

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Terry J Garrett
Vice President, Engineering

November 18, 2005
ET 05-0025

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

References: 1) Letter WO 03-0057, dated October 30, 2003, from B. T. McKinney, WCNOG, to the NRC

2) Letter ET 05-0017, dated August 31, 2005, from T. J. Garrett, WCNOG, to the NRC

Subject: Docket No. 50-482: Supplement to Revision to Technical Specifications – Extensions of AC Electrical Power Distribution Completion Times

Gentlemen:

Reference 1 provided Wolf Creek Nuclear Operating Corporation's (WCNOG) application to revise Technical Specification (TS) 3.8.1, "AC Sources – Operating," to extend the Completion Times for the Required Actions associated with an inoperable diesel generator (DG). The amendment application also proposed revising TS 3.8.9, "Distribution Systems – Operating," to extend the Completion Time for one AC vital bus subsystem inoperable. Reference 2 provided responses to a request for additional information and information per Appendix E of NRC letter dated July 1, 2005, "Draft Safety Evaluation for Topical Report WCAP-15622, "Risk-Informed Evaluation of Extensions to AC Electrical Power System Completion Times" (TAC NO. MB2257)."

On October 31, 2005 and November 2, 2005, teleconferences were held between the NRC Project Manager and WCNOG personnel. As a result of the teleconferences, WCNOG agreed to provide additional changes to TS 3.8.1 and the associated TS 3.8.1 Bases. The additional changes to TS 3.8.1 were discussed with the NRC Project Manager on November 2, 2005. The changes proposed to TS 3.8.9 in Reference 1 are not changed.

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Attachment I through IV provide a discussion of the changes to TS 3.8.1, Markup of Technical Specification Pages, Retyped Technical Specification Pages, and Proposed TS Bases Changes (for information only).

The additional information provided in this submittal has been reviewed by the Plant Safety Review Committee. The additional information provided in the Attachments do not impact the conclusions of the No Significant Hazards Consideration provided in Reference 1. In accordance with 10 CFR 50.91, a copy of this submittal is being provided to the designated Kansas State official.

There are no commitments associated with this submittal. If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Kevin Moles at (620) 364-4126.

Very truly yours,



Terry J. Garrett

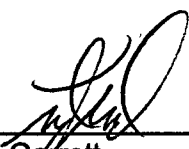
TJG/rlg

Attachments: I - Discussion of Changes to Technical Specification 3.8.1
 II - Markup of Technical Specification Pages
 III - Retyped Technical Specification Pages
 IV - Proposed TS Bases Changes (for information only)

cc: T. A. Conley (KDHE), w/a
J. N. Donohew (NRC), w/a
W. B. Jones (NRC), w/a
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Senior Resident Inspector (NRC), w/a

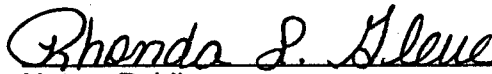
STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Terry J. Garrett, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By 
Terry J. Garrett
Vice President Engineering

SUBSCRIBED and sworn to before me this 18 day of Nov., 2005.




Notary Public

Expiration Date May 11, 2006

DISCUSSION OF CHANGES TO TECHNICAL SPECIFICATION 3.8.1

WCNOC letter WO 03-0057, dated October 3, 2003, provided an application to revise Technical Specification (TS) 3.8.1, "AC Sources – Operating," to extend the Completion Times for the Required Actions associated with an inoperable diesel generator (DG). The probabilistic safety analysis (PSA) model to support the proposed extension of the DG Completion Time is a partial update that addresses the inclusion of the Sharpe Station. In 2002, an additional nearby offsite power source (Sharpe Station) became available to WCNOC.

In the proposed TS Bases changes provided in letter WO 03-0057, WCNOC indicated that the administrative controls applied during use of the extended Completion Time for voluntary planned maintenance activities would ensure or require that the Sharpe Station is available to provide greater than 8 MW power to a dead bus to power 1 engineered safeguard features (ESF) train. In discussions with the NRC Project Manager on October 31, 2005, it was identified that additional requirements associated with the Sharpe Station are necessary based on the precedent approved by the NRC on September 29, 2005 in Amendment No. 268 and Amendment No. 150 for the Beaver Valley Power Station, Unit Nos. 1 and 2.

Provided below is a discussion of the changes being proposed to TS 3.8.1.

- A Note is added to the Completion Time for Required Action A.3, Restore offsite circuit to OPERABLE status, to account for the renumbering of Required Action B.4 and the addition of Required Action B.4.2.1 and Required Action B.4.2.2. The Note states: "A Completion Time of 10 days from discovery of failure to meet the LCO may be used with the 7 day Completion Time of Required Action B.4.2.2 for an inoperable DG." The Note modifies the Completion Time and allows 10 days from discovery of failure to meet the limiting condition for operation (LCO) during the use of the 7-day Completion Time in Required Action B.4.2.2.

Changes to Required Action B.4

- Required Action B.4 is renumbered to B.4.1.
- A Note is added to the Required Actions which states: "Required Actions B.4.2.1 and B.4.2.2 are only applicable for planned maintenance and may be used once per cycle per DG."
- Required Action B.4.2.1 and Required Action B.4.2.2 are added for declaring or rendering a DG inoperable for the performance of voluntary planned maintenance once per cycle per DG. Required Action B.4.2.1 provides assurance that the required Sharpe Station gensets are available when a DG is out of service for greater than 72 hours. The availability of the required gensets are verified once per 24 hours by contacting Kansas Electric Power Cooperative, Inc. (KEPCo) personnel for the status of the units. Required Action B.4.2.2 requires restoration of the DG to OPERABLE status within 7 days and 10 days from discovery of failure to meet the LCO.

- A new Condition C is added to restore the DG to OPERABLE status within 72 hours if the availability of the required Sharpe Station gensets cannot be verified. The 72-hour Completion Time begins upon entry into Condition C, however, the total time to restore an inoperable DG cannot exceed 7 days based on the Completion Time of Required Action B.4.2.2.
- The remaining Conditions and Required Actions are renumbered with the addition of new Condition C.
- New Condition H is revised to account for new Condition C.

The Completion Time of 72 hours for Required Action B.4.1 applies when a DG is discovered or determined to be inoperable, such as due to a component or test failure, and requires time to effect repairs, or it may apply when a DG is rendered inoperable for the performance of maintenance during applicable MODES. The 7-day Completion Time of Required Action B.4.2.2 is a risk-informed allowed outage time based on a plant-specific risk analysis. The Completion Time was established on the assumption that it would be used only for voluntary planned maintenance, inspections and testing. Use of Required Action B.4.2.1 and Required Action B.4.2.2 are limited to once within an operating cycle (18 months) for each DG. Administrative controls are applied for the use of Required Action B.4.2.2 that ensure or require that: 1) weather conditions are conducive and the extended Completion Time applies during the period of September 6 through April 22; 2) the offsite power supply and switchyard condition are conducive for the extended Completion Time; 3) prior to relying on the required Sharpe Station gensets, the gensets are started and proper operation verified, but are not maintained in operation for the duration of the allowed outage time for the DG; and 4) no equipment or systems assumed to be available for supporting the extended Completion Time are removed from service. These administrative controls are specified in the TS Bases.

The associated TS Bases changes that reflect the changes to the TSs are provided for information only in Attachment IV.

ATTACHMENT II
MARKUP OF TECHNICAL SPECIFICATION PAGES

TABLE OF CONTENTS

3.7	PLANT SYSTEMS	3.7-1
3.7.1	Main Steam Safety Valves (MSSVs)	3.7-1
3.7.2	Main Steam Isolation Valves (MSIVs).....	3.7-5
3.7.3	Main Feedwater Isolation Valves (MFIVs)	3.7-7
3.7.4	Atmospheric Relief Valves (ARVs)	3.7-9
3.7.5	Auxiliary Feedwater (AFW) System.....	3.7-11
3.7.6	Condensate Storage Tank (CST).....	3.7-14
3.7.7	Component Cooling Water (CCW) System	3.7-16
3.7.8	Essential Service Water System (ESW).....	3.7-18
3.7.9	Ultimate Heat Sink (UHS).....	3.7-20
3.7.10	Control Room Emergency Ventilation System (CREVS)	3.7-22
3.7.11	Control Room Air Conditioning System (CRACS).....	3.7-25
3.7.12	Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System - Not Used	3.7-28
3.7.13	Emergency Exhaust System (EES).....	3.7-29
3.7.14	Penetration Room Exhaust Air Cleanup System (PREACS) – Not Used.....	3.7-33
3.7.15	Fuel Storage Pool Water Level	3.7-34
3.7.16	Fuel Storage Pool Boron Concentration	3.7-35
3.7.17	Spent Fuel Assembly Storage	3.7-37
3.7.18	Secondary Specific Activity	3.7-39
3.8	ELECTRICAL POWER SYSTEMS	3.8-1
3.8.1	AC Sources - Operating	3.8-1
3.8.2	AC Sources - Shutdown	3.8-17 18
3.8.3	Diesel Fuel Oil, Lube Oil, and Starting Air	3.8-20 21
3.8.4	DC Sources - Operating	3.8-23 24
3.8.5	DC Sources - Shutdown	3.8-27 28
3.8.6	Battery Cell Parameters	3.8-29 30
3.8.7	Inverters - Operating	3.8-33 34
3.8.8	Inverters - Shutdown	3.8-34 35
3.8.9	Distribution Systems - Operating	3.8-36 37
3.8.10	Distribution Systems - Shutdown.....	3.8-38 39
3.9	REFUELING OPERATIONS	3.9-1
3.9.1	Boron Concentration	3.9-1
3.9.2	Unborated Water Source Isolation Valves.....	3.9-2
3.9.3	Nuclear Instrumentation	3.9-3
3.9.4	Containment Penetrations.....	3.9-5
3.9.5	Residual Heat Removal (RHR) and Coolant Circulation - High Water Level.....	3.9-7
3.9.6	Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level.....	3.9-9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin: 10px 0;"> <p>----- NOTE ----- A Completion Time of 10 days from discovery of failure to meet the LCO may be used with the 7 day Completion Time of Required Action B.4.2.2 for an inoperable DG.</p> </div>	<p>Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.</p>	<p>24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)</p>
	<p><u>AND</u></p> <p>A.3 Restore offsite circuit to OPERABLE status.</p>	<p>72 hours</p> <p><u>AND</u></p> <p>6 days from discovery of failure to meet LCO</p>
<p>B. One DG inoperable.</p>	<p>B.1 Perform SR 3.8.1.1 for the offsite circuit(s).</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p>
	<p><u>AND</u></p> <p>B.2</p> <p>----- NOTE ----- In MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature.</p> <p>Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable.</p>	<p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p>
	<p><u>AND</u></p>	<p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 <u>NOTE</u> The Required Action of B.3.2 is satisfied by the automatic start and sequence loading of the DG.	
	Perform SR 3.8.1.2 for OPERABLE DG.	24 hours
	<u>AND</u>	
	B.4 Restore DG to OPERABLE status.	72 hours
		<u>AND</u>
		6 days from discovery of failure to meet LCO

(continued)

-----NOTE-----
Required Actions B.4.2.1 and B.4.2.2 are only applicable for planned maintenance and may be used once per cycle per DG.

INSERT 1

INSERT 2












INSERT 1

	<p style="text-align: center;"><u>OR</u></p> <p>B.4.2.1 Verify the required Sharpe Station gensets are available.</p> <p style="text-align: center;"><u>AND</u></p> <p>B.4.2.2 Restore DG to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>7 days</p> <p style="text-align: center;"><u>AND</u></p> <p>10 days from discovery of failure to meet LCO</p>
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INSERT 2

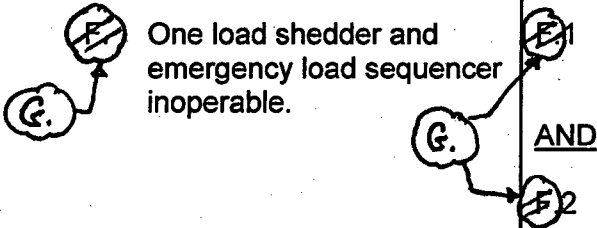


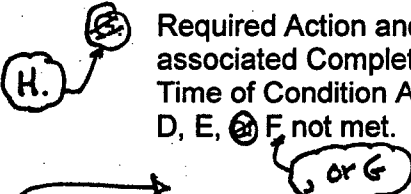





C. Required Action B.4.2.1 and associated Completion Time not met.	C.1 Restore DG to OPERABLE status.	72 hours
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ACTIONS (continued)

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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
 <p>One load shedder and emergency load sequencer inoperable.</p>	<p> Declare affected DG and offsite circuit inoperable.</p> <p><u>AND</u></p> <p> Restore load shedder and emergency load sequencer to OPERABLE status.</p>	<p>Immediately</p> <p>12 hours</p>
<p></p> <p>Required Action and associated Completion Time of Condition A, B C, D, E, F not met.</p> <p><u>OR G</u></p>	<p> Be in MODE 3.</p> <p><u>AND</u> </p> <p> Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p></p> <p>Three or more required AC sources inoperable.</p>	<p> Enter LCO 3.0.3.</p>	<p>Immediately</p>

OR

Required Actions B.1, B.2, B.3.1, B.3.2, B.4.1, and B.4.2.2 and associated Completion Time not met.

ATTACHMENT III
RETYPE TECHNICAL SPECIFICATION PAGES

TABLE OF CONTENTS

3.7	PLANT SYSTEMS	3.7-1
3.7.1	Main Steam Safety Valves (MSSVs)	3.7-1
3.7.2	Main Steam Isolation Valves (MSIVs)	3.7-5
3.7.3	Main Feedwater Isolation Valves (MFIVs)	3.7-7
3.7.4	Atmospheric Relief Valves (ARVs)	3.7-9
3.7.5	Auxiliary Feedwater (AFW) System	3.7-11
3.7.6	Condensate Storage Tank (CST)	3.7-14
3.7.7	Component Cooling Water (CCW) System	3.7-16
3.7.8	Essential Service Water System (ESW)	3.7-18
3.7.9	Ultimate Heat Sink (UHS)	3.7-20
3.7.10	Control Room Emergency Ventilation System (CREVS)	3.7-22
3.7.11	Control Room Air Conditioning System (CRACS)	3.7-25
3.7.12	Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System - Not Used	3.7-28
3.7.13	Emergency Exhaust System (EES)	3.7-29
3.7.14	Penetration Room Exhaust Air Cleanup System (PREACS) – Not Used	3.7-33
3.7.15	Fuel Storage Pool Water Level	3.7-34
3.7.16	Fuel Storage Pool Boron Concentration	3.7-35
3.7.17	Spent Fuel Assembly Storage	3.7-37
3.7.18	Secondary Specific Activity	3.7-39
3.8	ELECTRICAL POWER SYSTEMS	3.8-1
3.8.1	AC Sources - Operating	3.8-1
3.8.2	AC Sources - Shutdown	3.8-18
3.8.3	Diesel Fuel Oil, Lube Oil, and Starting Air	3.8-21
3.8.4	DC Sources - Operating	3.8-24
3.8.5	DC Sources - Shutdown	3.8-28
3.8.6	Battery Cell Parameters	3.8-30
3.8.7	Inverters - Operating	3.8-34
3.8.8	Inverters - Shutdown	3.8-35
3.8.9	Distribution Systems - Operating	3.8-37
3.8.10	Distribution Systems - Shutdown	3.8-39
3.9	REFUELING OPERATIONS	3.9-1
3.9.1	Boron Concentration	3.9-1
3.9.2	Unborated Water Source Isolation Valves	3.9-2
3.9.3	Nuclear Instrumentation	3.9-3
3.9.4	Containment Penetrations	3.9-5
3.9.5	Residual Heat Removal (RHR) and Coolant Circulation - High Water Level	3.9-7
3.9.6	Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level	3.9-9

TABLE OF CONTENTS

3.9	REFUELING OPERATIONS (continued)	
3.9.7	Refueling Pool Water Level	3.9-11
4.0	DESIGN FEATURES	4.0-1
4.1	Site Location	4.0-1
4.2	Reactor Core	4.0-1
4.3	Fuel Storage.....	4.0-1
5.0	ADMINISTRATIVE CONTROLS	5.0-1
5.1	Responsibility	5.0-1
5.2	Organization	5.0-2
5.3	Unit Staff Qualifications.....	5.0-4
5.4	Procedures.....	5.0-5
5.5	Programs and Manuals.....	5.0-6
5.6	Reporting Requirements	5.0-26
5.7	High Radiation Area.....	5.0-31

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and
- b. Two diesel generators (DGs) capable of supplying the onsite Class 1E power distribution subsystem(s); and
- c. Load shedder and emergency load sequencers for Train A and Train B.

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

ACTIONS

-----NOTE-----
LCO 3.0.4b. is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit.	1 hour
	<p><u>AND</u></p> <p>A.2 -----NOTE----- In MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. -----</p>	<p><u>AND</u></p> <p>Once per 8 hours thereafter</p>
(continued)		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	<p><u>AND</u></p> <p>A.3 Restore offsite circuit to OPERABLE status.</p>	<p>-----NOTE----- A Completion Time of 10 days from discovery of failure to meet LCO may be used with the 7 day Completion Time of Required Action B.4.2.2 for an inoperable DG. -----</p> <p>72 hours</p> <p><u>AND</u></p> <p>6 days from discovery of failure to meet LCO</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>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
B. (continued)	<p>B.2 -----NOTE----- In MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. -----</p> <p>Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable.</p>	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	<p>B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.</p>	24 hours
	<u>OR</u>	
	<p>B.3.2 -----NOTE----- The Required Action of B.3.2 is satisfied by the automatic start and sequence loading of the DG. -----</p> <p>Perform SR 3.8.1.2 for OPERABLE DG.</p>	24 hours
	<u>AND</u>	
		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	<p>-----NOTE----- Required Action B.4.2.1 and B.4.2.2 are only applicable for planned maintenance and may be used once per cycle per DG. -----</p>	
	<p>B.4.1 Restore DG to OPERABLE status.</p>	<p>72 hours</p> <p><u>AND</u></p> <p>6 days from discovery of failure to meet LCO</p>
	<p><u>OR</u></p> <p>B.4.2.1 Verify the required Sharpe Station gensets are available.</p>	<p>Once per 24 hours</p>
	<p><u>AND</u></p> <p>B.4.2.2 Restore DG to OPERABLE status.</p>	<p>7 days</p> <p><u>AND</u></p> <p>10 days from discovery of failure to meet LCO</p>
C. Required Action B.4.2.1 and associated Completion Time not met.	C.1 Restore DG to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two offsite circuits inoperable.	<p>D.1</p> <p>-----NOTE----- In MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. -----</p> <p>Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p>	12 hours from discovery of Condition D concurrent with inoperability of redundant required features
	<p><u>AND</u></p> <p>D.2 Restore one offsite circuit to OPERABLE status.</p>	
E. One offsite circuit inoperable. <u>AND</u> One DG inoperable.	<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>	12 hours
	<p><u>OR</u></p> <p>E.2 Restore DG to OPERABLE status.</p>	
F. Two DGs inoperable.	F.1 Restore one DG to OPERABLE status.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One load shedder and emergency load sequencer inoperable.	G.1 Declare affected DG and offsite circuit inoperable.	Immediately
	<u>AND</u> G.2 Restore load shedder and emergency load sequencer to OPERABLE status.	12 hours
H. Required Action and associated Completion Time of Condition A, C, D, E, F, or G not met. <u>OR</u> Required Actions B.1, B.2, B.3.1, B.3.2, B.4.1, and B.4.2.2 and associated Completion Time not met.	H.1 Be in MODE 3.	6 hours
	<u>AND</u> H.2 Be in MODE 5.	36 hours
I. Three or more required AC sources inoperable.	I.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	7 days
SR 3.8.1.2	<div>-----NOTES-----</div> <div><div>1. Performance of SR 3.8.1.7 satisfies this SR.</div><div>2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.</div><div>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.</div></div> <div>-----</div> <div>Verify each DG starts from standby conditions and achieves steady state voltage ≥ 3740 V and ≤ 4320 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</div>	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 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. <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 5580 kW and ≤ 6201 kW.</p>	<p>31 days</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>31 days</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each day tank.</p>	<p>31 days</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>31 days</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 ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and</p> <p>b. Steady state voltage ≥ 3740 V and ≤ 4320 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	184 days
SR 3.8.1.8	Not Used.	
SR 3.8.1.9	Not Used.	
SR 3.8.1.10	Verify each DG operating at a power factor ≤ 0.9 and ≥ 0.8 does not trip and voltage is maintained ≤ 4784 V and frequency is maintained ≤ 65.4 Hz during and following a load rejection of ≥ 5580 kW and ≤ 6201 kW.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.11</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 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. <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 12 seconds, 2. energizes auto-connected shutdown loads through the shutdown sequencer, 3. maintains steady state voltage ≥ 3740 V and ≤ 4320 V, 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.12</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by a prelube period. 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. <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"> a. In ≤ 12 seconds after auto-start and during tests, achieves voltage ≥ 3740 V and frequency ≥ 58.8 Hz; b. Achieves steady state voltage ≥ 3740 V and ≤ 4320 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz; c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are auto-connected and energized through the LOCA sequencer from the offsite power system. 	<p>18 months</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"> a. Engine overspeed; b. Generator differential current; c. Low lube oil pressure; d. High crankcase pressure; e. Start failure relay; and f. High jacket coolant temperature. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.14 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. The DG may be loaded to ≥ 5580 kW and ≤ 6201 kW for the entire test period, if auto-connected loads are less than 6201 kW. <p>-----</p> <p>Verify each DG operating at a power factor ≤ 0.9 and ≥ 0.8 operates for ≥ 24 hours:</p> <ol style="list-style-type: none"> a. For ≥ 2 hours loaded ≥ 6600 kW and ≤ 6821 kW; and b. For the remaining hours of the test loaded ≥ 5580 kW and ≤ 6201 kW. 	<p>18 months</p>
<p>SR 3.8.1.15 -----NOTES-----</p> <ol style="list-style-type: none"> 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 5580 kW and ≤ 6201 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. <p>-----</p> <p>Verify each DG starts and achieves:</p> <ol style="list-style-type: none"> a. In ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 3740 V and ≤ 4320 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.16 -----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. ----- Verify each DG:</p> <ul style="list-style-type: none"> a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation. 	<p>18 months</p>
<p>SR 3.8.1.17 -----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. ----- 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"> a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENT (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.18 -----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. ----- Verify interval between each sequenced load block is within $\pm 10\%$ of design interval for each LOCA and shutdown sequence timer.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.19</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 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. <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"> a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 12 seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady state voltage ≥ 3740 V and ≤ 4320 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.20 -----NOTE----- All DG starts may be preceded by an engine prelube period. ----- Verify when started simultaneously from standby condition, each DG achieves:</p> <p>a. In ≤ 12 seconds, voltage ≥ 3740 V and frequency ≥ 58.8 Hz; and</p> <p>b. Steady state voltage ≥ 3740 V and ≤ 4320 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	<p>10 years</p>
<p>SR 3.8.1.21 -----NOTE----- The continuity check may be excluded from the actuation logic test. ----- Perform ACTUATION LOGIC TEST for each train of the load shedder and emergency load sequencer.</p>	<p>31 days on a STAGGERED TEST BASIS</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.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with the required train de-energized as a result of Condition A. -----	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS. <u>AND</u>	Immediately (continued)

ACTIONS (continued)

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

(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>	In accordance with applicable SRs

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
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with two starting air receivers inservice with pressure < 435 psig and \geq 250 psig. <u>OR</u> One or more DGs with one starting air receiver inservice with pressure < 610 psig and \geq 300 psig.	E.1 Restore two starting air receivers with pressure \geq 435 psig. <u>OR</u> E.2 Restore one starting air receiver with pressure \geq 610 psig.	48 hours 48 hours
F. Required Action and associated Completion Time not met. <u>OR</u> 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.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains $\geq 85,300$ gal of fuel.	31 days
SR 3.8.3.2	Verify lubricating oil inventory is ≥ 750 gal.	31 days
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 ≥ 435 psig or pressure in one starting air receiver is ≥ 610 psig for each DG starting air subsystem.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	31 days

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
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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is ≥ 128.4 V on float charge.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	<p>Verify no visible corrosion at battery terminals and connectors.</p> <p><u>OR</u></p> <p>Verify battery connection resistance is $\leq 150\text{E-6 ohm}$ for inter-cell connections and $\leq 150\text{E-6 ohm}$ for terminal connections.</p>	92 days
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.	18 months
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.	18 months
SR 3.8.4.5	Verify battery connection resistance is $\leq 150\text{E-6 ohm}$ for inter-cell connections and $\leq 150\text{E-6 ohm}$ for terminal connections.	18 months
SR 3.8.4.6	Verify each battery charger supplies ≥ 300 amps at ≥ 128.4 V for ≥ 1 hour.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.7</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. 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. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. <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>	<p>18 months</p>

(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 $\geq 85\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months</p> <p><u>AND</u></p> <p>18 months when battery shows degradation or has reached 85% of expected life with capacity < 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 $\geq 100\%$ 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.

ACTIONS

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
<div>SR 3.8.5.1</div> <div>-----NOTE-----</div> <div>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.</div> <div>-----</div> <div>For DC sources required to be OPERABLE, the following SRs are applicable:</div> <div><div>SR 3.8.4.1SR 3.8.4.2SR 3.8.4.3</div><div>SR 3.8.4.4SR 3.8.4.5SR 3.8.4.6</div><div>SR 3.8.4.7SR 3.8.4.8</div></div>	<div>In accordance with applicable SRs</div>

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

(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 < 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>7 days</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.2 Verify battery cell parameters meet Table 3.8.6-1 Category B limits.</p>	<p>92 days</p> <p><u>AND</u></p> <p>Once within 7 days after a battery discharge < 110 V</p> <p><u>AND</u></p> <p>Once within 7 days after a battery overcharge > 150 V</p>
<p>SR 3.8.6.3 Verify average electrolyte temperature of representative cells is ≥ 60 °F.</p>	<p>92 days</p>

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 $\leq \frac{1}{4}$ inch above maximum level indication mark ^(a)	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark ^(a)	Above top of plates, and not overflowing
Float Voltage	$\geq 2.14 \text{ V}$	$\geq 2.14 \text{ V}$	$> 2.09 \text{ V}$
Specific Gravity ^(b)	$\geq 1.200^{(c)}$	≥ 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 $\geq 1.195^{(c)}$

- (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.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required inverter inoperable.	<p>A.1 -----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any vital bus de-energized. -----</p> <p>Restore inverter to OPERABLE status.</p>	24 hours
B. Required Action and associated Completion Time 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
SR 3.8.7.1 Verify correct inverter voltage and alignment to required AC vital buses.	7 days

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.

ACTIONS

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.	7 days

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>AND</u> 34 hours from discovery of failure to meet LCO
C. One AC vital bus subsystem inoperable.	C.1 Restore AC vital bus subsystem to OPERABLE status.	24 hours <u>AND</u> 34 hours from discovery of failure to meet LCO

(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>AND</u> 34 hours from discovery of failure to meet LCO
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.	7 days

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.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported 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>	
		(continued)

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
	<u>AND</u> 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.	7 days

ATTACHMENT IV

**PROPOSED TS BASES CHANGES
(for information only)**

BASES

ACTIONS

A.2 (continued)

Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with the other train that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to Train A and Train B of the onsite Class 1E Distribution System. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

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

The second Completion Time for Required Action A.3 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, a DG is inoperable and that DG is subsequently returned OPERABLE, the LCO may already have been not met for up to 72 hours. This could lead to a total of 144 hours, since initial failure to meet the LCO, to restore the offsite circuit. At this time, a DG could again become inoperable, the circuit restored OPERABLE and an additional 72 hours for a total of 9 days allowed prior to complete restoration of the LCO. Although highly unlikely, this could continue indefinitely if not limited. The 6 day Completion Time provides a limit on the time allowed in a specified

BASES

ACTIONS

A.3 (continued)

condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. This limits the time the plant can alternate between Conditions A, B, and E (see Completion Time Example 1.3-3). The "AND" connector between the 72 hour and 6 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.

As in Required Action A.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This will result in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time Condition A was entered. Tracking the 6 day Completion Time is a requirement for beginning the Completion Time "clock" that is in addition to the normal Completion Time requirements. With respect to the 6 day Completion Time, the "time zero" is specified as beginning at the time LCO 3.8.1 was initially not met, instead of at the time Condition A was entered. This results in the requirement, when in this Condition, to track the time elapsed from both the Condition A "time zero," and the "time zero" when LCO 3.8.1 was initially not met. Refer to Section 1.3, "Completion Times," for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO portion of the Completion Time.

The Completion Time is modified by a Note. The Note modifies the Completion Time and allows 10 days from discovery of failure to meet the LCO during the use of the 7 day Completion Time in Required Action B.4.2.2.

The 10 day Completion Time specified in the Note establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition A is entered while, for instance, a DG is inoperable using the 7 day Completion Time of Required Action B.4.2.2 and that DG is subsequently restored OPERABLE, the LCO may already have been not met for up to 7 days. This could lead to a total of 10 days since initial failure to meet the LCO, to restore the offsite circuit. At this time, a DG could again become inoperable and an additional 72 hours allowed prior to complete restoration of the LCO. Although highly unlikely, this could continue indefinitely if not limited. The 10 day Completion Time provides a limit on time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for

BASES

ACTIONS

A.3 (continued)

situations in which Conditions A and B are entered concurrently. This limits the time the plant can alternate between Conditions A, B, and D (see Completion Time Example 1.3-3).

Tracking the 10 day Completion Time is a requirement for beginning the Completion Time "clock" that is in addition to the normal Completion Time requirements. With respect to the 10 day Completion Time, the "time zero" is specified as beginning at the time LCO 3.8.1 was initially not met, instead of at the time Condition A was entered. This results in the requirement, when in this Condition, to track the time elapsed from both the Condition A "time zero," and the "time zero" when LCO 3.8.1 was initially not met. Refer to Section 1.3, "Completion Times," for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO portion of the Completion Time."

B.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of the offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must then be entered.

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical systems. These features are designed with redundant safety related trains. This includes motor driven auxiliary feedwater pumps. Single train systems, other than the turbine driven auxiliary feedwater pump, are not included in this Condition. A Note is added to this Required Action stating that in MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. The reason for the Note is to confirm the OPERABILITY of the turbine driven auxiliary feedwater pump in this Condition, since the remaining OPERABLE motor driven auxiliary feedwater pump is not by itself capable of providing 100% of the auxiliary feedwater flow assumed in the safety analysis. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable DG.

BASES

ACTIONS

B.2 (continued)

The Completion Time for Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

- a. An inoperable DG exists; and
- b. A required feature on the other train (Train A or Train B) is inoperable and not in the safeguards position.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time would begin to be tracked.

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.3.1 and B.3.2

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DG. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on the other DG, it would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists, and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on

BASES

ACTIONS

B.3.1 and B.3.2 (continued)

the remaining DG, performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG. Required Action B.3.2 is modified by a Note stating that it is satisfied by the automatic start and sequence loading of the DG.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the plant corrective action program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), 24 hours is reasonable to confirm that the OPERABLE DG is not affected by the same problem as the inoperable DG.

B.4.1, B.4.2.1, and B.4.2.2

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours.

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. With a DG inoperable, the inoperable DG must be restored to OPERABLE status within the applicable, specified Completion Time.

The Completion Time of 72 hours for Required Action B.4.1 applies when a DG is discovered or determined to be inoperable, such as due to a component or test failure, and requires time to effect repairs, or it may apply when a DG is rendered inoperable for the performance of maintenance during applicable MODES. The 72-hour Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and the low probability of a DBA during this period.

The second Completion Time for Required Action B.4.1 also establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an offsite circuit is inoperable, and that circuit is subsequently restored OPERABLE, the LCO may already have been not met for up to 72 hours. If the offsite circuit is restored to OPERABLE status within the

BASES

ACTIONS

B.4.1, B.4.2.1, and B.4.2.2 (continued)

required 72 hours. This could lead to a total of 144 hours, since initial failure to meet the LCO, to restore (the DG compliance with the LCO (i.e., restore the DG).) At this time, an offsite circuit could again become inoperable (the DG restored OPERABLE) and an additional 72 hours (for a total of 9 days) allowed prior to complete restoration of the LCO.

Although highly unlikely, this could occur indefinitely if not limited.

The 6 day Completion Time provides a limit on time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. This limits the time the plant can alternate between Conditions A, B, and E (see Completion Time Example 1.3-3). The "AND" connector between the 72 hour and 6 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.

~~As in Required Action B.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed time "clock." This will result in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time Condition B was entered.~~

Tracking the 6 day Completion Time is a requirement for beginning the Completion Time "clock" that is in addition to the normal Completion Time requirements. With respect to the 6 day Completion Time, the "time zero" is specified as beginning at the time LCO 3.8.1 was initially not met, instead of at the time Condition B was entered. This results in the requirement, when in this Condition, to track the time elapsed from both the Condition B "time zero," and the "time zero" when LCO 3.8.1 was initially not met. Refer to Section 1.3, "Completion Times," for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO portion of the Completion Time."

The Required Actions are modified by a Note that states that Required Actions B.4.2.1 and B.4.2.2 are only applicable for voluntary planned maintenance and may be used once per cycle per DG. Required Actions B.4.2.1 and B.4.2.2 only applies when a DG is declared or rendered inoperable for the performance of voluntary, planned maintenance activities. Required Action B.4.2.1 provides assurance that the required Sharpe Station gensets are available when a DG is out of service for greater than 72 hours. The availability of the required gensets are verified once per 24 hours by contacting KEPCo personnel for the status of the units.

BASES

ACTIONS

B.4.1, B.4.2.1, and B.4.2.2 (continued)

The 7-day Completion Time of Required Action B.4.2.2 is a risk-informed allowed outage time (AOT) based on a plant-specific risk analysis (Ref. 15). The Completion Time was established on the assumption that it would be used only for voluntary planned maintenance, inspections and testing. Use of Required Actions B.4.2.1 and B.4.2.2 are limited to once within an operating cycle (18 months) for each DG. Administrative controls applied during use of Required Action B.4.2.2 for voluntary planned maintenance activities ensure or require that:

- a. Weather conditions are conducive to an extended DG Completion Time. The extended DG Completion Time applies during the period of September 6 through April 22.
- b. The offsite power supply and switchyard condition are conducive to an extended DG Completion Time, which includes ensuring that switchyard access is restricted and no elective maintenance within the switchyard is performed that would challenge offsite power availability.
- c. Prior to relying on the required Sharpe Station gensets, the gensets are started and proper operation verified (i.e., the gensets reach rated speed and voltage). The Sharpe Station is not required to be operating the duration of the allowed outage time of the DG, however, it shall be capable of providing greater than 8 MW power to a dead bus (station blackout conditions) to power 1 ESF train.
- d. No equipment or systems assumed to be available for supporting the extended DG Completion Time are removed from service. The equipment or systems assumed to be available (including required support systems, i.e., associated room coolers, etc.) are as follows:
 - Auxiliary Feedwater System (three trains)
 - Component Cooling Water System (both trains and all four pumps)
 - Essential Service Water System (both trains)
 - Emergency Core Cooling System (two trains).

BASES

ACTIONS

B.4 (continued)

If, while Required Action B.4.2.2 is being used, one (or more) of the above systems or components is determined or discovered to be inoperable, or if an emergent condition affecting DG OPERABILITY is identified, re-entry into Required Action B.2 and B.3 would be required, as applicable. In addition, the effect on plant risk would be assessed and any additional or compensatory actions taken, in accordance with the plant's program for implementation of 10 CFR 50.65(a)(4). The 7-day Completion Time would remain in effect for the DG if Required Action B.2 and B.3 are satisfied.

The second Completion Time specified in Required Action B.4.2.2 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an offsite circuit is inoperable, the LCO may already have been not met for up to 72 hours. If the offsite circuit is restored to OPERABLE status within the required 72 hours, this could lead to a total of 10 days since initial failure to meet the LCO, to restore compliance with the LCO (i.e., restore the DG). At this time, an offsite circuit could again become inoperable and an additional 72 hours allowed prior to complete restoration of the LCO. The 10 day Completion Time provides a limit on time allowed in a specified condition after discovery of failure to meet the LCO. Although highly unlikely, this could occur indefinitely if not limited. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. This limits the time the plant can alternate between Conditions A, B, and E (see Example 1.3-3).

Tracking the 10 day Completion Time is a requirement for beginning the Completion Time "clock" that is in addition to the normal Completion Time requirements. With respect to the 10 day Completion Time, the "time zero" is specified as beginning at the time LCO 3.8.1 was initially not met, instead of at the time Condition B was entered. This results in the requirement, when in this Condition, to track the time elapsed from both the Condition B "time zero," and the "time zero" when LCO 3.8.1 was initially not met. Refer to Section 1.3, "Completion Times," for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO portion of the Completion Time."

BASES

ACTIONS

C.1

If the availability of the required Sharpe Station gensets cannot be verified, the DG must be restored to OPERABLE status within 72 hours. The 72 hour Completion Time begins upon entry into Condition C. However, the total time to restore an inoperable DG cannot exceed 7 days (per the Completion Time of Required Action B.4.2.2).

The Completion Time of 72 hours is consistent with Regulatory Guide 1.93 (Ref. 6). The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and low probability of a DBA occurring during this period.

CD/1 and CD/2

Required Action CD/1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps and the turbine driven auxiliary feedwater pump which must be available for mitigation of a feedwater line break. Single train features, other than the turbine driven auxiliary pump, are not included in this Condition. A Note is added to this Required Action stating that in MODES 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature. The reason for the Note is to confirm the OPERABILITY of the turbine driven auxiliary feedwater pump in this Condition, since the remaining OPERABLE motor driven auxiliary feedwater pump is not by itself capable of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

The Completion Time for Required Action CD/1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action the Completion Time only begins on discovery that both:

BASES

ACTIONS

GD.1 and GD.2 (continued)

- a. All required offsite circuits are inoperable; and
- b. A required feature is inoperable and not in the safeguards position.

If at any time during the existence of Condition GD (two offsite circuits inoperable) a required feature becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition GD for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this level of degradation:

- a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure; and
- b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

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

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

BASES

ACTIONS (continued)

DE1 and DE2

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

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition DE for a period that should not exceed 12 hours.

In Condition DE, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition CD (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

EF1

With Train A and Train B DGs inoperable, there are no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

BASES

ACTIONS

EF.1 (continued)

According to Reference 6, with both DGs inoperable, operation may continue for a period that should not exceed 2 hours.

EG.1 and G.2

Required Action EG.1 provides assurance that the appropriate Action is entered for the affected DG and offsite circuit if its associated LSELS becomes inoperable. An LSELS failure results in the inability of the EDG to start upon a loss of ESF bus voltage or degraded voltage condition. Additionally, LSELS trips the ESF bus normal and alternate feeder supplies and trips non-essential loads. A sequencer failure results in the inability to start all or part of the safety loads powered from the associated ESF bus and thus when an LSELS is inoperable it is appropriate to immediately enter the Conditions for an inoperable DG and offsite circuit. Because an inoperable LSELS affects all or part of the safety loads, an immediate Completion Time is appropriate.

F.2

The LSELS is an essential support system to both the offsite circuit and the DG associated with a given ESF bus. Furthermore, the sequencer is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus. Therefore, loss of an ESF bus sequencer affects every major ESF system in the division. The 12 hour Completion Time of Required Action G.2 provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. This time period also ensures that the probability of an accident (requiring sequencer OPERABILITY) occurring during periods when the sequencer is inoperable is minimal.

GH.1 and GH.2

If the inoperable AC electric power sources or the load shedder and emergency load sequencer cannot be restored to OPERABLE status within the required Completion Time, or Required Actions B.1, B.2, B.3.1, B.3.2, B.4.1 or B.4.2.2 cannot be met within the required Completion Times, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS
(continued)

HI1

Condition HI corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown.

BASES

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
 2. USAR, Chapter 8.
 3. Regulatory Guide 1.9, Rev. 3.
 4. USAR, Chapter 6.
 5. USAR, Chapter 15.
 6. Regulatory Guide 1.93, Rev. 0, December 1974.
 7. Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," July 2, 1984.
 8. 10 CFR 50, Appendix A, GDC 18.
 9. Regulatory Guide 1.108, Rev. 1, August 1977.
 10. Regulatory Guide 1.137, Rev. 0, January 1978.
 11. ANSI C84.1-1982.
 12. IEEE Standard 308-1978.
 13. Configuration Change Package (CCP) 08052, Revision 1, April 23, 1999.
 14. Amendment No. 161, April 21, 2005.
 15. **WCNOC letter WO 03-0057 dated October 30, 2003.**
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