

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Restore required offsite circuit to OPERABLE status	72 hours <u>AND</u> 6 days from discovery of failure to meet LCO  <u>OR</u> 17 days if alternate AC power is available
B. One EDG inoperable.	<p>B.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s), supported by the inoperable EDG, inoperable when its redundant required feature(s) are inoperable.</p> <p><u>AND</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3.1 Determine OPERABLE EDG is not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE EDG.	24 hours
	<u>AND</u>	
	B.4 Restore EDG to OPERABLE status	72 Hours
		<u>AND</u>
		6 days from discovery of failure to meet LCO
		<u>OR</u>
		14 days if alternate AC power is available*
		<u>AND</u>
		17 days from discovery of failure to meet LCO

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\* On a one-time basis, each EDG may be inoperable for up to 14 days without alternate AC available. The ability to apply the one-time 14-day Completion Time to each EDG will expire on May 15, 2004.

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CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) are inoperable.  <u>AND</u> C.2 Restore one required offsite circuit to OPERABLE status.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)  24 hours
D. One required offsite circuit inoperable.  <u>AND</u> One EDG inoperable.	-----NOTE ----- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems Operating," when Condition D is entered with no AC power source to one train. ----- D.1 Restore required offsite circuit to OPERABLE status.  <u>OR</u> D.2 Restore EDG to OPERABLE status.	     12 hours   12 hours
E. Two EDGs inoperable.	E.1 Restore one EDG to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3.  <u>AND</u> F.2 Be in MODE 5.	12 hours  36 hours
G. Three or more required AC sources inoperable.	G.1 Enter LCO 3.0.3	Immediately

**SURVEILLANCE REQUIREMENTS (continued)**

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.8 -----NOTES-----</p> <p>1. 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. Credit may be taken for unplanned events that satisfy this SR.</p> <p>2. Power factor limit only applicable when Surveillance is performed with EDG paralleled with offsite power.</p> <p>-----</p> <p>Verify each EDG operating at a power factor <math>\leq 0.9</math> rejects a load greater than or equal to the single largest post-accident load, and:</p> <p>a. Following load rejection, the frequency is <math>\leq 66.75</math> Hz;</p> <p>b. Within 3 seconds following load rejection, the voltage is <math>\geq 3744</math> V and <math>\leq 4576</math> V; and</p> <p>c. Within 4 seconds following load rejection, the frequency is <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</p>	<p>24 months</p>
<p>SR 3.8.1.9 Verify interval between each sequenced load block is within <math>\pm 10\%</math> of design interval for each emergency load sequencing relay.</p>	<p>24 months</p>

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**SURVEILLANCE REQUIREMENTS (continued)**

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.11 -----NOTES-----</p> <p>1. Momentary transients outside the load range do not invalidate this test.</p> <p>2. 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. Credit may be taken for unplanned events that satisfy this SR.</p> <p>-----</p> <p>Verify each EDG operates for <math>\geq 60</math> minutes at a load <math>\geq 3300</math> kW and <math>\leq 3400</math> kW.</p>	<p>24 months</p>

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A.2 (continued)

If at any time during the existence of Condition A (one offsite circuit inoperable) both 'a' and 'b' above become met, this Completion Time begins to be tracked.

The remaining OPERABLE offsite circuit and EDGs 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 the recommendations of Regulatory Guide 1.93 (Ref. 6), operation with one required offsite circuit inoperable should be limited to a period of time not to exceed 72 hours. In this condition, 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. However, the remaining OPERABLE offsite circuit and EDGs 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 6 day (17 days with the alternate AC source available) 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 failure to meet the LCO. If Condition A is entered while, for instance, an EDG is inoperable and that EDG is subsequently returned to OPERABLE status, LCO 3.8.1 may already have been not met for up to 14 days. This could lead to a total of 17 days, since initial failure to meet the LCO, to restore the offsite circuit.

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A.3 (continued)

The 6 day and 17 day Completion Times provide limits on the 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.

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.

B.1

To ensure a highly reliable power source in the event one EDG is inoperable, it is necessary to verify the availability of the OPERABLE 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 (Condition F). 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 EDG is inoperable, does not result in a complete loss of safety function of critical redundant required features. These features are designed with redundant safety related trains. Redundant required feature failures consist of inoperable features associated with a train, redundant to the train that has an inoperable EDG. Single train systems (from an electrical perspective), such as the turbine driven emergency feedwater pump, are not included.

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B.3.1 and B.3.2

Required Action B.3.1 provides an option to testing the OPERABLE EDG in order to avoid unnecessary testing. If it can be determined that the cause of the inoperable EDG does not exist on the OPERABLE EDG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on the other EDG, the other EDG would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. If the common cause failure evaluation is indeterminate (the cause of the initial inoperable EDG cannot be confirmed not exist on the remaining EDG), performance of SR 3.8.1.2 is adequate to provide assurance of continued OPERABILITY of that EDG.

The Completion Time of 24 hours is reasonable to confirm that the OPERABLE EDG is not affected by the same problem as the inoperable EDG and is based on the recommendations of Generic Letter 84-15 (Ref. 7).

B.4

According to the recommendations of Regulatory Guide 1.93 (Ref.6), operation with one EDG inoperable should be limited to a period not to exceed 72 hours. The completion time may be extended to 14 days if alternate AC (AAC) power is available or on a one-time basis as described in the footnote to the Completion Time. The alternate AC source must be capable of being aligned to the same bus as the inoperable EDG and must be capable of supporting loads required for safe shutdown of the reactor.

In Condition B, the remaining OPERABLE EDG, AAC source and offsite circuits are adequate to supply electrical power to the onsite Class 1E distribution system. The Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, the ability to perform online preventative maintenance, and the low probability of a DBA occurring during this period.

During online preventative maintenance that is planned to take over 72 hours, the following compensatory measures will be put in place prior to initiating the activity:

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B.4 (continued)

Availability will be assured during an extended EDG AOT by the following:

- Starting the AAC and assuring proper operation prior to removing the EDG from service,
- Verifying every 72 hours that a 24-hour fuel supply is onsite, and
- Ensuring the AAC is electrically and mechanically ready for manual operation and can be aligned to supply the applicable safety-related bus with simple operator action every 72 hours.

CR-3 will perform procedure CP-253, "Power Operation Risk Assessment and Management," which requires both a deterministic and probabilistic evaluation of risk for the performance of all maintenance activities. This procedure uses the Level 1 PSA model to evaluate the impact of maintenance activities on CDF. CR-3 will not plan any maintenance that results in "Higher Risk" (Orange Color Code) during EDG maintenance.

ECCS equipment, emergency feedwater, Control Complex Cooling and auxiliary feedwater (FWP-7 and MTDG-1) will be designated administratively as "protected" (no planned maintenance or discretionary equipment manipulation). The term "discretionary equipment manipulation" is not intended to preclude manipulations required for normal operation of the plant, required surveillances or operator response to abnormal conditions.

Prior to initiating a planned EDG outage, CR-3 will verify the availability of offsite power to the 230 kV switchyard and ensure that the capability to power both ES busses is available from each of the two ES offsite power transformers (OPT and BEST).

CR-3 will not initiate an EDG extended preventive maintenance outage if adverse weather, as designated by Emergency Preparedness procedures, is anticipated.

No elective maintenance will be scheduled in the switchyard that would challenge the availability of offsite power to the ES busses.

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B.4 (continued)

A periodic fire watch will be established in fire areas that are considered risk-significant by the IPEEE, affect both EDGs or have increased risk significance due to EDG maintenance. The fire areas are listed in Table B 3.8.1-1.

The 17-day Completion Time for Required Action B.4 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 failure to meet the LCO. Refer to the Bases for Required Action A.3 for additional information on this Completion Time.

Table B 3.8.1-1

FIRE ZONE	EGDG -1A	EGDG -1B	ZONE DESCRIPTION	AUTO SUPPRESSION	FIRE WRAP	ZONE IGNITION FREQUENCY
AB-119-6A	x	x	NORTH HALLWAY	Wet-Pipe Sprinkler-dual level	1 hour, 3 hour	9.73E-05
AB-119-6E	x	x	EAST HALLWAY	Wet-Pipe Sprinkler-dual level	1 hour, 3 hour	1.73E-04
AB-119-6J (3)		x	CENTRAL HALLWAY	Wet-Pipe Sprinkler	3 hour	2.36E-04
AB-119-6K (2)	x		DECONTAMINATION ROOM	Wet-Pipe Sprinkler		1.02E-04
AB-119-7A	x	x	EMERGENCY DIESEL GENERATOR CONTROL ROOM 3B	Pre-Action Sprinkler	1 hour	1.73E-04
AB-119-7B (3)		x	EMERGENCY DIESEL GENERATOR ROOM 3B	Pre-Action Sprinkler		5.30E-03
AB-119-8A (2)	x		EMERGENCY DIESEL GENERATOR CONTROL ROOM 3A	Pre-Action Sprinkler		1.02E-04
AB-119-8B (2)	x		EMERGENCY DIESEL GENERATOR ROOM 3A	Pre-Action Sprinkler		5.30E-03
CC-108-102 (1)	x	x	HALLWAY AND REMOTE SHUTDOWN ROOM	None	3 hour	1.20E-04
CC-108-103	x	x	PLANT BATTERY ROOM 3B	None	3 hour	9.73E-05
CC-108-104	x	x	PLANT BATTERY ROOM 3A	None	3 hour	9.73E-05
CC-108-105 (1)	x	x	BATTERY CHARGER ROOM 3B	None	3 hour	4.03E-04
CC-108-106 (1)	x	x	BATTERY CHARGER ROOM 3A	None	3 hour	3.68E-04
CC-108-107 (1,3)		x	4160V ES SWITCHGEAR BUS ROOM 3B	None	3 hour	2.27E-04
CC-108-108 (1)	x	x	4160V ES SWITCHGEAR BUS ROOM 3A	None	3 hour	2.60E-04
CC-108-109 (1)	x	x	INVERTER ROOM 3B	None	3 hour	2.14E-04
CC-108-110	x	x	INVERTER ROOM 3A	None	3 hour	1.90E-04
CC-124-111 (1)	x	x	CRD & COMMUNICATION EQUIP ROOM	Wet-Pipe Sprinkler	1 hour, 3 hour	5.06E-04
CC-124-116 (3)		x	480V ES SWITCHGEAR BUS ROOM 3B	None	3 hour	1.90E-04
CC-124-117 (1,2)	x		480V ES SWITCHGEAR BUS ROOM 3A	None		2.04E-04
CC-134-118A (1)	x	x	CABLE SPREADING ROOM	Total Flooding Halon Room		9.73E-05
CC-145-118B (1)	x	x	CONTROL ROOM	None		1.24E-04

- (1) Fire zone identified as risk significant per IPEEE  
(2) Fire zone may have increased significance when EGDG-1B is in maintenance  
(3) Fire zone may have increased significance when EGDG-1A is in maintenance

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SR 3.8.1.8 (continued)

In order to ensure that the EDG is tested under load conditions that are as close to design basis conditions as possible, testing must be performed using a power factor  $\leq 0.9$ . This power factor is chosen to be representative of the actual design basis inductive loading that the EDG would experience.

This SR is modified by two Notes. The reason for Note 1 is that during power operation, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. However, the Note recognizes that should an unplanned event occur in MODES 1 or 2, following verification that the acceptance criteria of the SR are met, the event can be credited as a successful performance of this SR. Note 2 acknowledges this SR may be performed using component loads or it may be performed by paralleling the EDG with offsite power. When the SR is performed with the EDG carrying the 4160 Volt ES bus, the power factor of the EDG is a function of the reactive component of the loads powered from it, and as such, is not under direct control of the operator.

SR 3.8.1.9

Per the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(2), each EDG is required to demonstrate

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SURVEILLANCE      SR 3.8.1.9 (continued)

proper operation for the DBA loading sequence to ensure that voltage and frequency are maintained within the required limits. Under accident conditions prior to connecting the EDGs to their respective buses, all loads are shed except load block 1 feeder breakers that power Class 1E loads (referred to as "permanently connected" loads). Upon reaching the required voltage and frequency, the EDGs are auto-connected to their respective 4160 V buses. Loads are then sequentially connected to the bus by the automatic load sequencing relays. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the EDGs due to high motor starting currents.

The 10% load sequence time interval tolerance ensures that sufficient time exists for the EDG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ES equipment response times are not violated. Reference 2 provides a summary of the automatic loading of ES buses.

The Frequency of 24 months takes into consideration plant conditions needed to perform the Surveillance and is intended to be consistent with the expected fuel cycle length.

SR 3.8.1.10

In the event of a DBA coincident with a loss of offsite power, the EDGs are required to supply the necessary power to ES systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates the EDG operation during a loss of offsite power actuation test signal in conjunction with an ES actuation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the EDG to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 24 months takes into consideration plant conditions needed to perform the Surveillance.

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SR 3.8.1.10 (continued)

This SR is modified by three Notes. The reason for Note 1 is to minimize wear and tear on the EDGs during testing. For the purpose of this testing, the EDGs may be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations for EDGs. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and potentially challenge safety systems. However, Note 2 acknowledges that should an unplanned event occur in MODES 1, 2 or 3, following verification that the acceptance criteria of the SR are met, the event can be credited as a successful performance of this SR. Note 3 is an SR 3.0.4 type allowance to place the plant in MODE 4 for the purposes of performing this Surveillance. This is necessary in order to establish the pre-requisite plant configuration needed to perform the SR.

SR 3.8.1.11

This Surveillance demonstrates the EDGs are capable of synchronizing and accepting a load greater than or equal to the maximum expected steady state accident loads, which are the automatically connected accident loads and required manually applied accident loads. However, the upper limit of the 200 hour service rating is still available for flexibility in post accident EDG load management, including short duration loads. The test load band is provided to avoid routine overloading of the EDGs. Routine overloading may result in more frequent teardown inspections, in accordance with vendor recommendations, in order to maintain EDG OPERABILITY.

The 60 minute run time is provided to stabilize the engine temperature. This ensures that cooling and lubrication are adequate for extended periods of operation.

The 24 month Frequency takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. The reason for Note 2 is that during

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SR 3.8.1.11 (continued)

operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. However, the Note acknowledges that credit may be taken for unplanned events that satisfy this SR. However, the Note acknowledges that credit may be taken for unplanned events that satisfy this SR.

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REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. FSAR, Chapter 8.
3. Regulatory Guide 1.9, Rev. 3, July 1993.
4. FSAR, Chapter 6.
5. FSAR, Chapter 14.
6. Regulatory Guide 1.93, Rev. 0, December 1974.
7. Generic Letter 84-15.
8. 10 CFR 50, Appendix A, GDC 18.
9. Regulatory Guide 1.108, Rev. 1, August 1977.
10. Regulatory Guide 1.137, Rev. 1, October 1979.
11. ANSI C84.1-1982.
12. ASME, Boiler and Pressure Vessel Code, Section XI.
13. Deleted.