

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 Three Class 1E DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery charger inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u>	
	A.2 Verify battery float current \leq 2 amps.	12 hours
	<u>AND</u>	
	A.3 Restore battery charger to OPERABLE status.	14 days
B. One battery inoperable.	B.1 Restore battery to OPERABLE status.	2 hours
C. One DC electrical power subsystem inoperable for reasons other than Condition A or B.	C.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours
D. More than one full capacity charger receiving power simultaneously from a single 480 V vital bus.	D.1 Restore the DC electrical power subsystem to a configuration wherein each charger is powered from its associated 480 volt vital bus.	14 days
E. Required Action and Associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	E.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days
SR 3.8.4.2	<p>Verify each battery charger supplies ≥ 400 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours.</p> <p><u>OR</u></p> <p>Verify each battery charger can recharge the battery to the fully charged state within 12 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.</p>	24 months
SR 3.8.4.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 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>	24 months

THIS PAGE NOT USED

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.5.1</p> <p style="text-align: center;">-----NOTE-----</p> <p>The following SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.3.</p> <p>-----</p> <p>For DC sources required to be OPERABLE, the following SRs are applicable:</p> <p>SR 3.8.4.1 SR 3.8.4.2 SR 3.8.4.3.</p>	<p>In accordance with applicable SRs</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6 Battery parameters for the three Class 1E batteries shall be within limits.

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 battery with one or more battery cells with float voltage < 2.07 V.	A.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1.	2 hours
	<u>AND</u>	
	A.3 Restore affected cell(s) float voltage to ≥ 2.07 V.	24 hours
B. One battery with float current > 2 amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u>	
	B.2 Restore battery float current to ≤ 2 amps.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of the plates. -----</p> <p>C. One battery with one or more cells with electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of the plates. -----</p> <p>C.1 Restore affected cell(s) electrolyte level to above the top of the plates.</p> <p><u>AND</u></p> <p>C.2 Verify no evidence of leakage.</p> <p><u>AND</u></p> <p>C.3 Restore affected cell(s) electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>
<p>D. One battery with pilot cell electrolyte temperature less than minimum established design limits.</p>	<p>D.1 Restore battery pilot cell electrolyte temperature to greater than or equal to minimum established design limits.</p>	<p>12 hours</p>
<p>E. Two or more batteries with battery parameters not within limits.</p>	<p>E.1 Restore battery parameters for one battery to within limits.</p>	<p>2 hours</p>
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p> <p><u>OR</u></p> <p>One battery with one or more battery cells float voltage < 2.07 V and float current > 2 amps.</p>	<p>F.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	<p>-----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1.</p> <p>----- Verify each battery float current is ≤ 2 amps.</p>	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ 2.07 V.	31 days
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.5	Verify each battery connected cell voltage is ≥ 2.07 V.	92 days
SR 3.8.6.6	<p>-----NOTE----- This Surveillance shall not be performed in MODE 1, 2, 3, or 4.</p> <p>----- Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months <u>AND</u> 24 months when battery shows degradation or has reached 85% of expected life with capacity $< 100\%$ of manufacturer's rating. <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating.</p>

THIS PAGE NOT USED

5.5 Programs and Manuals

5.5.15 Safety Function Determination Program (SFDP) (continued)

- b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or
- c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

5.5.16 Containment Leakage Rate Testing Program

- a. A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program, dated September 1995." The ten-year interval between performance of the integrated leakage rate (Type A) test, beginning May 4, 1994, for Unit 1 and April 30, 1993, for Unit 2, has been extended to 15 years.
- b. The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a , is 47 psig.
- c. The maximum allowable containment leakage rate, L_a , at P_a , shall be 0.10% of containment air weight per day.
- d. Leakage rate acceptance criteria are:
 - 1. Containment overall leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and Type C tests and $\leq 0.75 L_a$ for Type A tests;
 - 2. Air lock testing acceptance criteria are:
 - a) Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$.
 - b) For each door, leakage rate is $\leq 0.01 L_a$ when pressurized to ≥ 10 psig.
- e. The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.
- f. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

(continued)

5.5 Programs and Manuals (continued)

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for restoration and maintenance, based on the recommendations of IEEE Standard 450, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer, of the following:

- a. Actions to restore battery cells with float voltage < 2.13 V, and
- b. Actions to equalize and test battery cells that have been discovered with electrolyte level below the top of the plates.