.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	<p>-----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify each DG starts from standby condition and achieves:</p> <p>a. In <math>\leq 12</math> seconds, voltage <math>\geq 3950</math> V and frequency <math>\geq 59.4</math> Hz; and</p> <p>b. Steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V, and frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.8	Not Used.	
SR 3.8.1.9	Not Used.	
SR 3.8.1.10	<p>-----NOTE----- If performed with DG synchronized with offsite power, it shall be performed at a power factor <math>\leq 0.9</math>. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. -----</p> <p>Verify each DG does not trip and voltage is maintained <math>\leq 4992</math> V and frequency is maintained <math>\leq 65.4</math> Hz during and following a load rejection of <math>\geq 5650</math> kW and <math>\leq 6201</math> kW.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.11 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal:</p> <ol style="list-style-type: none"> <li>a. De-energization of emergency buses;</li> <li>b. Load shedding from emergency buses;</li> <li>c. DG auto-starts from standby condition and:               <ol style="list-style-type: none"> <li>1. energizes permanently connected loads in <math>\leq 12</math> seconds,</li> <li>2. energizes auto-connected shutdown loads through the shutdown sequencer,</li> <li>3. maintains steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V,</li> <li>4. maintains steady state frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz, and</li> <li>5. supplies permanently connected and auto-connected shutdown loads for <math>\geq 5</math> minutes.</li> </ol> </li> </ol>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.12</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by a prelube period.</li> <li>2. This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> <li>a. In <math>\leq 12</math> seconds after auto-start and during tests, achieves voltage <math>\geq 3950</math> V and frequency <math>\geq 59.4</math> Hz;</li> <li>b. Achieves steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V, and frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz;</li> <li>c. Operates for <math>\geq 5</math> minutes;</li> <li>d. Permanently connected loads remain energized from the offsite power system; and</li> <li>e. Emergency loads are auto-connected and energized through the LOCA sequencer from the offsite power system.</li> </ol>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13      Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal except:</p> <ul style="list-style-type: none"> <li>a.     Engine overspeed;</li> <li>b.     Generator differential current;</li> <li>c.     Low lube oil pressure;</li> <li>d.     High crankcase pressure;</li> <li>e.     Start failure relay; and</li> <li>f.     High jacket coolant temperature.</li> </ul>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.14</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Momentary transients outside the load and power factor ranges do not invalidate this test.</li> <li>2. If performed with DG synchronized with offsite power, it shall be performed at a power factor <math>\leq 0.9</math>. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable.</li> </ol> <p>-----</p> <p>Verify each DG operates for <math>\geq 24</math> hours:</p> <ol style="list-style-type: none"> <li>a. For <math>\geq 2</math> hours loaded <math>\geq 6300</math> kW and <math>\leq 6821</math> kW; and</li> <li>b. For the remaining hours of the test loaded <math>\geq 5650</math> kW and <math>\leq 6201</math> kW.</li> </ol>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.15</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated <math>\geq 2</math> hours loaded <math>\geq 5650</math> kW and <math>\leq 6201</math> kW. Momentary transients outside of load range do not invalidate this test.</li> <li>2. All DG starts may be preceded by an engine prelube period.</li> </ol> <p>-----</p> <p>Verify each DG starts and achieves:</p> <ol style="list-style-type: none"> <li>a. In <math>\leq 12</math> seconds, voltage <math>\geq 3950</math> V and frequency <math>\geq 59.4</math> Hz; and</li> <li>b. Steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V, and frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz.</li> </ol>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.16</p> <p>-----NOTE----- This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. -----</p> <p>Verify each DG:</p> <ul style="list-style-type: none"> <li>a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;</li> <li>b. Transfers loads to offsite power source; and</li> <li>c. Returns to ready-to-load operation.</li> </ul>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.17</p> <p>-----NOTE----- This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. -----</p> <p>Verify, with a DG operating in test mode and connected to its bus, an actual or simulated Safety Injection signal overrides the test mode by:</p> <ul style="list-style-type: none"> <li>a. Returning DG to ready-to-load operation; and</li> <li>b. Automatically energizing the emergency load from offsite power.</li> </ul>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENT (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.18</p> <p>-----NOTE-----            This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.            -----</p> <p>Verify interval between each sequenced load block is within <math>\pm 10\%</math> of design interval for each LOCA and shutdown sequence timer.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.19</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated Safety Injection signal:</p> <ol style="list-style-type: none"> <li>a. De-energization of emergency buses;</li> <li>b. Load shedding from emergency buses; and</li> <li>c. DG auto-starts from standby condition and:               <ol style="list-style-type: none"> <li>1. energizes permanently connected loads in <math>\leq 12</math> seconds,</li> <li>2. energizes auto-connected emergency loads through load sequencer,</li> <li>3. achieves steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V,</li> <li>4. achieves steady state frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz, and</li> <li>5. supplies permanently connected and auto-connected emergency loads for <math>\geq 5</math> minutes.</li> </ol> </li> </ol>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.20</p> <p>-----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify when started simultaneously from standby condition, each DG achieves:</p> <p>a. In <math>\leq 12</math> seconds, voltage <math>\geq 3950</math> V and frequency <math>\geq 59.4</math> Hz; and</p> <p>b. Steady state voltage <math>\geq 3950</math> V and <math>\leq 4320</math> V, and frequency <math>\geq 59.4</math> Hz and <math>\leq 60.6</math> Hz.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.8.1.21</p> <p>-----NOTE----- The continuity check may be excluded from the actuation logic test. -----</p> <p>Perform ACTUATION LOGIC TEST for each train of the load shedder and emergency load sequencer.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

- LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:
- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem required by LCO 3.8.10, "Distribution Systems - Shutdown"; and
  - b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystems required by LCO 3.8.10.
  - c. The shutdown portion of one load shedder and emergency load sequencer (LSELS) associated with the required DG and AC electrical power distribution train.

APPLICABILITY: MODES 5 and 6,  
During movement of irradiated fuel assemblies.

ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required offsite circuit inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with the required train de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>A.2.2 Suspend movement of irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
B. One required DG inoperable.	<p>B.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>B.2 Suspend movement of irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>B.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p> <p>B.4 Initiate action to restore required DG to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One required LSELS (shutdown portion) inoperable.	C.1 Declare the affected DG and offsite circuit inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTE-----</p> <p>The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.14, SR 3.8.1.15, SR 3.8.1.16, and SR 3.8.1.18.</p> <p>-----</p> <p>For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.12, SR 3.8.1.13, SR 3.8.1.17, SR 3.8.1.18 (LOCA portion), SR 3.8.1.19, and SR 3.8.1.20, and SR 3.8.1.21 (LOCA portion), are applicable.</p>	<p>In accordance with applicable SRs</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level < 85,300 gal and > 74,200 gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < 750 gal and > 686 gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates within limit.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One or more DGs with new fuel oil properties not within limits.</p>	<p>D.1 Restore stored fuel oil properties to within limits.</p>	<p>30 days</p>
<p>E. One or more DGs with two starting air receivers inservice with pressure &lt; 435 psig and ≥ 250 psig.</p> <p><u>OR</u></p> <p>One or more DGs with one starting air receiver inservice with pressure &lt; 610 psig and ≥ 300 psig.</p>	<p>E.1 Restore two starting air receivers with pressure ≥ 435 psig.</p> <p><u>OR</u></p> <p>E.2 Restore one starting air receiver with pressure ≥ 610 psig.</p>	<p>48 hours</p> <p>48 hours</p>
<p>F. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>One or more DGs diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	<p>F.1 Declare associated DG inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains $\geq 85,300$ gal of fuel.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.2	Verify lubricating oil inventory is $\geq 750$ gal.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify pressure in two starting air receivers is $\geq 435$ psig or pressure in one starting air receiver is $\geq 610$ psig for each DG starting air subsystem.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DC electrical power subsystem inoperable.	A.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours  <u>OR</u>  In accordance with the Risk Informed Completion Time Program
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 5.	6 hours    36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is $\geq 128.4$ V on float charge.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE				FREQUENCY
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors.  <u>OR</u>  Verify battery connection resistance is:			In accordance with the Surveillance Frequency Control Program
<u>Connections</u>	<u>60 cells</u>	<u>59 cells</u>	<u>58 cells</u>	
inter-cell	≤ 33 E-6 ohms	≤ 30 E-6 ohms	≤ 27 E-6 ohms	
inter-tier, inter-bank, terminal	≤ 150 E-6 ohms	≤ 150 E-6 ohms	≤ 150 E-6 ohms	
field jumper	NA	≤ 150 E-6 ohms	≤ 150 E-6 ohms	
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.			In accordance with the Surveillance Frequency Control Program
SR 3.8.4.4	Remove visible terminal corrosion, verify battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.			In accordance with the Surveillance Frequency Control Program
SR 3.8.4.5	Verify battery connection resistance is:			In accordance with the Surveillance Frequency Control Program
<u>Connections</u>	<u>60 cells</u>	<u>59 cells</u>	<u>58 cells</u>	
inter-cell	≤ 33 E-6 ohms	≤ 30 E-6 ohms	≤ 27 E-6 ohms	
inter-tier, inter-bank, terminal	≤ 150 E-6 ohms	≤ 150 E-6 ohms	≤ 150 E-6 ohms	
field jumper	NA	≤ 150 E-6 ohms	≤ 150 E-6 ohms	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.6	Verify each battery charger supplies $\geq 300$ amps at $\geq 128.4$ V for $\geq 1$ hour.	In accordance with the Surveillance Frequency Control Program
SR 3.8.4.7	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7.</li> <li>This Surveillance shall not be performed in MODE 1, 2, 3, or 4.</li> </ol> <p>-----</p> <p>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.8</p> <p>-----NOTE----- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. -----</p> <p>Verify battery capacity is <math>\geq 85\%</math> of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>18 months when battery shows degradation or has reached 85% of expected life with capacity &lt; 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity <math>\geq 100\%</math> of manufacturer's rating</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5            The Train A or Train B DC electrical power subsystem shall be OPERABLE to support one train of the DC electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY:    MODES 5 and 6,  
                         During movement of irradiated fuel assemblies.

ACTIONS

-----NOTE-----

LCO 3.0.3 is not applicable.

-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required DC electrical power subsystem inoperable.	A.1        Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1      Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2      Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3      Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<u>AND</u>	
	A.2.4      Initiate action to restore required DC electrical power subsystem to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.5.1</p> <p>-----NOTE-----</p> <p>The following SRs are not required to be performed: SR 3.8.4.6, SR 3.8.4.7, and SR 3.8.4.8.</p> <p>-----</p> <p>For DC sources required to be OPERABLE, the following SRs are applicable:</p> <p>SR 3.8.4.1      SR 3.8.4.4      SR 3.8.4.7  SR 3.8.4.2      SR 3.8.4.5      SR 3.8.4.8.  SR 3.8.4.3      SR 3.8.4.6</p>	<p>In accordance with applicable SRs</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for Train A and Train B batteries shall be within the limits of Table 3.8.6-1.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more batteries with one or more battery cell parameters not within Category A or B limits.</p>	<p>A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.</p>	<p>1 hour</p>
	<p><u>AND</u></p> <p>A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits.</p>	<p>24 hours</p> <p><u>AND</u></p> <p>Once per 7 days thereafter</p>
	<p><u>AND</u></p> <p>A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.</p>	<p>31 days</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>One or more batteries with average electrolyte temperature of the representative cells &lt; 60°F.</p> <p><u>OR</u></p> <p>One or more batteries with one or more battery cell parameters not within Category C values.</p>	<p>B.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 Verify battery cell parameters meet Table 3.8.6-1 Category A limits.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>Once within 7 days after a battery discharge &lt; 110 V</p> <p><u>AND</u></p> <p>Once within 7 days after a battery overcharge &gt; 150 V</p>
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is $\geq 60$ °F.	In accordance with the Surveillance Frequency Control Program

Table 3.8.6-1 (page 1 of 1)  
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq$ ¼ inch above maximum level indication mark <sup>(a)</sup>	> Minimum level indication mark, and $\leq$ ¼ inch above maximum level indication mark <sup>(a)</sup>	Above top of plates, and not overflowing
Float Voltage	$\geq$ 2.14 V	$\geq$ 2.14 V	> 2.09 V
Specific Gravity <sup>(b)</sup>	$\geq$ 1.200 <sup>(c)</sup>	$\geq$ 1.195  <u>AND</u> Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells  <u>AND</u> Average of all connected cells $\geq$ 1.195 <sup>(c)</sup>

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.
- (c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits.



SURVEILLANCE REQUIREMENTS

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

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 The Train A or Train B inverters shall be OPERABLE to support one train of the onsite Class 1E AC vital bus electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6,  
During movement of irradiated fuel assemblies.

ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
<u>AND</u>		
A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	
<u>AND</u>		
A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately	

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage and alignments to required AC vital buses.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. NG05E or NG06E inoperable.	A.1 Enter applicable Condition and Required Action of LCO 3.7.8, "Essential Service Water (ESW) System" for ESW train without electrical power.	Immediately
B. One AC electrical power distribution subsystem other than NG05E or NG06E inoperable.	B.1 Restore AC electrical power distribution subsystem to OPERABLE status.	8 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program
C. One AC vital bus subsystem inoperable.	C.1 Restore AC vital bus subsystem to OPERABLE status.	2 hours <u>OR</u> In accordance with the Risk Informed Completion Time Program

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One DC electrical power distribution subsystem inoperable.	D.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours  <u>OR</u> In accordance with the Risk Informed Completion Time Program
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.  <u>AND</u> E.2 Be in MODE 5.	6 hours  36 hours
F. Two trains with inoperable distribution subsystems that result in a loss of safety function.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 Verify correct breaker alignments and voltage to AC, DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of the Train A or Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support one train of equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,  
During movement of irradiated fuel assemblies.

ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.</p>	<p>A.1 Declare associated supported required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	<p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	<p style="text-align: center;"><u>AND</u></p> A.2.5 Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

## 5.5 Programs and Manuals

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### 5.5.18 Control Room Envelope Habitability Program (continued)

- e. The quantitative limits on unfiltered air leakage into the CRE and CBE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air leakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.
- f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE and CBE unfiltered leakage, and measuring CRE pressure and assessing the CRE and CBE as required by paragraphs c and d, respectively.

### 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 Technical Specifications Initiative 5b, 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.

### 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-A, Revision 0, "Risk-Managed Technical Specifications (RMTS) Guidelines." The program shall include the following:

(continued)

## 5.5 Programs and Manuals

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### 5.5.20 Risk Informed Completion Time Program (continued)

- a. The RICT may not exceed 30 days;
- b. A RICT may only be utilized in MODES 1 and 2;
- c. When a RICT is being used, any change to the plant configuration, as defined in NEI 06-09-A, Appendix A, 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. For emergent conditions, if the extent of condition evaluation for inoperable structures, systems, or components (SSCs) is not complete prior to exceeding the Completion Time, the RICT shall account for the increased possibility of common cause failure (CCF) by either:
  1. Numerically accounting for the increased possibility of CCF in the RICT calculation; or
  2. Risk Management Actions (RMAs) not already credited in the RICT calculation shall be implemented that support redundant or diverse SSCs that perform the function(s) of the inoperable SSCs, and, if practicable, reduce the frequency of initiating events that challenge the function(s) performed by the inoperable SSCs.
- e. The risk assessment approaches and methods shall be acceptable to the NRC. The plant PRA shall be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant, as specified in Regulatory Guide 1.200, Revision 2. Methods to assess the risk from extending the Completion Times must be PRA methods approved for use with this program, or other methods approved by the NRC for generic use; and any change in the PRA methods to assess risk that are outside these approval boundaries require prior NRC approval.

## 5.0 ADMINISTRATIVE CONTROLS

### 5.6 Reporting Requirements

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The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Not Used.

5.6.2 Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 1 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements in a format similar to the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit during the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

5.6.4 Not Used.

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(continued)

## 5.6 Reporting Requirements

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### 5.6.5 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
1. Specification 3.1.3: Moderator Temperature Coefficient (MTC),
  2. Specification 3.1.5: Shutdown Bank Insertion Limits,
  3. Specification 3.1.6: Control Bank Insertion Limits,
  4. Specification 3.2.3: Axial Flux Difference,
  5. Specification 3.2.1: Heat Flux Hot Channel Factor,  $F_Q(Z)$ ,
  6. Specification 3.2.2: Nuclear Enthalpy Rise Hot Channel Factor ( $F_{\Delta H}^N$ ),
  7. Specification 3.9.1: Boron Concentration,
  8. SHUTDOWN MARGIN for Specification 3.1.1 and 3.1.4, 3.1.5, 3.1.6, and 3.1.8,
  9. Specification 3.3.1: Overtemperature  $\Delta T$  and Overpower  $\Delta T$  Trip Setpoints,
  10. Specification 3.4.1: Reactor Coolant System pressure, temperature, and flow DNB limits, and
  11. Specification 2.1.1: Reactor Core Safety Limits.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
1. WCAP-11397-P-A, "Revised Thermal Design Procedure."
  2. WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control -  $F_Q$  Surveillance Technical Specification."
  3. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology."

(continued)

5.6 Reporting Requirements

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5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

4. WCAP-16009-P-A, "Realistic Large Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)."
  5. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON."
  6. WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology."
  7. WCAP 10965-P-A, "ANC: A Westinghouse Advanced Nodal Computer Code."
  8. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report."
  9. WCAP-12610-P-A & CENPD-404-P-A, Addendum 1-A, "Optimized ZIRLO™."
  10. WCAP-8745-P-A, "Design Bases for the Thermal Power  $\Delta T$  and Thermal Overtemperature  $\Delta T$  Trip Functions."
  11. WCAP-17661-P-A, "Improved RAOC and CAOC  $F_Q$  Surveillance Technical Specifications."
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

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(continued)

5.6 Reporting Requirements

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5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, hydrostatic testing, LTOP arming, and PORV lift settings as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:
  - 1. Specification 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and
  - 2. Specification 3.4.12, "Low Temperature Overpressure Protection System."
- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following document:
  - 1. WCAP-14040-A, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves."
- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

5.6.7 Not Used.

5.6.8 PAM Report

When a report is required by Condition B or F of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.9 Not Used.

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## 5.6 Reporting Requirements

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### 5.6.10 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, "Steam Generator (SG) Program." The report shall include:

- a. The scope of inspections performed on each SG;
- b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;
- c. For each degradation mechanism found:
  1. The nondestructive examination techniques utilized;
  2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;
  3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment; and
  4. The number of tubes plugged during the inspection outage.
- d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;
- e. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG;
- f. The results of any SG secondary side inspections;
- g. The primary to secondary LEAKAGE rate observed in each SG (if it is not practical to assign the LEAKAGE to an individual SG, the entire primary to secondary LEAKAGE should be conservatively assumed to be from one SG) during the cycle preceding the inspection which is the subject of the report;

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(continued)

5.6 Reporting Requirements

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5.6.10 Steam Generator Tube Inspection Report (continued)

- h. The calculated accident induced leakage rate from the portion of the tubes below 15.21 inches from the top of the tubesheet for the most limiting accident in the most limiting SG. In addition, if the calculated accident induced leakage rate from the most limiting accident is less than 2.50 times the maximum operational primary to secondary leak rate, the report should describe how it was determined; and
- i. The results of monitoring for the tube axial displacement (slippage). If slippage is discovered, the implications of discovery and corrective action shall be provided.

## 5.0 ADMINISTRATIVE CONTROLS

### 5.7 High Radiation Area

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As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

- 5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation:
- a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.
  - b. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
  - c. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
  - d. Each individual or group entering such an area shall possess:
    1. A radiation monitoring device that continuously displays radiation dose rates in the area; or
    2. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
    3. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or
    4. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,

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5.7 High Radiation Area

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5.7.1 High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation: (continued)

- (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or
  - (ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, or personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.
- e. Except for individuals qualified in radiation protection procedures, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation:

- a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:
  - 1. All such door and gate keys shall be maintained under the administrative control of the Shift Manager/Control Room Supervisor or health physics supervision, or his or her designee.
  - 2. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.

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## 5.7 High Radiation Area

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### 5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation: (continued)

- c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual or group entering such an area shall possess:
  - 1. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
  - 2. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
  - 3. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,
    - (i) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or
    - (ii) Be under the surveillance as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area, or
  - 4. In those cases where options (2) and (3), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.

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## 5.7 High Radiation Area

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### 5.7.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation: (continued)

- e. Except for individuals qualified in radiation protection procedures or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.
  - f. Such individual areas that are within a larger area, such as PWR containment, where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 247 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

1.0 INTRODUCTION

By application dated December 17, 2024 (Reference 1), as supplemented by letters dated January 8, 2026 (Reference 2) and April 9, 2026 (Reference 3), Wolf Creek Nuclear Operating Corporation (the licensee) submitted a license amendment request (LAR) for Wolf Creek Generating Station, Unit 1 (Wolf Creek, WCGS). The amendment would revise certain technical specification (TS) requirements to permit the use of risk-informed completion times (RICTs) for actions to be taken when limiting conditions for operation (LCO) are not met.

The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times" (TSTF-505; Reference 4). The staff of the U.S. Nuclear Regulatory Commission (NRC or the Commission) issued its approval and a final model safety evaluation for TSTF-505 on November 21, 2018 (Reference 5). The proposed changes would also adopt the related TSTF-439, Revision 2, "Eliminate Second Completion Times Limiting Time from Discovery of Failure to Meet an LCO" (TSTF-439; Reference 6). The NRC staff documented its evaluation of TSTF-439 in a letter dated January 11, 2006 (Reference 7).

The licensee has proposed variations from the technical specification changes approved in TSTF-505, Revision 2, and TSTF-439, Revision 2, in sections 2.3 and 3.2 of attachment I to the LAR. The licensee has also proposed other administrative changes in section 4.0 of attachment I to the LAR. The NRC staff's evaluation of these proposed variations and changes is provided in section 3.3 of this safety evaluation.

The NRC staff participated in a regulatory audit to ascertain the information needed to support its review of the application and to identify any additional information needed to complete its safety evaluation. On April 21, 2026, the NRC staff issued a report describing the audit and summarizing its results (Reference 8).

A notice of consideration of proposed issuance of amendments with proposed no significant hazards consideration determination was published in the *Federal Register* on February 18,

2025 (90 FR 9743), and there has been no public comment on such determination. The supplemental letters dated January 8, 2026, and April 9, 2026, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in this notice.

## 2.0 REGULATORY EVALUATION

### 2.1 Regulatory Review

#### 2.1.1 Applicable Regulations

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," includes, in part, the regulatory requirements for amending a license. The NRC staff has identified the following sections within 10 CFR Part 50 applicable to its review of the licensee's application to adopt TSTF-505, Revision 2:

- 10 CFR 50.36, "Technical Specifications," paragraphs (c)(2), "Limiting conditions for operation," and (c)(5), "Administrative controls"
- 10 CFR 50.55a, "Codes and standards," paragraph (h), "Protection and safety systems"
- 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants" (i.e., the Maintenance Rule)

#### 2.1.2 Regulatory Guidance

NRC regulatory guides provide one way to ensure that the codified regulations continue to be met. The NRC staff considered the following guidance during its review of the proposed changes:

- Regulatory Guide 1.174, Revision 3, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (RG 1.174), January 2018 (Reference 9).
- Regulatory Guide 1.177, Revision 2, "Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications" (RG 1.177), January 2021 (Reference 10).
- Regulatory Guide 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (Reference 11).
- Regulatory Guide 1.200, Revision 3, "Acceptability of Probabilistic Risk Assessment Results for Risk-Informed Activities," December 2020 (Reference 12).
- NUREG-1855, Revision 1, "Guidance on the Treatment of Uncertainties Associated with PRAs [Probabilistic Risk Assessments] in Risk-Informed Decisionmaking," March 2017 (Reference 13).

- NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants” (SRP), Chapter 16, Section 16.1, Revision 1, “Risk-Informed Decision Making: Technical Specifications,” March 2007 (Reference 14).

### 2.1.3 NRC-Endorsed Guidance

The Nuclear Energy Institute (NEI) produced a topical report, NEI 06-09, Revision 0-A, “Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines,” dated October 2012 (NEI 06-09-A) (Reference 15). This report provides guidance for risk-informed technical specifications. The NRC staff issued a final model safety evaluation approving NEI 06-09 on May 17, 2007 (Reference 16).

The LAR cites Regulatory Guide 1.200, Revision 2, for the internal events (which includes internal floods) and fire PRA models. Although Regulatory Guide 1.200 has been updated to Revision 3, the NRC staff finds the licensee’s use of Revision 2 to demonstrate the technical adequacy of PRA models is still acceptable. This is because the update does not introduce any changes that would affect the determination of acceptability or impair consistency with NEI 06-09-A.

The Joint Committee on Nuclear Risk Management of the American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS) produced ASME/ANS RA-Sa–2009, “Addenda to ASME/ANS RA-S–2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications” (the ASME/ANS PRA Standard) (Reference 17). In Regulatory Guide 1.200, the NRC endorsed the use of the ASME/ANS PRA Standard.

## 2.2 Description of the RICT Program

Paragraph 50.36(c)(2) of 10 CFR requires that technical specifications contain LCO, which are “the lowest functional capability or performance levels of equipment required for safe operation of the facility.” When an LCO is not met, the licensee must shut down the reactor or follow any remedial or required action (e.g., testing, maintenance, or repair activity) permitted by the technical specifications until the condition can be met. For each technical specification, Conditions are identified. Each Condition describes a particular way in which the requirements of the LCO can fail to be met. For each Condition, one or more Required Actions are called for and for each Required Action, a Completion Time (CT) is specified. The CTs are referred to as the “front stops” in the context of this safety evaluation. For certain conditions, the technical specifications require exiting the Mode of Applicability of an LCO (e.g., shut down the reactor).

The licensee’s submittal requested approval to add a RICT program to the Administrative Controls section of the technical specifications, and modify selected CTs to permit extending the CTs, provided risk is assessed and managed as described in NEI 06-09-A. Consistent with table 1 of TSTF-505, Revision 2, for Conditions requiring additional technical justification, the licensee provided several plant-specific LCO and associated Actions for which the licensee proposed to be included in the RICT program, along with additional justification. The NRC staff’s review of these variations and the justification is provided in section 3.3 of this safety evaluation.

The licensee’s proposed changes to the technical specifications do not involve changes to the plant’s design, design basis, or any operating parameter. The effect of the proposed changes, when implemented, will allow CTs to vary based on the risk that is associated with the plant configuration. This depends on what equipment is out of service at that time and assumes no

additional failures. It is important to note that RICTs may be used only if the affected system or systems retain the capability to perform the applicable safety function (e.g., one train of a two-train system remains operable and can perform the safety function). This restriction ensures that defense in depth is maintained.

The proposed RICT program uses plant-specific operating experience for component reliability and availability data. Thus, the allowances permitted by the RICT program reflect actual component performance in conjunction with component risk significance.

In addition, Example 1.3-8 will be added to TS 1.3, "Completion Times," and reads as follows:

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. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.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 B must also be entered.

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 has expired and subsequent changes in plant condition result in exiting the applicability of the Risk Informed Completion Time Program without restoring the inoperable subsystem to OPERABLE status, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.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 B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable subsystems are restored to OPERABLE status after Condition B is entered, Condition A is exited, and therefore, the Required Actions of Condition B may be terminated.

2.3 Deletion of Second Completion Times

Consistent with TSTF-439, the licensee proposed to delete the second CTs from the relevant technical specifications. The TS Example 1.3-3 Actions table would be revised as follows:

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 days <u>AND</u> 10 days from discovery of failure to meet the LCO

In the accompanying description to TS Example 1.3-3, the last paragraph, which explains the requirements for second completion times, would also be deleted. This paragraph would be replaced with the following:

It is possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so would be inconsistent with the basis of the Completion Times. Therefore, there shall be administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the Completion Times for those Conditions are not inappropriately extended.

In addition, a reference to TS Example 1.3-3 describing second CTs also will be deleted from the description of section of TS 1.3. Similarly, the second CTs would be deleted in TS 3.8.9, "Distribution Systems – Operating," Required Actions B.1, C.1, and D.1.

## 2.4 Other Technical Specification Changes

### 2.4.1 Administrative Variations

In section 2.3.1 of attachment I to the LAR, the licensee proposed several changes in addition to those identified in TSTF-439 and TSTF-505. Those that are administrative in nature are evaluated in section 3.3, below.

### 2.4.2 Technical Variations

The following variations from the TSTF-505-A template for NUREG-1431, "Standard Technical Specifications, Westinghouse Plants," Revision 5.0, Volume 1, "Specifications" (Reference 18) are considered to be technical in nature:

1. TS 3.3.2 Condition I (re-lettered from Condition J), "One or more Main Feedwater Pump trip channel(s) inoperable," most closely correlates with Standard Technical Specification TS 3.3.2 Condition J, "One Main Feedwater Pumps trip channel(s) inoperable." Condition I is invoked by Function 6.g., "Auxiliary Feedwater - Trip of all Main Feedwater Pumps," with Required Channels of "2 per pump." With a single channel inoperable, the trip function will be retained. With two channels inoperable, the trip function is lost for that Main Feedwater Pump. Accordingly, a RICT has been added along with a note prohibiting the use of a RICT if there is a loss of function.
2. TS 3.3.2 Condition N (re-lettered from Condition M), "One channel inoperable," is invoked from Function 6.h., "Auxiliary Feedwater – AFW Pump Suction Transfer on Suction Pressure – Low." Required Action N.1 is to "Place channel in trip" with a Completion Time of "1 hour." This does not correlate to any other STS TS 3.3.2 Required Action. Since there will be no loss of function with one channel inoperable, a RICT is applied to Required Action N.1.
3. TS 3.3.2 Condition Q (re-lettered from Condition P), "One of both train(s) inoperable," is invoked from Function 6.f., "Auxiliary Feedwater - Loss of Offsite Power." The correlating STS is TS Condition F, "One channel or train inoperable." Required Action Q.1 pertains to the Loss of Offsite Power (LOP) instrumentation. With loss of two trains, the loss-of-offsite-power mitigation function is lost. A RICT has been added along with a note prohibiting the use of a RICT if there is a loss of function.
4. TS 3.7.2, Condition A, "One MSIV actuator train inoperable." The main steam isolation valve (MSIV) actuators (skid-mounted at the valve) consist of two separate system-medium actuation trains. Since Condition A does not result in a loss of function, a RICT is added to Required Action A.1, "Restore MSIV actuator train to OPERABLE status."
5. TS 3.7.2, Condition B, "Two MSIV actuator trains inoperable for different MSIVs when the inoperable actuator trains are not in the same separation group." Since Condition B does not result in a loss of function, a RICT is added to Required Action B.1, "Restore one MSIV actuator train to OPERABLE status."

6. TS 3.7.2, Condition C, “Two MSIV actuator trains inoperable when the inoperable actuator trains are in the same separation group.” For each MSIV, one actuator train is associated with separation group 4 (“yellow”), and one actuator train is associated with separation group 1 (“red”). Since Condition C does not result in a loss of function, a RICT is added to Required Action C.1, “Restore one MSIV actuator train to OPERABLE status.”
7. RICTs proposed to be added to TS 3.8.1 Required Actions C.1 and C.2. Required Actions C.1 and C.2 are collectively invoked by Condition C, “Required Action B.2 and associated Completion Time not met.”
8. The licensee’s supplement to the LAR dated January 8, 2026, revises the proposed change to add RICTs to TS 3.8.1, Required Action B.5. Required Action B.5.1, with a Completion Time of 72 hours, is applied when one diesel generator is inoperable without the requirement of the station blackout diesel generators availability. Required Action B.5.2, with a Completion Time of 14 days, is applied when one diesel generator is inoperable with the requirement of the station blackout diesel generators availability. When either Required Action B.5.1 or B.5.2 applies, a Completion Time may be determined in accordance with the RICT Program. If an emergent, unplanned condition is identified while in Required Action B.5.1, Condition B.5.2 may be entered without applying the RICT Program, and the 14-day Completion Time continues from the time B.5.1 was first entered.

### 3.0 TECHNICAL EVALUATION

An acceptable approach for making risk-informed decisions about proposed technical specification changes, including both permanent and temporary changes, is to demonstrate that the proposed licensing basis changes meet the five key principles provided in section C of RG 1.174, Revision 3, and the three-tiered approach outlined in section C of RG 1.177, Revision 2. These key principles and tiers are:

- Principle 1: The proposed licensing basis change meets the current regulations unless it is explicitly related to a requested exemption....
- Principle 2: The proposed licensing basis change is consistent with the defense-in-depth philosophy.
- Principle 3: The proposed licensing basis change maintains sufficient safety margins.
- Principle 4: When the proposed licensing basis change results in an increase in risk, the increases should be small and consistent with the intent of the Commission’s policy statement on safety goals for the operations of nuclear power plants.
  - Tier 1: PRA Capability and Insights
  - Tier 2: Avoidance of Risk-Significant Plant Configurations
  - Tier 3: Risk-Informed Configuration Risk Management

Principle 5: The impact of the proposed licensing basis change should be monitored by using performance measures strategies.

For TSTF-439, an acceptable approach to demonstrate that the proposed licensing basis changes are satisfactory consists of demonstrating that the proposed changes adhere to 10 CFR 50.36(c)(2) and (c)(5) and are consistent with elements included in the NRC's Reactor Oversight Process (ROP).

### 3.1 Method of NRC Staff Review

Each of the key principles and tiers described above are addressed in NEI 06-09-A and approved in the final model safety evaluation issued by the NRC staff for TSTF-505. NEI 06-09-A provides a methodology for extending existing CTs if risk is assessed and managed within the limits and programmatic requirements established by a RICT program. This allows a licensee to delay exiting the operational mode of applicability or taking Required Actions. The NRC staff's evaluation of the licensee's proposed use of RICTs against the key safety principles of RG 1.174 and RG 1.177 is discussed below.

For TSTF-439, the guidance in the traveler provides a method for removing the "second completion times" from the affected TS Required Actions. The licensee's LAR highlighted the controls of the Maintenance Rule, the ROP, and the new requirement in TS section 1.3. The application also included proposed changes to the TS bases. Bases are not part of the TSs, but the NRC staff confirmed that the licensee described the basis for each revised TS requirement accurately, as set forth in Chapter 16 of NUREG-0800. The NRC staff's evaluation of the licensee's proposed removal of the second CTs is provided in section 3.2.1 below.

### 3.2 Review of Key Principles

#### 3.2.1 Key Principle 1: Evaluation of Compliance with Current Regulations

The CTs in the current TSs were established using experiential data, risk insights, and engineering judgment. The RICT program provides the necessary administrative controls to permit extension of CTs and, thereby, delay reactor shutdown or Required Actions. This is the case if risk is assessed and managed appropriately within specified limits and programmatic requirements, and both the safety margins and defense in depth remain sufficient. The option to determine the extended CT in accordance with the RICT program allows the licensee to perform an integrated evaluation in accordance with the methodology prescribed in NEI 06-09-A and proposed TS 5.5.20, "Risk Informed Completion Time Program." The RICT is limited to a maximum of 30 days (termed the "backstop").

The typical CT is modified by the application of the RICT program as shown in the following example. The changed portion is indicated in italics.

ACTIONS

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

As described in section 2.3 of this safety evaluation, the licensee’s proposed changes include adoption of TSTF-439. This traveler deletes the second CTs from the affected Required Actions, revises Example 1.3-3 from the Improved Standard Technical Specifications to remove the second CTs and revises the discussion portion of that example. The discussion will state that alternating between Conditions in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO is inconsistent with the basis of the CTs and is inappropriate. Therefore, the licensee shall have administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO is not inappropriately extended. The NRC staff reviewed the proposed changes to the TSs and determined that they meet the standards for TSs as delineated in 10 CFR 50.36(c)(5). Additionally, the changes to the TSs were reviewed for technical clarity and consistency with customary terminology and format in accordance with Chapter 16 of the SRP.

In attachment I, “Description and Assessment”; attachment IV, “TSTF-505-A (NUREG-1431) Versus WCGS TS Cross-Reference”; attachment V, “TSTF-439-A (NUREG-1431) Versus WCGS TS Cross-Reference”; and enclosure 1, “List of Revised Required Actions to Corresponding PRA Function,” to the LAR, as supplemented, the licensee provided a list of the TSs, associated LCO, and Required Actions for the CTs that included modifications and variations from the approved TSTF-505. The modifications and variations consisted of proposed changes to the Required Actions and CTs.

The NRC staff reviewed the proposed changes to the TSs, associated LCO, Required Actions, and CTs provided by the licensee for the scope of the RICT program. The NRC staff also reviewed the removal of second CTs consistent with TSTF-439 and evaluated the incorporation of the RICT program under existing regulations and processes, along with the licensee’s administrative controls. The NRC staff concluded, with the incorporation of the RICT program, that the required performance levels of equipment specified in the licensee’s TS LCOs are not changed and only the required CTs for the Required Actions are modified, such that 10 CFR 50.36(c)(2) will continue to be met. Based on the discussion provided above, the NRC staff finds that the proposed LCO, Required Actions, and CTs of the RICT program described in section 2.2 of this safety evaluation meet the first key principle of RG 1.174 and RG 1.177.

### 3.2.2 Key Principle 2: Evaluation of Defense in Depth

In RG 1.174, the NRC identified the following considerations used for evaluation of how the licensing basis is maintained consistent with the philosophy of defense in depth:

- Preserve a reasonable balance among the layers of defense.
- Preserve adequate capability of design features without an overreliance on programmatic activities as compensatory measures.
- Preserve system redundancy, independence, and diversity commensurate with the expected frequency and consequences of challenges to the system, including consideration of uncertainty.
- Preserve adequate defense against potential CCFs [common-cause failures].
- Maintain multiple fission product barriers.
- Preserve sufficient defense against human errors.
- Continue to meet the intent of the plant's design criteria.

The licensee requested to use the RICT program to extend the existing CTs for the respective TS LCO prescribed in attachment II to the LAR, as supplemented. For the TS LCO in enclosure 1 to the LAR, as supplemented, the licensee provided information supporting evaluation of the redundancy and diversity for the proposed changes. The NRC staff's evaluation of the proposed changes for these LCO assessed the licensee's redundant or diverse means to mitigate accidents to ensure consistency with the plant licensing basis requirements using the guidance prescribed in RG 1.174, RG 1.177, and TSTF-505, to ensure adequate defense in depth (for each of the functions) to operate the facility in the proposed manner (i.e., that the changes are consistent with the defense-in-depth criteria).

Enclosure 1 to the LAR, as supplemented by letter dated January 8, 2026 (in the response to NRC Audit Question EICB-01), provided information supporting the licensee's evaluation of the redundancy, diversity, and defense in depth for each TS LCO and TS Required Action as it related to instrumentation and control (I&C) and electrical and power systems. The NRC staff confirmed that for the following TS LCO, the above defense-in-depth criteria were applicable except for the criteria for maintaining multiple fission product barriers.

LCO related to I&C (see also specific CONDITIONS identified in section 2.4.2):

- 3.3.1 "Reactor Trip System (RTS) Instrumentation"
- 3.3.2 "Engineered Safety Feature Actuation System (ESFAS) Instrumentation"
- 3.3.5 "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation"

LCO related to electrical and power systems:

- 3.8.1 "AC [alternating current] Sources – Operating"
- 3.8.4 "DC [direct current] Sources – Operating"
- 3.8.7 "Inverters – Operating"
- 3.8.9 "Distribution Systems – Operating"

For the TS LCO specific to I&C, the NRC staff reviewed the specific trip logic arrangements, redundancy, backup systems, manual actions, and diverse trips specified for each of the protective safety functions and associated instrumentation as described in the Wolf Creek

Updated Safety Analysis Report (USAR; Reference 19), and as reflected in enclosure 1 to the LAR for each I&C LCO above. The NRC staff verified that in accordance with the Wolf Creek USAR and equipment and actions credited in enclosure 1 to the LAR, in all applicable operating modes, the affected protective feature would perform its intended function by ensuring the ability to detect and mitigate the associated event or accident when the CT of a channel is extended. Furthermore, the NRC staff concludes that there are sufficient redundancy, diversity, and defense in depth, to protect against CCFs and potential single failure for the licensee's instrumentation systems evaluated in enclosure 1 to the LAR during a RICT. There is at least one diverse means specified by the licensee for initiating mitigating action for each accident event, thus providing defense in depth against a failure of instrumentation during the RICT for each TS LCO. The defense in depth specified by the licensee does not overly rely on manual actions as the diverse means; therefore, there is no overreliance on programmatic activities as compensatory measures. Therefore, the NRC staff finds that the intent of the plant's design criteria (e.g., safety functions) for the above TS LCO related to I&C are maintained.

For electrical power systems, the Wolf Creek USAR states that the Class 1E electric systems are designed to satisfy the single failure criterion. Single-failure requirements are typically suspended for the time that a plant is not meeting an LCO (i.e., in an ACTION statement). According to chapter 8 of the Wolf Creek USAR, the station's electrical power system consists of one 69-kV and three 345-kV transmission lines, two qualified circuits between the offsite transmission network and the onsite Class 1E AC electrical power distribution system, 69-kV and 345-kV switchyards, 345/69/13.8-kV transformers, onsite AC and DC power systems, and the AC and DC distribution systems. The onsite standby AC power source consists of two diesel generators and supported systems. The station blackout diesel generator system consists of three diesel generators and one power equipment center.

For the defense-in-depth evaluation, the NRC staff reviewed the information the licensee provided in the LAR, as supplemented, for the proposed TS LCO, TS Bases, and the Wolf Creek USAR to verify the capability of the affected electrical power systems to perform their safety functions (assuming no additional failures) is maintained. To confirm that that implementation of the RICT program would not result in a TS loss of function, the NRC staff reviewed the design success criteria corresponding to the electrical TS LCO conditions in LAR Table E1-1, "In Scope TS/LCO Conditions to Corresponding PRA Functions." The NRC staff finds that these design success criteria (as updated in supplement dated January 8, 2026) identify the redundant or minimum required electrical power sources and subsystems necessary to support the safety functions for mitigating postulated design-basis accidents, safely shut down the reactor, and maintain the reactor in a safe shutdown condition. Based on these verifications, the NRC staff finds that the proposed RICTs for TS LCO associated with the electrical power systems would not result in a TS loss of function. Therefore, the NRC staff finds that the intent of the plant's design criteria (e.g., safety functions) applicable to the TS LCO related to electrical power systems are maintained.

The NRC staff also evaluated the proposed RICTs associated with the electrical TS conditions for consistency with the scope of Traveler TSTF-505, Revision 2. In particular, one of the TSTF-505 exclusion criteria states, in part, "the traveler will only modify Required Actions that specify that a system be restored to OPERABLE status." Accordingly, a RICT cannot apply to Required Actions that specify that a system be restored to a status other than "OPERABLE" (e.g., "available"). As initially proposed, the RICTs applied to Wolf Creek's TS 3.8.1, Required Actions C.3 and C.4 that specify that the station blackout diesel generators be restored to available status. This inconsistency was identified during the regulatory audit. In the supplement dated January 8, 2026, the licensee revised proposed TS 3.8.1, Required Actions C.3 and C.4,

to remove the RICT applicability to actions restoring the supplemental power source to available status. The NRC staff finds that the proposed RICTs for the electrical technical specification conditions, as updated in the supplement, are consistent with the scope of Traveler TSTF-505, Revision 2.

The supplement also revises Required Action B.5 into B.5.1 and B.5.2 as follows. Required Action B.5.1, with a Completion Time of 72 hours, is applied when one DG is inoperable without the requirement of the station blackout diesel generators availability. Required Action B.5.2, with a Completion Time of 14 days, is applied when one diesel generator is inoperable with the requirement of the station blackout diesel generators availability. When either Required Action B.5.1 or B.5.2 applies, a Completion Time may be determined in accordance with the RICT program. Required Action B.5.2 includes a TS note for limiting the use of the 14-day CT. This TS note is consistent with guidance in Branch Technical Position 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions" (Reference 20). The NRC staff finds that this proposed change would provide more clarity for operators with respect to the front stops when applying RICTs to Required Action B.5, and therefore acceptable.

In addition, the NRC staff reviewed the examples of risk management action (RMA) related to the electrical power systems provided in the LAR, section 4 of enclosure 12, "Risk Management Action Examples." The NRC staff finds that these RMA examples provide reasonable assurance that the appropriate RMAs will be implemented to monitor and control risk, thus further enhancing the defense in depth.

The NRC staff notes that while in a TS LCO condition, the redundancy of the electrical equipment will be temporarily reduced and consequently the system reliability will be degraded. The NRC staff examined the design information from the Wolf Creek USAR and the proposed risk-informed TS LCO conditions for the affected safety functions. Based on the information provided in the LAR, as supplemented, the NRC staff confirmed that during the proposed completion time extensions, there are sufficient electrical power sources to support the safety functions necessary to mitigate the design-basis accidents evaluated in the Wolf Creek USAR, safely shut down the reactor, and maintain the reactor in a safe shutdown condition. Therefore, the affected protective features maintain adequate defense in depth.

The licensee proposes that completion time extensions will be implemented in accordance with the NEI 06-09-A guidance and TSTF-505, which also considers RMAs and the redundancy of the offsite and onsite power systems. For this reason, the NRC staff finds that the plant would maintain adequate defense in depth. Therefore, the NRC staff finds the TS LCO associated with the electrical power systems proposed by the licensee in the LAR, as supplemented, are acceptable for the RICT program.

The NRC staff reviewed all TS LCO proposed by the licensee in attachment II to the LAR, as supplemented, and concludes that the proposed changes do not alter the ways in which the licensee's systems fail, do not introduce new CCF modes, and system independence is maintained.

The NRC staff finds that extending the CTs associated with the TS LCO conditions proposed by the licensee in attachment II to the LAR, as supplemented, with the RICT program following loss of redundancy, but maintaining the capability of the system to perform its safety function, is an acceptable reduction in defense in depth during the proposed RICT period provided that the

licensee identifies and implements compensatory measures in accordance with the RICT program during the extended CT.

Based on the above evaluation, the NRC staff finds that the licensee's proposed changes are consistent with the NRC-endorsed guidance described in NEI 06-09-A along with TSTF-439. Further, the NRC staff finds that the licensee satisfied the second key principle in RG 1.177 and RG 1.174. Finally, the NRC staff concludes that the changes are consistent with the defense-in-depth philosophy as described in RG 1.174.

### 3.2.3 Key Principle 3: Evaluation of Safety Margins

Paragraph 50.55a(h) of 10 CFR requires, in part, that "protection systems of nuclear power reactors of all types must meet the requirements specified in this paragraph." RG 1.177, Revision 2, section 2.2.2, "Technical Specification Change Maintains Sufficient Safety Margin (Principle 3)," states, in part, that sufficient safety margins are maintained when:

- a. Codes and standards ... or alternatives approved for use by the NRC are met....
- b. Safety analysis acceptance criteria in the final safety analysis report are met or proposed revisions provide sufficient margin to account for analysis and data uncertainties...

The licensee is not proposing to change any quality standard, material, or operating specification in this application. In the LAR, the licensee proposed to add a new program, "Risk Informed Completion Time Program," in section 5.5, "Programs and Manuals," of Wolf Creek TSs, which requires adherence to NEI 06-09-A.

The NRC staff evaluated the effect on safety margins when the RICT is applied to extend the CT up to a backstop of 30 days in a TS condition with sufficient trains remaining operable to fulfill the TS safety function. Although the licensee will be able to have design-basis equipment out of service longer than the current technical specifications allow, any increase in unavailability is expected to be insignificant and is addressed by the consideration of the single-failure criterion in the design-basis analyses. Acceptance criteria for operability of equipment are not changed and, if sufficient trains remain operable to fulfill the technical specification safety function, the operability of the remaining train(s) ensures that the current safety margins are maintained. The NRC staff finds that if the specified technical specification safety function remains operable, sufficient safety margins would be maintained during the extended CT of the RICT program.

Safety margins are also maintained if PRA functionality is determined for the inoperable train, which would result in an increased CT. Credit for PRA functionality, as described in NEI 06-09-A, is limited to the inoperable train or component as well as loss of offsite power (LOOP or LOP). Based on the above, the NRC staff finds that the design-basis analyses for Wolf Creek remain applicable and unchanged, that sufficient safety margins would be maintained during the extended CT, and that the proposed changes to the TSs do not include any change in the standards applied or the safety analysis acceptance criteria. The NRC staff concludes that the proposed changes meet the requirements in 10 CFR 50.55a(h) and, therefore, the third key principle of RG 1.177 and RG 1.174.

### 3.2.4 Key Principle 4: Change in Risk Consistent with the Safety Goal Policy Statement

NEI 06-09-A provides a methodology for a licensee to evaluate and manage the risk impact of extensions to TS CTs. Permanent changes to the fixed TS CTs are typically evaluated by using the three-tiered approach described in SRP Section 16.1; RG 1.177; and RG 1.174. This approach addresses the calculated change in risk as measured by the change in core damage frequency (CDF) and large early release frequency (LERF), as well as the incremental conditional core damage probability and incremental conditional large early release probability; the use of compensatory measures to reduce risk; and the implementation of a configuration risk management program (CRMP) to identify risk-significant plant configurations.

The NRC staff evaluated the licensee's processes and methodologies to determine that the change in risk from implementation of RICTs would be small and consistent with the intent of the Commission's Safety Goal Policy Statement.<sup>1</sup> In addition, the NRC staff evaluated the licensee's proposed changes against the three-tiered approach in RG 1.177, for the licensee's evaluation of the risk associated with a proposed technical specification CT change. The results of the NRC staff's review are discussed below.

#### 3.2.4.1 Tier 1: PRA Capability and Insights

Tier 1 evaluates the impact of the proposed changes on plant operational risk. The Tier 1 review involves two aspects: (1) scope and acceptability of the PRA models and their application to the proposed changes, and (2) a review of the PRA results and insights described in the licensee's application.

In enclosure 2, "Information Supporting Consistency with Regulatory Guide 1.200, Revision 2," and enclosure 4, "Information Supporting Justification of Excluding Sources of Risk Not Addressed by the PRA Models," to the LAR, the licensee identified the following modeled hazards and alternate methodologies that the licensee proposed to be used in the Wolf Creek RICT program to assess the risk contribution for extending the CT of a TS LCO:

- Full power internal events PRA model (includes internal floods)
- Internal fire events PRA model
- Seismic hazard: CDF penalty of 1.01E-05 per year, and LERF penalty of 6.37E-06 per year
- High winds: CDF penalty of 1.64E-05 per year, and LERF penalty of 5.80E-08 per year

Other external hazards were screened out from RICT program based on the ASME/ANS PRA Standard.

##### 3.2.4.1.1 Evaluation of Internal Fire PRA

The licensee stated that the Wolf Creek fire PRA (FPRA) was peer reviewed in LAR enclosure 2, section 4, "Technical Acceptability of the FPRA Model." This peer review was performed using the requirements of Part 4 of the ASME/ANS PRA Standard in October of 2021. The peer review also included the Clarifications and Qualifications provided in the NRC endorsement of the standard, contained in Revision 2 to Regulatory Guide 1.200. This peer

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<sup>1</sup> Commission's Safety Goal Policy Statement, "Safety Goals for the Operations of Nuclear Power Plants; Policy Statement," published in the *Federal Register* on August 4, 1986 (51 FR 28044), as corrected, and republished, on August 21, 1986 (51 FR 30028).

review was performed using the process defined in NEI 07-12, Revision 1, "Fire Probabilistic Risk Assessment (FPRA) Peer Review Process Guidelines," June 2010 (Reference 21). The licensee stated that the initial peer review team concluded, in general, that the data, methodologies, and fire risk models used for Wolf Creek were appropriate and sufficient to meet the ASME/ANS PRA Standard. This review met the requirements of NEI 17-07, Revision 2, "Performance of PRA Peer Reviews Using the ASME/ANS PRA Standard," August 2019 (Reference 22). The peer review team concluded that all supporting requirements previously found to be not met are now assessed as met at Capability Category II or higher with no open facts and observations (F&Os). In addition, no PRA upgrades were identified during the F&O closure review.

In reviewing the LAR, the NRC staff found that the minimum joint human error probability (MJHEP) of 1E-06 used in the Wolf Creek PRA model does not follow the recommendation of NUREG-1792, "Good Practices for Implementing Human Reliability Analysis (HRA)" (Reference 23), which recommends joint human error probability values should not be below 1E-05. In response to the audit question related to this issue, the licensee provided a LAR supplement dated January 8, 2026, to justify the use of 1E-06 MJHEP value.

In the LAR supplement dated January 8, 2026, the licensee stated that the Wolf Creek PRA model contains approximately 1,400 dependent events having joint human error probability smaller than 1E-05. Of these, only 11 events were identified by the licensee as being sensitive to MJHEP values. All these dependent events involve a loss-of-service-water initiating event where operators fail to align standby service water pumps, and subsequently, failed to supply water using essential service water for cooling of the reactor coolant pump seals, residual heat removal system, and for cooldown and depressurize using auxiliary feedwater pumps or feed and bleed.

The licensee stated that these events were reviewed further following the process described in Electric Power Research Institute (EPRI) Report EPRI 3002003150, "A Process for HRA Dependency Analysis and Considerations on Use of Minimum Values for Joint Human Error Probabilities," dated August 2016 (Reference 24). Since (a) the operators are well trained on the loss-of-service-water scenario and its recovery and (b) the response involves uncomplicated actions, spans a significant time interval, and features multiple opportunities for recovery of equipment or operator failures, the licensee's review determined that use of MJHEP value of 1E-05 for these 11 specific accident sequences is unnecessary and would only distort the importance calculations, overestimate risk metrics, and potentially mask valuable risk insights.

Since the licensee has further performed a detailed analysis of the HRA dependencies using a standardized process and justified the use of 1E-06 MJHEP, the NRC staff finds the deviations from the recommendation of NUREG-1792 do not adversely affect the Wolf Creek PRA model.

#### 3.2.4.1.2 Evaluation of Modeled PRAs

For the modeled PRAs, which include the internal events and fire in enclosure 2 to the LAR, the licensee confirmed that the PRA models had been peer reviewed using the ASME/ANS PRA Standard for the internal events PRA and fire PRA, as endorsed by Regulatory Guide 1.200, Revision 2. For the open F&Os resulting in these peer reviews, the licensee stated that closure of the F&Os was performed using an independent assessment process. The NRC staff confirmed that the licensee performed closure of the F&Os consistent with Appendix X to NEI 05-04, 07-12, and 12-13 (References 25 and 26), as well as Appendix E to NEI 17-07 (Reference 22), as endorsed in Regulatory Guide 1.200, Revision 3. The licensee indicated that

all F&Os have been closed. In addition, the licensee stated that the FLEX strategy is not credited.

The NRC staff reviewed the PRA models' peer review history provided by the licensee in enclosure 2 to the LAR, as supplemented. The licensee adequately applied the guidance for establishing PRA technical acceptability for the internal events PRA and fire PRA models. The NRC staff further considered the key assumptions and key sources of uncertainty identified by the licensee, proposed use of surrogates in the PRA models for specific technical specification functions. Therefore, the NRC staff finds the licensee's scope, and the acceptability of the modeled internal events, flooding, and fire to be commensurate with the RICT application for use in the integrated decisionmaking process are consistent with RG 1.174.

### 3.2.4.1.3 Evaluation of Seismic Risk

#### 3.2.4.1.3.1 Overview

NRC staff's safety evaluation for NEI 06-09, section 4, item (5), specifies that an application to adopt TSTF-505 will provide a discussion of any conservative or bounding analyses to be applied to the calculation of RICTs for sources of risk not addressed by the PRA models. Wolf Creek does not have a seismic PRA that can be used to generate a realistic estimate of configuration-specific seismic risk for RICT calculations. Instead, the licensee uses an alternative approach to account for seismic risk in RICTs by means of seismic penalty risk metrics.

Wolf Creek uses a convolution of the site-specific seismic hazard curve with the plant-level seismic fragility to generate a penalty estimate for the seismic CDF. A second convolution of the seismic CDF, with the same plant-level fragility, is used to generate a penalty estimate for the seismic LERF. This methodology is typically used to estimate seismic CDF and seismic LERF when a seismic PRA is not available. The method is consistent with approaches used in other regulatory applications.

#### 3.2.4.1.3.2 Seismic Hazard

In developing the seismic hazard curve used to estimate the seismic penalties for RICTs, Wolf Creek used the seismic hazard information updated in 2023 from EPRI. The 2023 EPRI seismic hazard is based on ground motion models developed as part of the Next Generation Attenuation for Central and Eastern North America Project (NGA-East) led by the Pacific Earthquake Engineering Research Center (PEER).

The EPRI seismic hazard at the Wolf Creek site shows similar but slightly increased uniform hazard response spectrum (UHRS) and ground motion response spectrum (GMRS) compared with the hazard information in the licensee's seismic hazard and seismic screening report (Reference 27). This report was submitted in response to the post-Fukushima Near Term Task Force Recommendation 2.1 (NTTF 2.1).

The NRC staff reviewed the Wolf Creek site-specific seismic hazard information used in the RICT LAR and finds it acceptable because the NGA-East ground motion model is considered robust, compliant with Senior Seismic Hazard Analysis Committee (SSHAC) level 3 requirements and appropriately captures the necessary epistemic uncertainty for ground motions in the central and eastern United States (Reference 28).

### 3.2.4.1.3.3 Seismic Fragility and New 0.30g High Confidence in Low Probability of Failure

Seismic fragility represents the conditional probability of failure for a given seismic ground motion level, typically characterized by the peak ground acceleration (PGA). The plant-level seismic fragility used in quantifying the seismic penalties for RICTs is characterized by a lognormal distribution defined by a median capacity ( $A_m$ ) and a composite variability ( $\beta_c$ ) representing uncertainty (a lognormal standard deviation including both aleatory and epistemic uncertainties in capacity). The plant-level high confidence in low probability of failure (HCLPF), commonly used as a measure of the plant's seismic capacity, is related to  $A_m$  and  $\beta_c$  :

$$\text{HCLPF} = A_m \exp(-2.33\beta_c)$$

The plant-level HCLPF value may be determined from a seismic margin assessment (SMA). The median capacity ( $A_m$ ) can be derived from the plant-level HCLPF using a realistic estimate of  $\beta_c$ . Both HCLPF and  $A_m$  may be expressed in terms of the spectral acceleration, including the PGA defined at 100 hertz (Hz) spectral frequency. The HCLPF and  $A_m$  values discussed in this safety evaluation are referenced in terms of the PGA unless otherwise noted.

Wolf Creek performed a reduced-scope SMA as part of its Individual Plant Examination of External Events (IPEEE), resulting in a plant-level HCLPF of 0.20g, which was subsequently documented in the NRC Generic Issue (GI)-199 Safety/Risk Assessment (Reference 29). A reduced-scope SMA is not intended to yield a realistic plant-level HCLPF, and its purpose in the IPEEE context is to provide screening-level insights into the plant's seismic vulnerabilities.

NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," Appendix B (Reference 30), indicates that a reduced-scope SMA does not need to develop HCLPF capacities for systems, structures, and components (SSCs) included in the success paths. Therefore, no success-path HCLPF values from which a plant-level HCLPF could be derived were developed. Instead, the original reduced-scope IPEEE SMA for Wolf Creek resulted in a conservative assignment of the plant-level HCLPF capacity of 0.20g, equivalent to the plant's safe shutdown earthquake.

However, focused-scope or full-scope SMA discussed in NUREG-1407 can produce a more realistic plant-level HCLPF. Therefore, the licensee elected to upgrade the reduced-scope SMA included in its IPEEE submittal to a full-scope SMA by incorporating additional information. The licensee proposed an enhanced plant-level HCLPF value of 0.30g based on its upgraded full-scope SMA and used this value to support RICTs in its TSTF-505 LAR.

The NRC NTTF 2.1 seismic hazard reevaluations for Wolf Creek (Reference 31) initially screened in the plant for further seismic evaluations, including a seismic PRA, spent fuel pool evaluation, and a high frequency confirmation. Wolf Creek was screened in with low priority, as prioritization Group 3. The NRC subsequently concluded that Group 3 plants, including Wolf Creek, did not warrant further action and that a seismic PRA was not needed because the estimated seismic CDF increase would not be significant (Reference 32). While the seismic PRA was de-prioritized and halted, a significant portion of the analysis supporting the seismic PRA had already been completed, including fragility evaluations for relays and Seismic Category I (SC-I) SSCs. The licensee leveraged this additional work to upgrade the original reduced-scope IPEEE SMA to a full-scope SMA to demonstrate that the plant-level HCLPF value can be increased from 0.20g to 0.30g.

The NRC staff reviewed the technical adequacy of the upgraded full-scope SMA documented in enclosure II, "2025 Seismic Margin Assessment Update for Wolf Creek," (hereafter referred to as the "2025 SMA Update") to the LAR supplement dated April 9, 2026, against the applicable guidance in NUREG-1407 and EPRI NP-6041-SL (References 30 and 33, respectively). Because the original Wolf Creek IPEEE submittal on seismic hazard assessment was previously reviewed by the NRC staff (Reference 34), the current review focused on new information included in the 2025 SMA Update supporting the updated plant-level HCLPF value of 0.30g used in the Wolf Creek TSTF-505 LAR. A detailed technical review is provided in the subsections below.

#### *Full-Scope SMA Methodology Overview*

In a full-scope EPRI SMA, an important goal is to determine a plant-level HCLPF, representing the seismic capacity of the plant beyond the design basis. Per EPRI NP-6041-SL, the SMA process includes identification of essential safety functions and selection of at least two independent success paths to achieve and maintain safe shutdown. Then, a safe shutdown equipment list, which includes SSCs necessary for the success paths, is established.

The safe shutdown equipment list is then subjected to seismic walkdowns and screening that involve the use of experience-based seismic ruggedness data, generic capacity tables, anchorage adequacy checks, seismic interaction assessments, and relay ruggedness screening. SSCs whose capacity clearly exceeds the demand from the review-level earthquake are screened out, and the remaining SSCs are subjected to detailed capacity evaluation. The review-level earthquake is selected with an appropriate spectral shape and anchoring parameter (i.e., PGA) consistent with site-specific seismic characteristics and should be sufficiently high to test seismic margin.

The conservative deterministic failure margin method is typically used to calculate HCLPF capacities for screened-in SSCs, where seismic demand is compared to seismic capacity using conservative estimates of strength, stiffness, and anchorage performance. For components sensitive to functional failure (e.g., relays), fragility curves or ruggedness spectra may be used. The HCLPF value of an SSC is taken as the lesser of its structural and functional capacities. The plant-level HCLPF is determined by reviewing all SSC HCLPF values and identifying the minimum value across the applicable success path logic.

#### *System Analysis and Seismic Equipment List Development*

The 2025 SMA Update for Wolf Creek was performed following EPRI NP-6041-SL and was further expanded to leverage additional work performed for the development of the seismic PRA. One of the key differences between the SMA approach specified in EPRI NP-6041-SL and the SMA updated by Wolf Creek is in the definition of the seismic equipment list (SEL). In the original Wolf Creek IPEEE SMA, the process involved identifying essential safety functions and selecting two safe shutdown paths associated with two specific initiators, the small loss-of-coolant accident (LOCA) and the LOOP scenarios. The safe shutdown equipment list, which includes SSCs involved in the safe shutdown success paths, was then developed.

In contrast, in the 2025 updated SMA the licensee developed an SEL based on seismic PRA development, which overlaps with the safe shutdown equipment list of the original IPEEE SMA but contains additional items. It is noted that a SEL is typically used in seismic PRA or PRA-based SMA approaches that consider a broader range of accident sequences, whereas a safe shutdown equipment list is used in an EPRI SMA that focuses on success paths for safe

shutdown. The SEL developed for the 2025 SMA Update is based on work performed as part of the NTTF 2.1 seismic PRA activities.

In section 3.3 of the Wolf Creek 2025 SMA Update, the licensee describes the system analysis and component selection process used to develop the updated SEL. The SEL includes all plant components and structures whose seismic-induced failure could either cause an initiating event or degrade the capability to mitigate a seismic-induced initiating event. The licensee developed the SEL through an iterative process. A preliminary SEL was developed based on seismic-relevant portions of the Wolf Creek internal events PRA model, which was then supplemented by additional reviews to identify seismically risk-significant components not modeled in the internal events PRA. Major structures addressed in the seismic PRA were also included in the updated SEL.

The internal events PRA used for developing the updated SMA SEL addresses both CDF and LERF risk and, therefore, includes components needed to address containment failure without requiring additional analytical steps. For non-seismic failures and human actions, the licensee stated that the rationale discussed in the original IPEEE SMA remains valid for the 2025 SMA Update and supports the conclusion that non-seismic failures and human actions do not invalidate the insights derived from the SMA.

The NRC staff notes that the licensee's approach of updating the SEL using the internal events PRA component list is consistent with the NRC SMA methodology that uses event trees and fault trees to delineate accident sequences. An SEL developed based on a broader range of PRA accident sequences is more comprehensive than a safe shutdown equipment list based on two success paths in an EPRI SMA. NUREG-1407 finds both NRC SMA and EPRI SMA methodologies as acceptable approaches for IPEEE seismic evaluations. Therefore, the NRC staff finds the Wolf Creek approach to developing the SEL for the 2025 updated SMA acceptable, as it meets the intent of NUREG-1407.

#### *Seismic Screening and Walkdown*

In section 3.5 of the 2025 SMA Update, the licensee describes seismic screening and walkdowns conducted for both the original IPEEE SMA and the updated full-scope SMA. The primary objective of the screening is to identify critical SSCs that require detailed fragility evaluation. A critical SSC is defined as one that is important to plant safety and exhibits relatively low seismic ruggedness. The licensee applied the screening methodology of EPRI NP-6041-SL and considered both plant seismic design bases and observations from seismic walkdowns. The level of screening effort applied to SSCs was commensurate with their importance to plant seismic response.

The licensee used a screening level of 1.2g peak spectral acceleration, as identified in tables 2-3 and 2-4 of EPRI NP-6041-SL. This screening level was determined to be sufficient for evaluating structural failure modes of buildings and equipment and functional failure modes of most active electrical and mechanical equipment. The ground response spectrum used for the review-level earthquake was the 1E-5 UHRS developed from the site-specific probabilistic seismic hazard analysis performed as part of the Wolf Creek NTTF 2.1 efforts. For 5 percent damping, the 1E-5 UHRS has a peak spectral acceleration of 1.5g and a PGA of 0.6g, which, when scaled to a 1.2g screening-level peak spectral acceleration, corresponds to a PGA of approximately 0.48g. The licensee also performed anchorage calculations to support screening evaluations.

The licensee designated the list of equipment evaluated in the seismic PRA as the baseline SEL for screening and fragility evaluation. This baseline SEL primarily consists of SC-I equipment located in major plant structures including the reactor building, auxiliary building, control building, diesel generator building, and essential service water system pumphouse. SC-I equipment is designed and maintained to have high seismic ruggedness, and the walkdowns focused on identifying components that may exhibit relatively lower ruggedness. Non-SC-I equipment included in the baseline SEL was screened in using a relatively high screening level and engineering judgment based on plant design knowledge.

The licensee conducted comprehensive walkdowns for SSCs included in the SEL. Walkdowns focused on anchorage, lateral seismic support, potential seismic interactions, and applicable screening caveats. Additional walkdowns were performed for components identified as having potentially low seismic capacity. Observations from these walkdowns were used to support fragility evaluations. The licensee also applied insights from the seismic walkdowns performed in response to NTTF Recommendation 2.3 (NTTF 2.3) (Reference 35). These observations were used to verify the adequacy of the plant's seismic configuration and to identify components requiring detailed evaluation. The licensee concluded that the estimated seismic capacities of these components exceed the screening level and do not affect the plant-level HCLPF determination.

The NRC staff finds the seismic screening and walkdown process for the 2025 SMA Update acceptable because it is comprehensive and consistent with the guidance in NUREG-1407 and EPRI NP-6041-SL.

#### *Relay Evaluation*

Although a reduced-scope IPEEE SMA does not require a screening evaluation, the licensee performed such evaluation to identify low-ruggedness relays. The licensee concluded that these relays were screened out because they do not affect the operation of equipment included in the reduced-scope safe shutdown equipment list. Subsequently, the licensee performed a comprehensive relay evaluation as part of the NTTF 2.1 seismic PRA activities. Section 3.3.3.3 of the 2025 SMA Update describes the assessment of relays associated with SEL equipment.

Although the seismic PRA effort was interrupted due to NTTF 2.1 reprioritization, the licensee continued refining the relay evaluation using updated information and methodologies. The evaluation focused on safety-related relays, consistent with standard practice. For relays with HCLPF values below 0.35g, the licensee performed refined analyses, including fragility refinement, functional evaluation, and assessment of operator actions where applicable. As a result, all relays were either demonstrated to have sufficient capacity or were screened out based on functional or operational considerations.

The NRC staff finds the relay evaluation acceptable because it is consistent with NUREG-1407 and appropriate for a full-scope SMA.

#### *Fragility Analysis*

Section 3.8 of the 2025 SMA Update describes the evaluation of seismic fragilities for the screened-in SSCs on the SEL. Because the original Wolf Creek IPEEE SMA was of reduced scope, full fragility evaluations of screened-in items were not performed. However, the licensee leveraged the significant amount of quantitative work performed in fragility evaluations for the interrupted Wolf Creek seismic PRA in upgrading its reduced-scope IPEEE SMA to a full-scope

SMA. In the 2025 SMA Update, the licensee performed detailed fragility evaluations using the site-specific ground response spectrum as the review-level earthquake and applied updated methodologies for soil-structure interaction analysis and in-structure response spectrum generation. The SSCs included in the seismic PRA SEL were subjected to extensive walkdowns, and updated fragility evaluations were performed consistent with the walkdown observations. The licensee performed a systematic assessment to identify relays associated with the SEL front-line equipment and conducted both functional analyses and fragility evaluations for the cabinets housing the relays, as well as fragility evaluations for the relays themselves.

The licensee performed fragility analyses using a combination of conservative deterministic failure margin and separation of variables methods, depending on the perceived importance of the components. For SSCs identified as dominant contributors to seismic risk or as risk-significant in seismic accident sequences, estimates of the median capacity ( $A_m$ ) and the random ( $\beta_r$ ) and uncertainty variabilities ( $\beta_u$ ) were developed using the separation of variables method. The licensee noted that the seismic PRA effort was interrupted before significant refinements in fragility analysis could be implemented based on the relative risk significance of SSCs. As a result, initial fragility estimates for certain components were overly conservative. The licensee therefore performed explicit detailed analyses to obtain more realistic fragility estimates for those components.

The licensee developed new in-structure response spectrum using the 1E-5 UHRS to generate a set of equivalent ground motion time histories for input into the soil-structure interaction analysis. The use of UHRS-based input motion is consistent with industry practice and aligns with the 2009 ASME/ANS PRA standard. The selected 1E-5 UHRS exhibits a spectral shape similar to the 1E-4 UHRS and GMRS for the Wolf Creek site. Because these UHRS shapes are similar over a wide range of annual frequencies of exceedance, the licensee concluded that the spectral shape used is appropriate for capturing risk contributions from dominant earthquake events. The licensee used refined dynamic models for major plant structures to support soil-structure interaction analysis. Best estimate, lower bound, and upper bound soil profiles were used to account for variability in soil properties. The resulting in-structure response spectrum was enveloped to obtain controlling spectra. Variability in structural properties and modeling was addressed through frequency shifting and spectral broadening. The resulting in-structure response spectrum was then used as input for equipment fragility evaluations. The licensee noted that the 0.60g PGA corresponding to the 1E-5 UHRS represents a relatively high seismic input level but is appropriate for evaluating seismic capacity because it produces in-structure demands near equipment capacity levels.

To address limitations identified in the original reduced-scope IPEEE SMA, the licensee performed explicit fragility evaluations for the 60-cell batteries and racks and for the ESFAS/LSELS (load shed/emergency load sequencer) cabinets, which were previously assigned an HCLPF of 0.20g and were considered the limiting value constituting the plant-level HCLPF. The updated analyses yielded HCLPF values of 0.47g for the batteries/racks and 0.53g for the ESFAS/LSELS cabinets. These results support the conclusion from the original IPEEE SMA that the capacity of these components was indeterminate beyond the design basis and that more detailed analysis could demonstrate higher capacities.

In an EPRI SMA, the plant-level HCLPF is typically determined based on the limiting HCLPF among SSCs in the safe shutdown equipment list. However, because the SEL used in the 2025 SMA Update is based on a seismic PRA SEL and does not explicitly differentiate between success paths, the licensee determined the plant-level HCLPF based on the minimum HCLPF

among all SSCs in the SEL. For SSCs initially estimated to have low capacities, the licensee performed refined analyses and concluded that none had HCLPF values below 0.35g. Although 0.35g could be considered the limiting plant-level HCLPF based on these results, the licensee proposed a plant-level HCLPF of 0.30g to maintain conservatism. The licensee explained that this value accounts for potential differences between the NTTF 2.1 and updated EPRI 2023 hazard spectra at the Wolf Creek site. The fragility evaluations were based on the NTTF 2.1 hazard, and use of the updated hazard could slightly reduce the effective HCLPF. The licensee estimated that a 0.35g HCLPF could correspond to approximately 0.33–0.34g when adjusted for hazard differences and selected 0.30g to provide additional margin.

The NRC staff finds the licensee's seismic fragility analysis acceptable because the methodologies used are consistent with NUREG-1407 and industry standards, and the results incorporate appropriate conservatism.

### *Containment Performance*

The seismic review team evaluations and walkdowns performed as part of the original IPEEE SMA did not identify any significant vulnerabilities related to containment performance. Based on this review, the seismic review team assigned a minimum HCLPF capacity of 0.30g to the containment. In section 3.6 of the 2025 SMA Update, the licensee states that the PRA used as the basis for the updated SMA includes SSCs associated with LERF risk assessment, thereby addressing containment performance. The licensee indicated that no separate evaluation was necessary because explicit fragility analyses were performed for containment structures and penetrations.

The NRC staff finds the licensee's conclusion regarding containment performance acceptable because the updated SMA includes SSCs relevant to containment function and evaluates their seismic capacity.

### *Summary of 2025 SMA Update Review*

The Wolf Creek 2025 SMA Update significantly expands the scope of the original IPEEE seismic assessment by leveraging the extensive work performed for the licensee's interrupted NTTF 2.1 seismic PRA. This effectively upgrades the reduced-scope SMA included in the Wolf Creek IPEEE submittal to a full-scope SMA.

The SEL developed for the 2025 SMA Update is based on the seismic PRA SEL and is more comprehensive than the safe shutdown equipment list used in the original IPEEE SMA. Seismic walkdowns conducted as part of the NTTF 2.3 activities supplement the original IPEEE walkdowns and provide additional information to support screening and fragility evaluations. Detailed fragility analyses demonstrate that all SSCs in the SEL have HCLPF capacities exceeding 0.35g, and the evaluation of relays confirms that all relays meet the 0.35g screening threshold or are otherwise screened out. Based on these results, the licensee proposed a plant-level HCLPF of 0.30g with additional conservatism.

The NRC staff also confirmed during a regulatory audit that an independent peer review of the 2025 SMA Update concluded that the evaluation meets the guidance in NUREG-1407 for a full-scope SMA and supports a plant-level HCLPF of 0.30g. Based on its review of the 2025 SMA Update and consideration of the independent peer review findings, the NRC staff concludes that the updated SMA is consistent with applicable guidance in NUREG-1407 and provides an

acceptable technical basis for establishing a plant-level HCLPF value of 0.30g PGA for use in the Wolf Creek TSTF-505 LAR.

#### 3.2.4.1.3.4 Seismic Penalties for RICT

Once the site-specific seismic hazard curve and plant-level seismic fragility information are established, the seismic CDF and seismic LERF penalty metrics can be estimated. The licensee convolved the mean seismic hazard curve with the plant-level seismic fragility curve to calculate the seismic CDF penalty and then convolved the seismic CDF with the same plant-level fragility to calculate the seismic LERF penalty estimate. The licensee used the plant-level fragility based on the 0.30g HCLPF reviewed in section 3.2.4.1.3.3 above and a composite variability ( $\beta_c$ ) of 0.3. The licensee selected the  $\beta_c$  value based on guidance in EPRI 3002018215 (Reference 36). The licensee provided seismic penalty quantification in enclosure I, "Seismic Hazard Analysis to Support Wolf Creek RICT LAR," to the LAR supplement dated April 9, 2026, and the resulting seismic CDF and seismic LERF estimates are presented in table E5-1 of the LAR.

The licensee addressed the incremental risk associated with a seismic-induced LOOP in enclosure I to the LAR supplement. A seismic LOOP frequency across the entire hazard curve is 8.9E-05 per year, which is about 0.35 percent of the total initiating event frequency of the internal events LOOP already addressed in the internal events PRA. The NRC staff evaluated the licensee's analysis and finds that it adequately addresses the impact of a seismically-induced LOOP on risk and that the exclusion of the impact of a LOOP on risk from the non-recovered LOOP frequency has an insignificant impact on the RICT calculations.

In summary, the NRC staff finds that the licensee's proposal to use the seismic CDF contribution of 1.01E-05 per year and a seismic LERF contribution of 6.37E-06 per year as penalties for the RICT program is acceptable because (1) the licensee used site-specific seismic hazard information for Wolf Creek, (2) the licensee used conservative plant fragility values, including a plant-level HCLPF value of 0.30g PGA for core damage as well as containment integrity and a composite variability of 0.3, (3) the licensee performed a conservative bounding analysis consistent with the GI-199 methodology, and (4) the use of baseline seismic risk for RICT calculations with an assumption of fully correlated seismic failures is conservative and acceptable for this application.

#### 3.2.4.1.4 Evaluation of Extreme Winds and Tornado Hazards

The licensee determined that the high winds hazard does not screen out based on the site-specific risk assessment performed for Wolf Creek. The licensee explained in the LAR, as supplemented, that RICT calculations will include a risk contribution from high winds events using a "penalty" approach. This approach adds high winds CDF and LERF values as penalties to each RICT calculation.

The licensee's approach to estimating high winds risk for the TSTF-505 application was to perform a bounding analysis based on the assumption of LOOP and the coincident likelihood of having certain systems out of service. The bounding values for high winds CDF and LERF were derived from the mean high winds hazard frequency, the conditional LOOP probability, and the conditional core damage probability (CCDP) and conditional large early release probability (CLERP) for the applicable sequences.

The two main categories of wind hazards that Wolf Creek analyzed for the penalty were tornado hazards and straight-line wind events. Tornado hazard frequencies were computed using the methodology in NUREG/CR-4461, Revision 2, "Tornado Climatology of the Contiguous Units States" (Reference 37) and data from the National Oceanic and Atmospheric Administration (NOAA). Straight-line wind event frequencies were developed using datasets from the NOAA. The NRC staff reviewed the methodology and associated data sources and concludes that the approach used to estimate tornado and straight-line wind hazard frequencies is acceptable.

The licensee developed conditional LOOP probability based on the severity of the high winds event and the updated switchyard configuration as modeled in the most recent high winds model. A conditional LOOP probability of 1.0 was assumed for all high winds events greater than 125 miles per hour (MPH). A fragility analysis was performed to calculate conditional LOOP probability for all high wind events less than 125 MPH. The fragility analysis calculates conditional LOOP probabilities by combining the transmission line fragilities with the conditional likelihood of all transmission lines failing at different wind speeds.

The high winds hazard CCDP was derived from the Wolf Creek internal events PRA model, as explained in the LAR. Before quantification, the internal events model was adjusted to represent a high winds event by assuming failure of vulnerable components, setting the weather-induced LOOP initiator to 1.0, and negating AC power recovery during the quantification process. The NRC staff evaluated the licensee's high winds hazard CCDP and concludes that the approach is acceptable.

In the supplement to the LAR, the licensee provided baseline sequence CCDP and CLERP values and bounding baseline CDF and LERF values for high winds events. The NRC staff reviewed these values and finds that the licensee's quantification of baseline high winds CDF and LERF is acceptable.

Based on its review of section 3, "Evaluation of External Event Challenges," of enclosure 4, "Information Supporting Justification of Excluding Sources of Risk Not Addressed by the PRA Models," to the LAR, as supplemented, the NRC staff finds the licensee's determination of high winds CDF and LERF penalties acceptable because (1) the penalties are based on Wolf Creek plant-specific SSC wind design fragilities and site-specific tornado and straight-line wind hazard information, (2) the analysis accounts for data uncertainty and incorporates conservative assumptions where appropriate, (3) the LAR uses the peer reviewed Wolf Creek internal events PRA model with simplifying and conservative assumptions applied for bounding purposes, (4) all LCO encompassed by the RICT program were evaluated and the results were conservatively applied to determine high winds penalties on a plant configuration basis, and (5) the high winds penalties are conservatively estimated using the total baseline high winds CDF and LERF values as the  $\Delta$ CDF and  $\Delta$ LERF inputs in all RICT calculations.

#### 3.2.4.1.5 Evaluation of Other External Hazards

In addition to the seismic and high winds hazards discussed above, the licensee evaluated other external hazards for Wolf Creek and concluded that their contributions to configuration risk are insignificant and may be screened from the RICT program.

In section 2, "Hazard Screening," and table E4-1, "Evaluation of Risks from External Hazards," of enclosure 4 to the LAR, the licensee provided its evaluation of the external flooding hazard risk. The NRC staff previously reviewed the Wolf Creek Flood Hazard Reevaluation Report (Reference 31) with regard to the reevaluated local intense precipitation and probable maximum

flood hazards developed in response to NTTF 2.1 for flooding (Reference 32). The results indicate that all flood-causing mechanisms, except local intense precipitation, do not pose a challenge to the plant and are appropriately screened out. The licensee performed a bounding assessment of local intense precipitation -related CDF. This assessment included evaluation of the local intense precipitation hazard frequency curve and a bounding estimate of CCDP associated with a local intense precipitation event. Based on the low frequency of a local intense precipitation -induced flood challenge and the high likelihood of equipment availability following a bounding flooding event, the licensee concluded that local intense precipitation does not challenge safety functions at Wolf Creek and may be screened from further consideration.

Based on its prior review of the flood hazard reevaluation and the additional local intense precipitation analysis, the NRC staff finds that the licensee has appropriately evaluated external flooding risk for the proposed RICTs and concludes that external flooding has an insignificant contribution to configuration risk and may be excluded from RICT calculations. The NRC staff also notes that plant procedures are in place to ensure the availability of flood protection features during RICTs, thereby supporting management of external flooding risk.

The licensee provided its evaluation of additional external hazards for Wolf Creek in table E4-1 of enclosure 4 to the LAR. The licensee stated that this assessment included consideration of configuration-specific conditions. The NRC staff reviewed the screening methodology and notes that the preliminary screening criteria and progressive screening criteria presented in table E4-2 are consistent with the supporting requirements for screening external hazards EXT-B1 and EXT-C1 of the ASME/ANS PRA Standard. Based on its review, the NRC staff finds that the contributions from external hazards, besides seismic and high winds, have insignificant contributions to configuration risk and can be excluded from the calculation of the proposed RICTs because they either do not challenge the plant or they are bounded by the hazards already analyzed for the plant.

#### 3.2.4.1.6 Application of PRA Models, Results, and Insights in the RICT Program

The Wolf Creek base PRA models that have been determined to be acceptable in this safety evaluation will be modified as an application-specific PRA model (i.e., the CRMP tool), which will be used to analyze the risk for an extended CT. The CRMP model produces results (i.e., risk metrics) that are consistent with the NEI 06-09-A guidance. In the LAR, the licensee provided all information needed to support the requested LCO actions proposed for the Wolf Creek RICT program consistent with all the limitations and conditions prescribed in section 4.0 of NEI 06-09-A.

The NRC staff did not identify any insufficiencies in the licensee's information or the CRMP tool as described in enclosure 1 of the LAR. Furthermore, the RICT program ensures that PRA acceptability is maintained for the models on which the CRMP tool is based and for the tool itself. Changes to the as-built, as-operated plant to reflect the operating experience at the plant are discussed in enclosure 7, "PRA Model Update Process," to the LAR. The licensee described its PRA model update process that ensures the PRA models that support the RICT program are maintained, consistent with the as-built, as-operated plant. The NRC staff finds that the Wolf Creek PRA models and CRMP tool used will continue to reflect the as-built, as-operated plant consistent with RG 1.200, Revision 2 for ensuring PRA acceptability is maintained. Therefore, the NRC staff concludes that the proposed application of the Wolf Creek RICT program is appropriate for use in the adoption of TSTF-505 for performing RICT calculations.

In enclosure 5, "Baseline CDF and LERF," to the LAR, the licensee provided the estimated total CDF and LERF of the base PRA models to demonstrate that Wolf Creek meets the 1E-4 per year CDF and 1E-5 per year LERF criteria of RG 1.174 consistent with the guidance in NEI 06-09-A and that these guidelines will be satisfied for implementation of a RICT.

The licensee has incorporated NEI 06-09-A into a new proposed TS 5.5.20, "Risk Informed Completion Time Program." The estimated current total CDF and LERF for Wolf Creek PRAs meet the RG 1.174 guidelines, therefore, the NRC staff concludes the PRA results and insights to be used by the licensee in the RICT program will continue to be consistent with NEI 06-09-A.

### 3.2.4.2 Tier 2: Avoidance of Risk-Significant Plant Configurations

As prescribed in RG 1.177, the second tier evaluates the capability of the licensee to identify and avoid risk significant plant configurations that could result if equipment, in addition to that associated with the proposed change, is taken out of service simultaneously or if other risk significant operational factors, such as concurrent system or equipment testing, are also involved. In enclosure 10, "Program Implementation," to the LAR the licensee confirmed that the risk thresholds associated with 10 CFR 50.65(a)(4) will be coordinated with the RICT limits. Enclosure 12, "Risk Management Action Examples," to the LAR identifies three kinds of RMAs (i.e., actions to provide increased risk awareness and control, actions to reduce the duration of maintenance activities, and actions to minimize the magnitude of the risk increase). The LAR also explains that RMAs will be implemented, in accordance with current plant procedures, no later than the time at which the 1E-06 incremental core damage probability (ICCDP) or 1E-07 incremental large early release probability (ICLERP) threshold is reached and under emergent conditions when the instantaneous CDF and LERF thresholds are exceeded.

The NRC staff concludes that the RICT program requirements, which include limits established for entry into a RICT, and implementation of RMAs are consistent with NEI 06-09-A. Therefore, the proposed changes are consistent with the intent of Tier 2 in RG 1.177.

### 3.2.4.3 Tier 3: Risk-Informed Configuration Risk Management

The third tier stipulates that a licensee should develop a program that ensures that the risk impact of equipment out of service is appropriately evaluated prior to performing any maintenance activity. The proposed RICT program establishes a CRMP based on the underlying PRA models. The CRMP is then used to evaluate configuration specific risk for planned activities associated with the RMTS extended CT, as well as emergent conditions which may arise during an extended CT. This required assessment of configuration risk, along with the implementation of compensatory measures and RMAs, is consistent with the principle of Tier 3 for assessing and managing the risk impact of out-of-service equipment.

Paragraph 50.36(c)(5) of 10 CFR identifies administrative controls as "the provisions relating to organization and management, procedures, [...thereby] to assure operation of the facility in a safe manner." In enclosure 8, "Attributes of the Real-Time Model," to the LAR, the licensee confirmed that future changes made to the baseline PRA models and changes made to the online model (i.e., CRMP) are controlled and documented by plant procedures. Enclosure 10 to the LAR, provided the attributes that the licensee's RICT program procedures will address, which are consistent with NEI 06-09-A. The NRC staff finds that the licensee has identified appropriate administrative controls consistent with NEI 06-09-A and 10 CFR 50.36(c)(5).

Based on the licensee's incorporation of NEI 06-09-A in the technical specification, as discussed in LAR attachment I and its use of RMAs as discussed in LAR enclosure 12, and because the proposed changes are consistent with the Tier 3 guidance of RG 1.177, the NRC staff finds the licensee's Tier 3 program is acceptable and supports the proposed implementation of the RICT program.

### 3.2.5 Key Principle 5: Performance Measurement Strategies – Implementation and Monitoring

For TSTF-439, Revision 2, there are two existing programs that provide a strong disincentive to licensees continuing operation with alternating Required Actions. These programs are the monitoring report program required under the Maintenance Rule (10 CFR 50.65) and the ROP.

TSTF-439 deletes the second CTs; those CTs had been based upon NRC concern that a plant could continue to operate indefinitely without meeting an LCO by alternating compliance between two or more separate TS Conditions. TSTF-439 explains that 10 CFR 50.65(a)(4) is a better mechanism to assure that the LCO is met than the imposition of a second CT, because the monitoring report considers all inoperable risk-significant equipment, not just the one or two systems governed by the same LCO. Furthermore, as discussed above, the monitoring report requires each licensee to monitor the performance or condition of SSCs against licensee established goals to ensure the SSCs are capable of fulfilling their intended functions. The performance and condition monitoring activities required by 10 CFR 50.65 identify maintenance practices that would result from multiple entries into the actions of the technical specifications and unacceptable unavailability of these SSCs. The effectiveness of these performance monitoring activities and associated corrective actions is evaluated at least every refueling cycle, not to exceed 24 months per 10 CFR 50.65.

In addition to the monitoring report, the reporting of performance indicator data governed by NEI 99-02, "Regulatory Assessment Performance Indicator Guideline" (Reference 38), as endorsed by NRC Regulatory Issue Summary 2001-11, "Voluntary Submission of Performance Indicator Data" (Reference 39), establishes an acceptable method for the submission of performance indicator data to the NRC. The ROP consists of cornerstones that include inspection of the indicators to ensure all ROP objectives are being met. The mitigating systems cornerstone specifically addresses emergency AC power systems, which encompasses the AC sources and distribution system LCO. Any extended unavailability of the emergency AC power systems due to multiple entries into the TS Required Actions would affect the NRC staff's evaluation of the licensee's performance indicator data provided under the ROP. The licensee's performance within the mitigating systems ROP cornerstone provides reasonable assurance that the inappropriate use of TS CTs will be monitored.

In addition to these regulatory programs, the administrative controls discussed above in sections 2.3 and 3.2.1 of this safety evaluation limit the maximum time allowed for any combination of Conditions that result in a single contiguous failure to meet the LCO. The NRC staff concludes that the licensee continues to have mechanisms in place to monitor and to limit the maximum time allowed for any combination of conditions that could result in a single contiguous failure to meet the LCO. The NRC staff finds the proposed deletion of second CTs are acceptable because multiple, continuous entries into TS Conditions, without meeting the LCO, will be adequately controlled by: (1) the licensee's administrative controls, (2) the CRMPs as implemented to meet the requirements of the monitoring report to assess and manage risk and performance indicators, (3) assessment of the licensee's performance within the mitigating systems ROP cornerstone, and (4) the requirements described in TS 1.3, "Completion Times." In addition, the NRC staff finds the monitoring report provides adequate assurance against the

inappropriate use of combinations of TS Conditions that result in a single contiguous occurrence of failing to meet the LCO. Accordingly, consistent with TSTF-439, Revision 2, the NRC staff finds the proposed changes to be acceptable.

For TSTF-505, Revision 2, the need for an implementation and monitoring program is established in RG 1.177, and RG 1.174, to ensure that extensions to TS CTs do not degrade operational safety over time and that no adverse degradation occurs due to unanticipated degradation or common-cause mechanisms. An implementation and monitoring program is intended to ensure that the impact of the proposed technical specification change continues to reflect the availability of SSCs impacted by the change. RG 1.174 states, in part, monitoring performed in conformance with the Maintenance Rule, 10 CFR 50.65, can be used when the monitoring performed is sufficient for the SSCs affected by the risk-informed application. In enclosure 11, "Monitoring Program," to the LAR, the licensee states that the SSCs in the scope of the RICT program are also in the scope of 10 CFR 50.65 for the Maintenance Rule. The Maintenance Rule monitoring programs will provide for evaluation and disposition of unavailability impacts which may be incurred from implementation of the RICT program.

NEI 06-09-A specifies that the cumulative risk associated with the use of RMTS beyond the front stop for equipment out of service is to be monitored. In enclosure 11 to the LAR, the licensee indicates that the cumulative risk is calculated at least every refueling cycle, not to exceed 24 months. The NRC staff finds that this periodicity is consistent with NEI 06-09-A.

The NRC staff concludes that the licensee's proposed RICT program satisfies the fifth key principle of RG 1.177 and RG 1.174 because: (1) as described in enclosure 11 to the LAR, the RICT program will monitor the average annual cumulative risk increase as described in NEI 06-09-A, and use this average annual increase to ensure that the program, as implemented, meets RG 1.174 guidance for small risk increases: and (2) all affected SSCs are within the Maintenance Rule program, which is used to monitor changes to the reliability and availability of these SSCs.

### 3.3 Evaluation of Proposed Variations and Other Changes

The licensee has proposed variations from the technical specification changes approved in TSTF-505, Revision 2, and TSTF-439, Revision 2, in sections 2.3 and 3.2 of attachment I to the LAR, respectively. The licensee categorized the proposed variations as administrative or technical. The licensee has also proposed other administrative changes in section 4.0 of attachment I to the LAR. The NRC staff's evaluation of these proposed variations and changes is discussed below.

Section 2.3.1 of attachment I to the LAR discusses proposed administrative variations to TSTF-505, Revision 2. The NRC staff finds that they are administrative in nature (e.g., numbering and nomenclature differences, as well, as variations in wording) and are acceptable.

For the technical variations described in Section 2.3 of the LAR and Section 2.4.2 of this safety evaluation, the NRC staff reviewed the information the licensee provided in the LAR, as supplemented, for the proposed TS LCO and the Wolf Creek USAR to verify that the Conditions and associated Required Actions where the licensee requested to allow the use of a RICT meet the criteria for inclusion in the RICT program (i.e., meet the criteria described in Section 2.3, "Scope" of TSTF-505). This included verification that the capability of the affected systems to perform their safety functions (assuming no additional failures) is maintained when using a RICT. The NRC staff also confirmed that implementation of the RICT program for each technical

variation would not result in a technical specification loss of function. The NRC staff found that for Conditions where a loss of function could occur, the licensee appropriately added a note that would not allow a RICT to be applied when a loss of function occurs. Thus, a RICT could only be applied if the inoperable condition did not result in a loss of safety function.

The NRC staff reviewed the design success criteria corresponding to each of the technical variations LCO Conditions in LAR Table E1-1, "In Scope TS/LCO Conditions to Corresponding PRA Functions." The NRC staff found that either each Condition can be modeled in the licensee's PRA or the licensee provided an appropriate surrogate for evaluating the risk associated with the plant operating in that Condition. The NRC staff also found that the provided design success criteria (as updated in supplement dated January 8, 2026) identifies the redundant or minimum trains, channels, or components required necessary to support the safety functions for mitigating postulated design-basis accidents, safely shut down the reactor, and maintain the reactor in a safe shutdown condition. Based on these verifications, the NRC staff finds that the proposed RICTs for TS LCO provided in section 2.4.2 above meet the criteria for inclusion in the RICT program as described in section 2.3 of TSTF-505, and are, therefore, acceptable.

Section 3.2 of attachment I to the LAR discusses proposed technical variations to TSTF-439, Revision 2. The licensee provided its evaluation of administrative and technical variations in attachment V to the LAR. The NRC staff found that the proposed TSTF-439 variations identified by the licensee as administrative to be acceptable since these changes were editorial in nature (e.g., numbering variations and minor language differences between Wolf Creek technical specifications and the STS). One technical variation was identified by the licensee for TS 3.7.5, Condition B. The NRC staff reviewed this variation and found it to be acceptable based on the evaluation described in section 3.2.5 of this evaluation.

Section 4.0 of attachment I to the LAR discusses other proposed changes. The supplement dated January 8, 2026, also proposes editorial changes to TS 1.3 including a correction to the reference to TS 3.8.1 Required Action B.2, which should be Required Action B.3. The NRC staff finds these proposed changes acceptable because they are administrative: style or editorial changes.

Based on its review, the NRC staff concludes that the licensee's proposed variations and other changes are acceptable because they are either administrative in nature or consistent with the RICT program.

### 3.4 Technical Conclusion

The NRC staff has evaluated the proposed changes against each of the five key principles in RG 1.177 and RG 1.174, and evaluated the optional variations from the NRC-approved TSTF-505 and TSTF-439 discussed in section 3.2 of this safety evaluation. The NRC staff concludes that the changes proposed by the licensee satisfy the key principles of risk-informed decision-making identified in RG 1.174, and RG 1.177 and, therefore, the requested adoption of the proposed changes to the technical specifications and associated guidance is acceptable to assure the regulatory requirements of 10 CFR Part 50 identified in section 2.1 of this safety evaluation will continue to be met.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Kansas State official was notified of the proposed issuance of the amendment on June 23, 2025. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

This action relates to authorizations under 10 CFR Part 50 with respect to installation or use of a facility component. The NRC staff has determined that any ground disturbance is limited to previously disturbed areas. Additionally, the NRC staff has determined that the action involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, no significant increase in individual or cumulative public or occupational radiation exposure, and no significant increase in the potential for or consequences from radiological accidents. Finally, the NRC staff has determined that a categorical exclusion applies and that special circumstances under 10 CFR 51.22, "Categorical exclusions," are not present that would preclude reliance on the categorical exclusion. Accordingly, this action meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(d)(8). Pursuant to 10 CFR 51.22, no environmental impact statement or environmental assessment need be prepared for this action in connection with the action.

#### 6.0 CONCLUSION

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

#### 7.0 REFERENCES<sup>2</sup>

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<sup>2</sup> Entries in this list that are available in the Agencywide Documents Access and Management System (ADAMS) are identified by accession number in its main library.

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Date: May 13, 2026

SUBJECT: WOLF CREEK GENERATING STATION, UNIT 1 - ISSUANCE OF AMENDMENT NO. 247 RE: REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-505, REVISION 2, "PROVIDE RISK-INFORMED EXTENDED COMPLETION TIMES" (EPID L-2024-LLA-0170) DATED MAY 13, 2026

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