

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

- a. Division I, consisting of:
 - 1. Load group Channel "A" power source consisting of:
 - a) 125 volt DC battery bank 1D610, 2D610*
 - b) Full capacity charger 1D613, 2D613*
 - 2. Load group Channel "C" power source consisting of:
 - a) 125 volt DC battery bank 1D630, 2D630*
 - b) Full capacity charger 1D633, 2D633*
 - 3. Load group "I" power source consisting of:
 - a) 250 volt DC battery 1D650
 - b) Half-capacity chargers 1D653A, 1D653B
 - 4. Load group "I" power source consisting of:
 - a) ± 24 volt DC battery bank 1D670
 - b) Two half-capacity chargers 1D673, 1D674
- b. Division II, consisting of:
 - 1. Load group Channel "B" power source consisting of:
 - a) 125 volt DC battery bank 1D620, 2D620*
 - b) Full capacity charger 1D623, 2D623*
 - 2. Load group Channel "D" power source consisting of:
 - a) 125 volt DC battery bank 1D640, 2D640*
 - b) Full capacity charger 1D643, 2D643*
 - 3. Load group "II" power source consisting of:
 - a) 250 volt DC battery bank 1D660
 - b) Full capacity charger 1D663
 - 4. Load group "II" power source consisting of:
 - a) ± 24 volt DC battery bank 1D680
 - b) Two half-capacity chargers 1D683, 1D684

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3

ACTION:

Unit 1

a. With one of the above required 125 volt or 250 volt DC load group battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

INSERT (A)

~~d.~~ With one of the above required ± 24 volt DC load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

* Not required to be OPERABLE when the requirements of Action b have been satisfied.

INSERT (A) p. 3/4 8-10 :

b. With one or more of the above required Unit 2 125-volt D.C. load group battery banks inoperable, within 2 hours either:

1. Restore the inoperable battery bank(s) to OPERABLE status, or

2. Transfer the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) to the corresponding Unit 1 battery bank(s).

Otherwise, declare the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

c. With the Unit 1 loads associated with one or more of the above required Unit 1 125-volt D.C. load group battery bank(s) aligned to the corresponding Unit 2 load group battery bank(s), realign

the Unit 1 loads to the Unit 1 battery bank(s) within

72 hours after restoring the Unit 1 battery bank(s) to

OPERABLE status; otherwise, declare the Unit 1 loads

aligned to the Unit 2 battery bank(s) inoperable and

take the ACTION required by the applicable

Specification(s).

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- z.e.* With one of the above required chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each of the above required \pm 24-volt, 125-volt and 250-volt batteries and chargers shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The parameters in Table 4.8.2.1-1 meet the Category A limits, and
 2. Total battery terminal voltage is greater than or equal to 26, 129, 258-volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 22, 110 or 220 volts, as applicable, or battery overcharge with battery terminal voltage above 30, 150 or 300 volts, as applicable, by verifying that:
 1. The parameters in Table 4.8.2.1-1 meet the Category B limits,
 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohms, and
 3. The average electrolyte temperature of 4, 10 or 20, as applicable, of connected cells for the 24, 125 and 250 volt batteries is above 60°F.

ELECTRICAL POWER SYSTEMS.

SURVEILLANCE REQUIREMENTS (Continued)

- c. At least once per 18 months by verifying that:
1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material,
 3. The resistance of each cell-to-cell and terminal connection of each 125-volt and 250-volt battery is less than or equal to 150×10^{-6} ohms, and
 4. The battery charger, for at least 4 hours, will supply at least:
 - a) For the + 24-volt batteries; 25 amperes at a minimum of 25.7 volts.
 - b) For the 125-volt batteries, 100 amperes at a minimum of 127.8 volts.
 - c) For the 250-volt batteries, 300 amperes at a minimum of 255.6 volts.
- d. At least once per 18 months, during shutdown, by verifying that either:
1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test, or
 2. The battery capacity is adequate to supply a dummy load of the following profile, which is verified to be greater than the actual emergency loads, while maintaining the battery terminal voltage greater than or equal to $\pm 21, 105$ or 210 volts, as applicable.
 - a) For + 24-volt battery banks 1D670, 1D670-1, 1D680 and 1D680-1, 9.37 amperes for the entire 4 hour test.
 - b) For 125-volt batteries:
 - 1) Channel A battery 1D612:
325 amperes for 60 seconds
107 amperes for the remainder of the 4 hour test
 - 2) Channel "B" battery 1D622:
323 ~~318~~ amperes for 60 seconds
105 ~~100~~ amperes for the remainder of the 4 hour test.
 - 3) Channel "C" battery 1D632:
340 amperes for 60 seconds
121 amperes for the remainder of the 4 hour test
 - 4) Channel "D" battery 1D642:
323 amperes for 60 seconds
104 amperes for the remainder of the 4 hour test.

INSERT (B) →

5) Channel "A" battery 2D612:

328 amperes for 60 seconds

112 amperes for the remainder of the 4 hour test

6) Channel "B" battery 2D622:

326 amperes for 60 seconds

110 amperes for the remainder of the 4 hour test

7) Channel "C" battery 2D632:

343 amperes for 60 seconds

128 amperes for the remainder of the 4 hour test

8) Channel "D" battery 2D642:

326 amperes for 60 seconds

111 amperes for the remainder of the 4 hour test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c) For 250-volt batteries:

1) Battery bank 1D650:

1091	amperes for	60 seconds
567	amperes for	29.0 minutes
113	amperes for	60.0 minutes
24	amperes for	150.0 minutes

2) Battery bank 1D660:

1314	amperes for	60 seconds
465	amperes for	60 seconds
365	amperes for	28.0 minutes
323	amperes for	15.0 minutes
185	amperes for	195.0 minutes

- e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test.
- f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

ELECTRICAL POWER SYSTEMS

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A ⁽¹⁾	CATEGORY B ⁽²⁾	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable ⁽³⁾ value for each connected cell
Electrolyte Level	>Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark	>Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts ^(c)	> 2.07 volts
Specific Gravity ^(a)	≥ 1.200 ^(b)	≥ 1.195 ^(b) Average of all connected cells > 1.205 ^(b)	Not more than .020 below the average of all connected cells Average of all connected cells ≥ 1.195 ^(b)

(a) Corrected for electrolyte temperature and level.

(b) Or battery charging current is less than 0.01, 0.1 and 0.25 amperes for the ± 24 , 125 and 250 volt batteries, respectively, when on float charge.

(c) May be corrected for average electrolyte temperature.

(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, Division I or Division II of the D.C. electrical power sources shall be OPERABLE with:

a. Division I consisting of:

1. Load group Channel "A" power source, consisting of:
 - a) 125 volt DC battery bank 1D610, 2D610**
 - b) Full capacity charger 1D613, 2D613**
2. Load group Channel "C" power source, consisting of:
 - a) 125 volt DC battery bank 1D630, 2D630**
 - b) Full capacity charger 1D633, 2D633**
3. Load group "I" power source, consisting of:
 - a) 250 volt DC battery bank 1D650
 - b) Half-capacity chargers 1D653A, 1D653B
4. Load group "I" power source, consisting of:
 - a) \pm 24 volt DC battery bank 1D670
 - b) Two half-capacity chargers 1D673, 1D674

b. Division II consisting of:

1. Load group Channel "B" power source, consisting of:
 - a) 125 volt DC battery bank 1D620, 2D620**
 - b) Full capacity charger 1D623, 2D623**
2. Load group Channel "D" power source, consisting of:
 - a) 125 volt DC battery bank 1D640, 2D640**
 - b) Full capacity charger 1D643, 2D643**
3. Load group "II" power source, consisting of:
 - a) 250 volt DC battery bank 1D660
 - b) Full capacity charger 1D663
4. Load group "II" power source, consisting of:
 - a) \pm 24 volt DC battery bank 1D680
 - b) Two half-capacity chargers 1D683, 1D684

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5, and *.

ACTION:

a. With less than the above required ^{Unit 1} 125 volt and/or 250 volt DC load group battery banks OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

INSERT (C)

* d. With the above required \pm 24 volt D.C. load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

*When handling irradiated fuel in the secondary containment.

**Not required to be OPERABLE when the requirements of ACTION b have been satisfied.

INSERT © p. 3/4 8-15:

b. With less than the above required Unit 2 125-volt D.C. load group battery banks OPERABLE, either:

1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel, or
2. Transfer the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) to the corresponding Unit 1 battery bank(s).

Otherwise, declare the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

c. With the Unit 1 loads associated with one or more of the above required Unit 1 125-volt D.C. load group battery bank(s) aligned to the corresponding Unit 2 load group battery bank(s), realign the Unit 1 loads to the Unit 1 battery bank(s) within 72 hours after restoring the Unit 1 battery bank to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

x e With the above required charger(s) inoperable, demonstrate the OPERABILITY of the associated battery by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

x f. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 At least the above required battery and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following power distribution system divisions shall be energized with tie breakers open both between redundant buses within the unit and between units at the same station:

a. A.C. power distribution:

1. Division I, consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A201
 - 2) 480 volt A.C. load center 1B210
 - 3) 480 volt A.C. motor control center 0B516
- b) Load group Channel "C", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A203
 - 2) 480 volt A.C. load center 1B230
 - 3) 480 volt A.C. motor control center 0B536
- c) Load group 480 volt A.C. motor control centers 0B517, 0B136
1B216, 1B236
1B217, 1B237
1B219
1Y216, 1Y236
- d) Load group 208/120 volt A.C. instrument panels

2. Division II, consisting of:

- a) Load group Channel "B", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A202
 - 2) 480 volt A.C. load center 1B220
 - 3) 480 volt A.C. motor control center 0B526
- b) Load group Channel "D", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A204
 - 2) 480 volt A.C. load center 1B240
 - 3) 480 volt A.C. motor control center 0B546
- c) Load group 480 volt A.C. motor control centers 0B527, 0B146.
1B226, 1B246
1B227, 1B247
1B229
1Y226, 1Y246
- d) Load group 208/120 volt A.C. instrument panels

b. D.C. power distribution:

1. Division I, consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 125 volt DC buses 1D612, 1D614, 2D614*
 - 2) Fuse box 1D611, 2D611*
- b) Load group Channel "C", consisting of:
 - 1) 125 volt DC buses 1D632, 1D634, 2D634*
 - 2) Fuse box 1D631, 2D631*
- c) Load group "I", consisting of:
 - 1) 250 volt DC buses 1D652, 1D254
 - 2) Fuse box 1D651
- d) Load group "I", consisting of:
 - 1) ± 24 volt DC buses 1D672
 - 2) Fuse box 1D671

* Not required to be OPERABLE when the requirements of ACTION C have been satisfied.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

D.C. power distribution: (Continued)

2. Division II, consisting of:

- a) Load group Channel "B" consisting of:
 - 1) 125 volt DC buses 2D622*
1D622, 1D624, 2D624*
 - 2) Fuse box 1D621, 2D621*

- b) Load group Channel "D" consisting of:
 - 1) 125 volt DC buses 2D642*
1D642, 1D644, 2D644*
 - 2) Fuse box 1D641, 2D641*

- c) Load group "II" consisting of:
 - 1) 250 volt DC buses 1D662; 1D264, 1D274
 - 2) Fuse box 1D661

- d) Load group "II" consisting of:
 - 1) ± 24 volt DC buses 1D682
 - 2) Fuse box 1D681

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

- a. With one of the above required A.C. distribution system load groups not energized, re-energize the load group within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. With one of the above required ^{Unit 1} D.C. distribution system load groups not energized, re-energize the load group within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

INSERT (D) →

SURVEILLANCE REQUIREMENTS

4.8.3.1 Each of the above required power distribution system load groups shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

* Not required to be OPERABLE when the requirements of ACTION c have been satisfied.

INSERT (D) p. 3/4 8-18:

c. With one or more of the above required Unit 2 D.C. distribution system load groups not energized, within 2 hours either:

1. Reenergize the load group(s), or

2. Transfer the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) to the corresponding Unit 1 load group(s).

Otherwise, declare the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

d. With the Unit 1 loads associated with one or more of the above required Unit 1 125-volt D.C. load group(s) aligned to the corresponding Unit 2 load group(s), realign the Unit 1 loads to the Unit 1 load group(s) within 72 hours after restoring the Unit 1 load group(s) to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

ELECTRICAL POWER SYSTEMS

DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following power distribution system divisions shall be energized:

a. For A.C. power distribution, Division I or Division II with:

1. Division I consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A201
 - 2) 480 volt A.C. load center 1B210
 - 3) 480 volt A.C. motor control center 0B516
- b) Load group Channel "C", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A203
 - 2) 480 volt A.C. load center 1B230
 - 3) 480 volt A.C. motor control center 0B536
- c) Load group 480 volt A.C. motor control centers 0B517, 0B136
1B216, 1B236
1B217, 1B237
1B219
- d) Load group 208/120 volt A.C. instrument panels 1Y216, 1Y236

2. Division II consisting of:

- a) Load group Channel "B", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A202
 - 2) 480 volt A.C. load center 1B220
 - 3) 480 volt A.C. motor control center 0B526
- b) Load group Channel "D", consisting of:
 - 1) 4160 volt A.C. switchgear bus 1A204
 - 2) 480 volt A.C. load center 1B240
 - 3) 480 volt A.C. motor control center 0B546
- c) Load group 480 volt A.C. motor control centers 0B527, 0B146
1B226, 1B246
1B227, 1B247
1B229
- d) Load group 208/120 volt A.C. instrument panels 1Y226, 1Y246

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

b. For D.C. power distribution, Division I or Division 2, with:

I. Division I consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 125 volt DC buses 2D612**, 1D612, A 1D614, 2D614**, 1D611, 2D611**
 - 2) Fuse box
- b) Load group Channel "C", consisting of:
 - 1) 125 volt DC buses 2D632**, 1D632, A 1D634, 2D634**, 1D631, 2D631**
 - 2) Fuse box
- c) Load group "I", consisting of:
 - 1) 250 volt DC buses 1D652, 1D254
 - 2) Fuse box 1D651
- d) Load group "I", consisting of:
 - 1) ± 24 volt DC buses 1D672
 - 2) Fuse box 1D671

2. Division II consisting of:

- a) Load group Channel "B", consisting of:
 - 1) 125 volt DC buses 2D622**, 1D622, A 1D624, 2D624**, 1D621, 2D621**
 - 2) Fuse box
- b) Load group Channel "D", consisting of:
 - 1) 125 volt DC buses 2D642**, 1D642, A 1D644, 2D644**, 1D641, 2D641**
 - 2) Fuse box
- c) Load group "II", consisting of:
 - 1) 250 volt DC buses 1D662, 1D254, 1D274
 - 2) Fuse box 1D661
- d) Load group "II", consisting of:
 - 1) ± 24 volt DC buses 1D682
 - 2) Fuse box 1D681

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

*When handling irradiated fuel in the secondary containment.

** Not required to be OPERABLE when the requirements of ACTION C have been satisfied.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

- a. With less than Division I ~~and~~ or Division II of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- b. With less than Division I ~~and~~ or Division II of the above required ^{Unit 1} D.C. distribution system energized, suspend CORE ALTERATIONS, handling or irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- INSERT* → **(E)** ~~e.~~ The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.3.2.1 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.2.2 The A.C. power distribution system swing bus automatic transfer switch shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the normal power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

INSERT (E) p. 3/4 8-21

c. With less than Division I or Division II of the above required Unit 2 D.C. distribution system energized, either:

1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment, and operations with a potential for draining the reactor vessel, or

2. Transfer the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) to the corresponding Unit 1 load group(s).

Otherwise, declare the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

d. With the Unit 1 loads aligned to one or more of the above required Unit 1 125-volt D.C. load group(s) aligned to the corresponding Unit 2 load group(s), realign the Unit 1 loads to the Unit 1 load group(s) within 72 hours after restoring the Unit 1 load group(s) to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

a. Division I, consisting of:

1. Load group Channel "A" power source consisting of:
 - a) 125-volt D.C. battery bank 1D610*, 2D610
 - b) Full capacity charger 1D613*, 2D613
2. Load group Channel "C" power source consisting of:
 - a) 125-volt D.C. battery bank 1D530*, 2D630
 - b) Full capacity charger 1D633*, 2D633
3. Load group "I" power source consisting of:
 - a) 250-volt D.C. battery 2D650
 - b) Half-capacity chargers 2D653A, 2D653B
4. Load group "I" power source consisting of:
 - a) ± 24-volt D.C. battery bank 2D670
 - b) Two half-capacity chargers 2D673, 2D674

b. Division II, consisting of:

1. Load group Channel "B" power source consisting of:
 - a) 125-volt D.C. battery bank 1D520*, 2D620
 - b) Full capacity charger 1D623*, 2D623
2. Load group Channel "D" power source consisting of:
 - a) 125-volt D.C. battery bank 1D640*, 2D640
 - b) Full capacity charger 1D643*, 2D643
3. Load group "II" power source consisting of:
 - a) 250-volt D.C. battery bank 2D660
 - b) Full capacity charger 2D663
4. Load group "II" power source consisting of:
 - a) ± 24-volt D.C. battery bank 2D680
 - b) Two half-capacity chargers 2D683, 2D684

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3

ACTION:

a. With one of the above required ^{Unit 2} 125-volt or 250-volt D.C. load group battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

INSERT →

(A)

*c With one of the above required ± 24-volt D.C. load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

* Not required to be OPERABLE when the requirements of ACTION b have been satisfied.

INSERT (A) p 3/4 8-11

b. With one or more of the above required Unit 1 125-volt D.C. load group battery banks inoperable, within 2 hours either:

1. Restore the inoperable battery bank(s) to OPERABLE status, or
2. Transfer the common loads aligned to the inoperable Unit 1 battery bank(s) to the corresponding Unit 2 battery bank(s).

Otherwise, declare the common loads aligned to the inoperable Unit 1 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- d. X With one of the above required chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1a.1. within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each of the above required \pm 24-volt, 125-volt, and 250-volt batteries and chargers shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The parameters in Table 4.8.2.1-1 meet the Category A limits, and
 2. There is correct breaker alignment to the battery chargers, and total battery terminal voltage is greater than or equal to 26, 129, 258 volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 22, 110, or 220 volts, as applicable, or battery overcharge with battery terminal voltage above 30, 150 or 300 volts, as applicable, by verifying that:
 1. The parameters in Table 4.8.2.1-1 meet the Category B limits,
 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and
 3. The average electrolyte temperature of 4, 10, or 20, as applicable, of connected cells for the 24, 125, and 250 volt batteries is above 60°F.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. At least once per 18 months by verifying that:
1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
 2. The cell-to-cell and terminal connections are clean, tight, free of corrosion, and coated with anticorrosion material,
 3. The resistance of each cell-to-cell and terminal connection of each 125-volt and 250-volt battery is less than or equal to 150×10^{-6} ohm, and
 4. The battery charger, for at least 4 hours, will supply at least:
 - a) For the + 24-volt batteries, 25 amperes at a minimum of 25.7 volts.
 - b) For the 125-volt batteries, 100 amperes at a minimum of 127.8 volts.
 - c) For the 250-volt batteries, 300 amperes at a minimum of 255.6 volts.
- d. At least once per 18 months by verifying that either:
1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test, or
 2. The battery capacity is adequate to supply a dummy load of the following profile, which is verified to be greater than the actual emergency loads, while maintaining the battery terminal voltage greater than or equal to $\pm 21, 105$ or 210 volts, as applicable.
 - a) For + 24-volt battery banks 2D670, 2D670-1, 2D680, and 2D680-1, 9.37 amperes for the entire 4-hour test.
 - b) For 125-volt batteries:
 - 1) Channel "A" batteries 1D612 and 2D612:
325 amperes for 60 seconds
107 amperes for the remainder of the 4 hour test
 - 2) Channel "B" batteries 1D622 and 2D622:
323 amperes for 60 seconds
105 amperes for the remainder of the 4 hour test
 - 3) Channel "C" batteries 1D632 and 2D632:
340 amperes for 60 seconds
121 amperes for the remainder of the 4 hour test
 - 4) Channel "D" batteries 1D642 and 2D642:
323 amperes for 60 seconds
104 amperes for the remainder of the 4 hour test.

INSECT (B)

INSERT (B) , p. 3/4 8-13

5) Channel "A" battery 2D612 :

328 amperes for 60 seconds

112 amperes for the remainder of the 4 hour test

6) Channel "B" battery 2D622 :

326 amperes for 60 seconds :

110 amperes for the remainder of the 4 hour test

7) Channel "C" battery 2D632 :

343 amperes for 60 seconds

128 amperes for the remainder of the 4 hour test

8) Channel "D" battery 2D642 :

326 amperes for 60 seconds

111 amperes for the remainder of the 4 hour test

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c) For 250-volt batteries:
 - 1) Battery bank 2D650:
 - 458 amperes for 60 seconds
 - 251 amperes for 239 minutes
 - 2) Battery bank 2D660:
 - 1119 amperes for 60 seconds
 - 244 amperes for 239 minutes

- e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval, this performance discharge test may be performed in lieu of the battery service test.

- f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A ⁽¹⁾	CATEGORY B ⁽²⁾	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable ⁽³⁾ value for each connected cell
Electrolyte Level	>Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level. indication mark	>Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts ^(c)	> 2.07 volts
Specific Gravity ^(a)	≥ 1.200 ^(b)	≥ 1.195 ^(b) Average of all connected cells > 1.205 ^(b)	Not more than 0.020 below the average of all connected cells Average of all connected cells ≥ 1.195 ^(b)

(a) Corrected for electrolyte temperature and level.

(b) Or battery charging current is less than 0.01, 0.1 and 0.25 amperes for the ± 24 , 125 and 250 volt batteries respectively, when on float charge.

(c) May be corrected for average electrolyte temperature.

(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, Division I or Division II of the D.C. electrical power sources shall be OPERABLE with:

a. Division I consisting of:

1. Load group Channel "A" power source, consisting of:
 - a) 125-volt D.C. battery bank 1D610,** 2D610
 - b) Full capacity charger 1D613,** 2D613
2. Load group Channel "C" power source, consisting of:
 - a) 125-volt D.C. battery bank 1D630,** 2D630
 - b) Full capacity charger 1D633,** 2D633
3. Load group "I" power source, consisting of:
 - a) 250-volt D.C. battery bank 2D650
 - b) Half-capacity chargers 2D653A, 2D653B
4. Load group "I" power source, consisting of:
 - a) ± 24-volt D.C. battery bank 2D670
 - b) Two half-capacity chargers 2D673, 2D674

b. Division II consisting of:

1. Load group Channel "B" power source, consisting of:
 - a) 125-volt D.C. battery bank 1D620,** 2D620
 - b) Full capacity charger 1D623,** 2D623
2. Load group Channel "D" power source, consisting of:
 - a) 125-volt D.C. battery bank 1D640,** 2D640
 - b) Full capacity charger 1D643,** 2D643
3. Load group "II" power source, consisting of:
 - a) 250-volt D.C. battery bank 2D660
 - b) Full capacity charger 2D663
4. Load group "II" power source, consisting of:
 - a) ± 24-volt D.C. battery bank 2D680
 - b) Two half-capacity chargers 2D683, 2D684

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5, and *.

ACTION:

a. With less than the above required ^{Unit 2} 125-volt and/or 250-volt D.C. load group battery banks OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

INSERT
C →

*c With the above required ± 24-volt D.C. load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

*When handling irradiated fuel in the secondary containment.

SUSQUEHANNA - UNIT 2

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** Not required to be OPERABLE when the requirements of ACTION b have been satisfied

INSERT ©: p. 3/4 8-16

b. With less than the above required Unit 1 125-volt D.C. load group battery banks OPERABLE; either:

1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel, or

2. Transfer the common loads aligned to the inoperable Unit 1 battery bank(s) to the corresponding Unit 2 battery bank(s).

Otherwise, declare the common loads aligned to the inoperable Unit 1 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

✕ d. With the above required charger(s) inoperable, demonstrate the OPERABILITY of the associated battery by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

✕ e. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 At least the above required battery and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following power distribution system divisions shall be energized with tie breakers open both between redundant buses within the unit and between units at the same station:

a. A.C. power distribution:

1. Division I, consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A201, 2A201
 - 2) 480-volt A.C. load center 1B210, 2B210
 - 3) 480-volt A.C. motor control center 0B516
- b) Load group Channel "C", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A203, 2A203
 - 2) 480-volt A.C. load center 1B230, 2B230
 - 3) 480-volt A.C. motor control center 0B536
- c) Load group 480 volt A.C. motor control centers 0B517, 0B136
1B216, 1B236,
2B216, 2B236
1B217, 2B237,
2B217, 2B219*
- d) Load group 208/120-volt A.C. instrument panels 1Y216, 1Y236,
2Y216, 2Y236

2. Division II, consisting of:

- a) Load group Channel "B", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A202, 2A202
 - 2) 480-volt A.C. load center 1B220, 2B220
 - 3) 480-volt A.C. motor control center 0B526
- b) Load group Channel "D", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A204, 2A204
 - 2) 480-volt A.C. load center 1B240, 2B240
 - 3) 480-volt A.C. motor control center 0B546
- c) Load group 480-volt A.C. motor control centers 0B527, 0B146
1B226, 1B246,
2B226, 2B246
1B227, 2B227,
2B247
2B229*
- d) Load group 208/120-volt A.C. instrument panels 1Y226, 1Y246
2Y226, 2Y246

b. D.C. power distribution:

1. Division I, consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 125-volt D.C. buses 1D612**, 1D614**
2D612, 2D614
1D611**, 2D611
 - 2) Fuse box
- b) Load group Channel "C", consisting of:
 - 1) 125-volt D.C. buses 1D632**, 1D634**
2D632, 2D634

*The associated swing bus automatic transfer switch shall be OPERABLE.

SUSQUEHANNA - UNIT 2

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** Not required to be OPERABLE when the requirements of ACTION c have been satisfied.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

b. D.C. power distribution: (Continued)

- | | |
|--|---|
| 2) Fuse box | 1D631 ^{**} , 2D631 |
| c) Load group "I", consisting of: | |
| 1) 250-volt D.C. buses | 2D652, 2D254 |
| 2) Fuse box | 2D651, |
| d) Load group "I", consisting of: | |
| 1) ± 24-volt D.C. buses | 2D672 |
| 2) Fuse box | 2D671 |
| 2. Division II, consisting of: | |
| a) Load group Channel "B" consisting of: | |
| 1) 125-volt D.C. buses | 1D622 ^{**} , 1D624 ^{**} ,
2D622, 2D624 |
| 2) Fuse box | 1D621 ^{**} , 2D621 |
| b) Load group Channel "D" consisting of: | |
| 1) 125-volt D.C. buses | 1D642 ^{**} , 1D644 ^{**} ,
2D642, 2D644 |
| 2) Fuse box | 1D641 ^{**} , 2D641 |
| c) Load group "II" consisting of: | |
| 1) 250-volt D.C. buses | 2D652, 2D264, 2D274 |
| 2) Fuse box | 2D661 |
| d) Load group "II" consisting of: | |
| 1) ± 24-volt D.C. buses | 2D682 |
| 2) Fuse box | 2D681 |

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one of the above required A.C. distribution system load groups not energized, reenergize the load group within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With one of the above required ^{Unit 2} D.C. distribution system load groups not energized, reenergize the load group within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- INSEAT* → (D) ~~c~~. With an A.C. power distribution system swing bus transfer switch inoperable, restore the inoperable bus transfer switch to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*** Not required to be OPERABLE when the requirements of ACTION c have been satisfied.*

INSERT ① p. 3/4 8-19:

c. With one or more of the above required Unit 1 D.C. distribution system load groups not energized, within 2 hours either:

1. Reenergize the load group(s), or
2. Transfer the common loads aligned to the deenergized Unit 1 load group(s) to the corresponding Unit 2 load group(s).

Otherwise, declare the common loads aligned to the deenergized Unit 1 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.3.1.1 Each of the above required power distribution system load groups shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.1.2 The A.C. power distribution system swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the normal power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

ELECTRICAL POWER SYSTEMS

DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following power distribution system divisions shall be energized:

a. For A.C. power distribution, Division I or Division II with:

1. Division I consisting of:

- a) Load group Channel "A", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A201, 2A201
 - 2) 480-volt A.C. load center 1B210, 2B210
 - 3) 480-volt A.C. motor control center 0B516
- b) Load group Channel "C", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A203, 2A203
 - 2) 480-volt A.C. load center 1B230, 2B230
 - 3) 480-volt A.C. motor control center 0B536
- c) Load group 480-volt A.C. motor control centers 0B517, 0B136, 1B216, 1B236, 2B216, 2B236, 1B217, 2B217, 2B237, 2B219*
- d) Load group 208/120-volt A.C. instrument panels 1Y216, 1Y236, 2Y216, 2Y236

2. Division II consisting of:

- a) Load group Channel "B", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A202, 2A202
 - 2) 480-volt A.C. load center 1B220, 2B220
 - 3) 480-volt A.C. motor control center 0B525
- b) Load group Channel "D", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A204, 2A204
 - 2) 480-volt A.C. load center 1B240, 2B240
 - 3) 480-volt A.C. motor control center 0B546
- c) Load group 480-volt A.C. motor control centers 0B527, 0B146, 1B226, 1B246, 2B226, 2B246, 1B227, 2B227, 2B247, 2B229**
- d) Load group 208/120-volt A.C. instrument panels 1Y226, 1Y246, 2Y226, 2Y246

*The associated swing bus automatic transfer switch shall be OPERABLE if LPCI pumps A and C alone are fulfilling the requirements of Specification 3.5.2.

**The associated swing bus automatic transfer switch shall be OPERABLE if LPCI pumps B and D alone are fulfilling the requirements of Specification 3.5.2.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

b. For D.C. power distribution, Division I or Division 2, with:

1. Division I consisting of:

- a) Load group Channel "A", consisting of:
- 1) 125-volt D.C. buses 1D612^{**}, 1D614^{**},
2D612, 2D614
 - 2) Fuse box 1D611^{**}, 2D611
- b) Load group Channel "C", consisting of:
- 1) 125-volt D.C. buses 1D632^{**}, 1D634^{**},
2D632, 2D634
 - 2) Fuse box 1D631^{**}, 2D631
- c) Load group "I", consisting of:
- 1) 250-volt D.C. buses 2D652, 2D254
 - 2) Fuse box 2D651
- d) Load group "I", consisting of:
- 1) ± 24-volt D.C. buses 2D672
 - 2) Fuse box 2D671

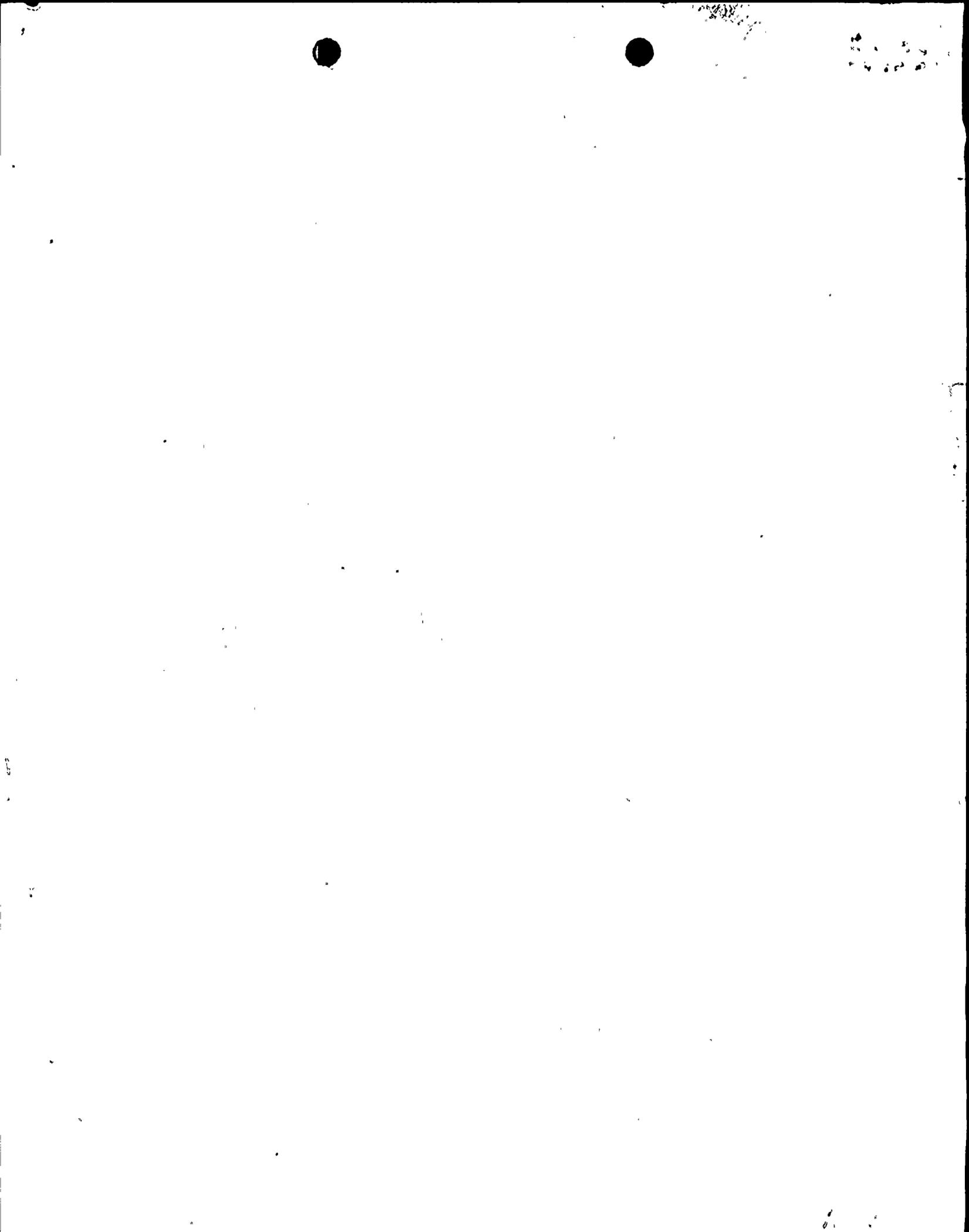
2. Division II consisting of:

- a) Load group Channel "B", consisting of:
- 1) 125-volt D.C. buses 1D622^{**}, 1D624^{**},
2D622, 2D624
 - 2) Fuse box 1D621^{**}, 2D621
- b) Load group Channel "D", consisting of:
- 1) 125-volt D.C. buses 1D642^{**}, 1D644^{**},
2D642, 2D644
 - 2) Fuse box 1D641^{**}, 2D641
- c) Load group "II", consisting of:
- 1) 250-volt D.C. buses 2D662, 2D264, 2D274
 - 2) Fuse box 2D661
- d) Load group "II", consisting of:
- 1) ± 24-volt D.C. buses 2D682
 - 2) Fuse box 2D681

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5, and *.

*When handling irradiated fuel in the secondary containment.

** Not required to be OPERABLE when the requirements of ACTION c have been satisfied.



ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

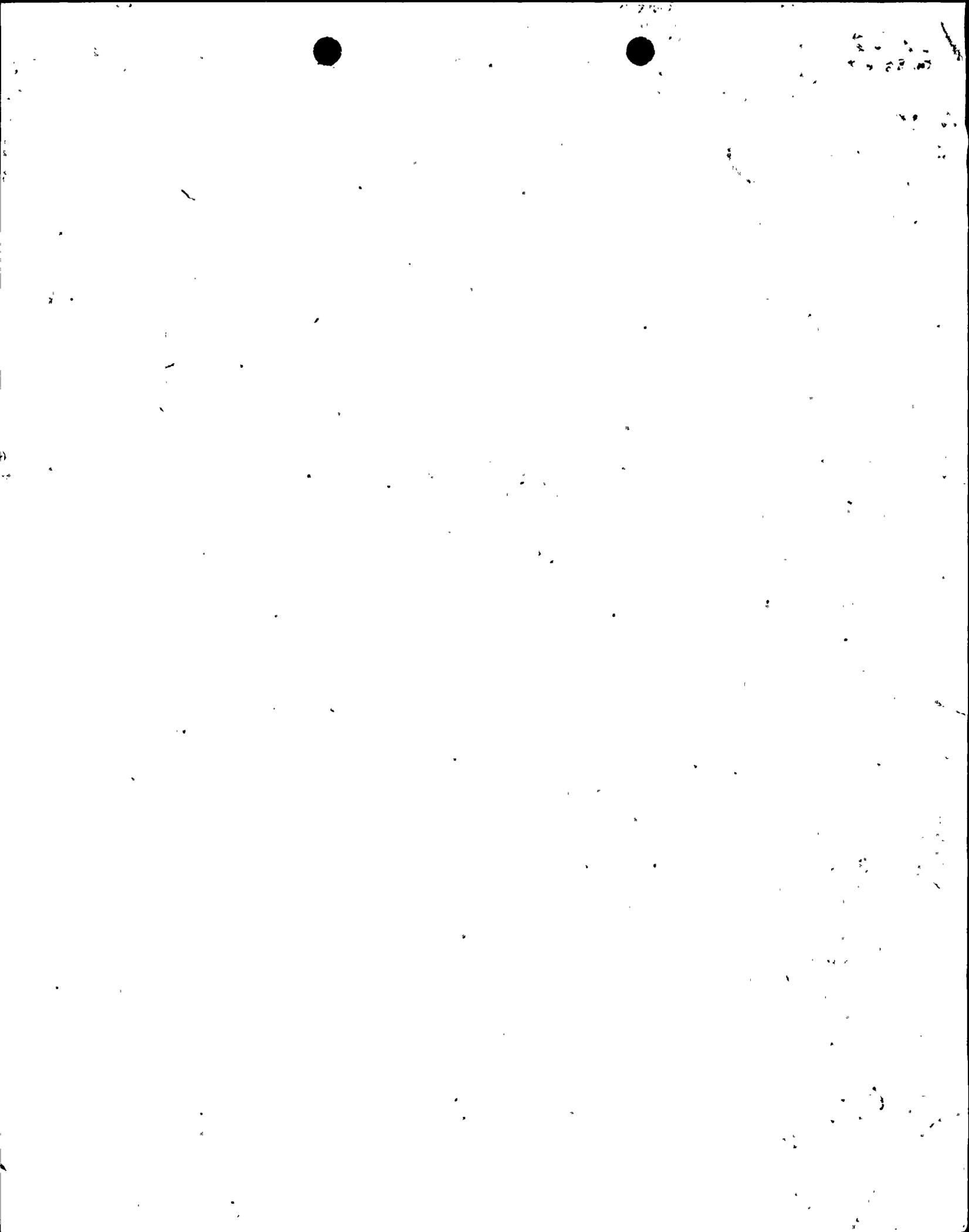
ACTION:

- a. With less than Division I ~~and/or~~ Division II of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- b. With less than Division I ~~and/or~~ Division II of the above required ^{Unit 2} D.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- INSERT (E)* → ~~x~~ d. With an A.C. power distribution system swing bus automatic transfer switch inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- ~~x~~ e. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.3.2.1 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.2.2 The A.C. power distribution system swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the normal power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.



ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

- a. With less than Division I ~~and/or~~ or Division II of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- b. With less than Division I ~~and/or~~ or Division II of the above required ^{Unit 2} D.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- INSERT (E)* → ~~X~~ d. With an A.C. power distribution system swing bus automatic transfer switch inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- ~~X~~ e. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.3.2.1 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.2.2 The A.C. power distribution system swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the normal power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

