

# ATTACHMENT 1

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Unit 1

Annotated Pages

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### LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and
- b. Two separate and independent diesel generator sets (Set A: DG 1-2A and DG-1C, Set B: DG-1B and DG-2C) each with:
  1. Separate day tanks containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generators and 700 gallons of fuel for the 2850 kw diesel generators.
  2. A separate fuel transfer pump for each diesel.
- c. A fuel storage system consisting of four, independent storage tanks each containing a minimum of 25,000 gallons of useable fuel.\*

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With only one ~~an~~ offsite A.C. circuit ~~inoperable~~, demonstrate the OPERABILITY of the remaining offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours ~~8 hours~~ and at least once per 8 ~~24~~ hours thereafter; ~~and by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on both diesel generator sets 1-2A and 1B within 24 8 hours unless such surveillance has been performed within the previous 24 hours 7 days or the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable.~~
- b. With one diesel generator set inoperable, ~~for reasons other than the yearly scheduled maintenance,\*\*~~ demonstrate the OPERABILITY operability of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours ~~8 hours~~ and at least once per 8 ~~72~~ hours thereafter, ~~and. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on the remaining diesel generator~~

\* One operable fuel storage tank must be available for each required diesel generator.

\*\* ~~If this scheduled maintenance exceeds 10 days, the diesel generator set must be declared inoperable.~~



## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

set on ~~two~~\* diesel generators within 24 ~~12~~ hours, unless the diesel generators are already operating. Restore the inoperable diesel generator set to OPERABLE status within 10 ~~18~~ days or be in at least HOT STANDBY SHUTDOWN within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable if only one of the four individual diesel generator units is inoperable.

- c. With one offsite A.C. circuit and one diesel generator set ~~of the above required A.C. electrical power sources~~ inoperable, for reasons other than the yearly schedule maintenance,\*\* demonstrate the OPERABILITY of the remaining offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours and at least once per 8 hours thereafter. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on ~~two~~\* the remaining diesel generators set within 8 ~~12~~ hours, unless the diesel generators are already operating. Restore at least one of the inoperable A.C. sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. power source (offsite A.C. circuit or diesel generator set) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statements a or b, as appropriate, with the time requirement of the action statement based on the time of initial loss of the remaining inoperable A.C. source.
- d. With both ~~two~~ of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of the remaining A.C. sources ~~both diesel generator sets~~ by performing Surveillance Requirement 4.8.1.1.2.a.4, on both diesel generator sets within 8 ~~with 2~~ hours,† unless the diesel generators are already operating†. Restore at least one of the inoperable offsite A.C. circuits ~~sources~~ to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite A.C. circuit source restored, restore ~~both~~ the other offsite A.C. circuits to OPERABLE status within 72 hours ~~7 days~~ from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With both of the above required diesel generator sets inoperable, demonstrate the OPERABILITY of the remaining A.C. sources ~~two offsite A.C. circuits~~ by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours and at least once per 8 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on ~~one~~ all remaining diesel generators in a diesel generator set on the other Unit within 8 hours, unless the diesel generators are already operating.† Restore at least one of the inoperable diesel generator sets to OPERABLE status:

\* The two diesel generators chosen to be tested shall verify that at least one train of LOCA/shutdown loads is capable of being powered at each Unit.

\*\* If this scheduled maintenance exceeds 10 days, the diesel generator set must be declared inoperable.

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

1. Within 24 hours or be in at least HOT STANDBY within the next 6 hours if (DG 1-2A and DG-2C) or (DG-1B and DG-1C) or (DG-1C and DG-2C) are inoperable; or
2. Within 8 hours or be in at least HOT STANDBY within the next 6 hours if DG 1-2A and DG-1B are inoperable; or
3. Within 2 hours or be in at least HOT STANDBY within the next 6 hours if three or more diesel generators are inoperable.

Restore both Diesel generator sets to OPERABLE status within 10 18 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the day tank.
  2. Verifying the fuel level in the fuel storage tanks.
  3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
  4. Verifying the diesel starts and accelerates to at least 900 rpm for the 2850 kw generator and 514 rpm for the 4075 kw generators in less than or equal to 12 seconds. The generator voltage and frequency shall be  $\geq 3952$  volts and  $\geq 57$  Hz within 12 seconds after the start signal and operates for 5 minutes.
  5. Verifying the generator is synchronized, loaded to 2700-2850 kw for the 2850 kw generator and 3875-4075 kw for the 4075 kw generator and operates for greater than or equal to 60 minutes.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE (PER DIESEL)

<u>NUMBER OF FAILURES IN LAST 20 <del>100</del> VALID TESTS*</u>	<u>NUMBER OF FAILURES IN LAST 100 <del>VALID</del> TESTS*</u>	<u>TEST FREQUENCY</u>
$\leq 1$ 2	$\leq 4$	At least once per 31 <del>14</del> days
$\geq 2$ ** 3	$\geq 5$	At least once per 7 days

\* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108. ~~Revision 1, August 1977, where the last 100 tests are but determined on a per diesel generator basis. For the purposes of this test schedule, only valid tests conducted after the OL issuance date shall be included in the computation of the "last 100 valid tests."~~

For the purpose of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul to like-new condition is completed, provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. These tests shall be in accordance with the routine Surveillance Requirements 4.8.1.1.2a.4) and 4.8.1.1.2a.5). If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to return the failure count to zero requires NRC approval.

\*\* The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.

## ELECTRICAL POWER SYSTEMS

### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

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3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit from the offsite transmission network to the switchyard and from the switchyard to the onsite Class 1E distribution system, and
- b. Diesel generator 1-2A, 1C or 1B each with:
  1. A day tank containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generator and 700 gallons of fuel for the 2850 kw diesel generator.
  2. A fuel storage tank containing a minimum volume of 25,000 gallons of useable fuel, and
  3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

#### ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirement 4.8.1.1.2.a.5.



## APPLICABILITY

### BASES

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3.0.5 This specification delineates what additional conditions must be satisfied to permit operation to continue, consistent with the ACTION statements for power sources, when a normal or emergency power source is not OPERABLE. It specifically prohibits operation when one division is inoperable because its normal or emergency power source is inoperable and a system, subsystem, train, component or device in another division is inoperable for another reason.

The provisions of this specification permit the ACTION statements associated with individual systems, subsystems, trains, components, or devices to be consistent with the ACTION statements of the associated electrical power source. It allows operation to be governed by the time limits of the ACTION statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual ACTION statements for each system, subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 3.8.1.1 requires in part that two emergency diesel generators be OPERABLE. The ACTION statement provides for a ~~72-hour~~ 10-day out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, train, components and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable ACTION statement for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be OPERABLE, and all redundant systems, subsystems, trains, components, and devices must be OPERABLE, or otherwise satisfy Specification 3.0.5 (i.e., be capable of performing their design function and have at least one normal or one emergency power source OPERABLE). If they are not satisfied, action is required in accordance with this specification.

As a further example, Specification 3.8.1.1 requires in part that two physically independent circuits between the offsite transmission network and the on-site Class 1E distribution system be OPERABLE. The ACTION statement provides a 24 hour out-of-service time when both required offsite circuits are not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable normal power sources, both of the offsite circuits, would also be inoperable. This would dictate invoking the applicable ACTION statements for each of the applicable LCOs. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In case, this would

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### LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and
- b. Two separate and independent diesel generator sets (Set A: DG 1-2A and DG-1C, Set B: DG-1B and DG-2C) each with:
  1. Separate day tanks containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generators and 700 gallons of fuel for the 2850 kw diesel generators.
  2. A separate fuel transfer pump for each diesel.
- c. A fuel storage system consisting of four, independent storage tanks each containing a minimum of 25,000 gallons of useable fuel.\*

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With only one offsite A.C. circuit operable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours and at least once per 8 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, on both diesel generator sets within 24 hours unless such surveillance has been performed within the previous 24 hours or the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one diesel generator set inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours and at least once per 8 hours thereafter. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, on the remaining diesel generator set within 24 hours, unless the

\* One operable fuel storage tank must be available for each required diesel generator.

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

diesel generators are already operating. Restore the inoperable diesel generator set to OPERABLE status within 10 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable if only one of the four individual diesel generator units is inoperable.

- c. With one offsite A.C. circuit and one diesel generator set inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours and at least once per 8 hours thereafter. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, on the remaining diesel generator set within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable A.C. sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. source (offsite A.C. circuit or diesel generator set) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statements a or b, as appropriate, with the time requirement of the action statement based on the time of initial loss of the remaining inoperable A.C. source.
- d. With both of the offsite A.C. circuits inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.2.a.4, on both diesel generator sets within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable offsite A.C. circuits to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite A.C. circuit restored, restore the other offsite A.C. circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With both of the diesel generator sets inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours and at least once per 8 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, on all remaining diesel generators within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable diesel generator sets to OPERABLE status:

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

1. Within 24 hours or be in at least HOT STANDBY within the next 6 hours if (DG 1-2A and DG-2C) or (DG-1B and DG-1C) or (DG-1C and DG-2C) are inoperable; or
2. Within 8 hours or be in at least HOT STANDBY within the next 6 hours if DG 1-2A and DG-1B are inoperable; or
3. Within 2 hours or be in at least HOT STANDBY within the next 6 hours if three or more diesel generators are inoperable.

Restore both diesel generator sets to OPERABLE status within 10 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the day tank.
  2. Verifying the fuel level in the fuel storage tanks.
  3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
  4. Verifying the diesel starts and accelerates to at least 900 rpm for the 2850 kw generator and 514 rpm for the 4075 kw generators in less than or equal to 12 seconds. The generator voltage and frequency shall be  $\geq 3952$  volts and  $\geq 57$  Hz within 12 seconds after the start signal and operates for 5 minutes.
  5. Verifying the generator is synchronized, loaded to 2700-2850 kw for the 2850 kw generator and 3875-4075 kw for the 4075 kw generator and operates for greater than or equal to 60 minutes.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

<u>NUMBER OF FAILURES IN LAST 20 VALID TESTS*</u>	<u>NUMBER OF FAILURES IN LAST 100 VALID TESTS*</u>	<u>TEST FREQUENCY</u>
$\leq 1$	$\leq 4$	Once per 31 days
$\geq 2^{**}$	$\geq 5$	Once per 7 days

\* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, but determined on a per diesel generator basis.

For the purpose of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul to like-new condition is completed, provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. These tests shall be in accordance with the routine Surveillance Requirements 4.8.1.1.2a.4) and 4.8.1.1.2a.5). If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to return the failure count to zero requires NRC approval.

\*\* The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.

## ELECTRICAL POWER SYSTEMS

### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

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3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit<sup>+</sup> from the offsite transmission network to the switchyard and from the switchyard to the onsite Class 1E distribution system, and
- b. Diesel generator 1-2A, 1C or 1B each with:
  1. A day tank containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generator and 700 gallons of fuel for the 2850 kw diesel generator.
  2. A fuel storage tank containing a minimum volume of 25,000 gallons of useable fuel, and
  3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

#### ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirement 4.8.1.1.2.a.5.



## APPLICABILITY

### BASES

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3.0.5 This specification delineates what additional conditions must be satisfied to permit operation to continue, consistent with the ACTION statements for power sources, when a normal or emergency power source is not OPERABLE. It specifically prohibits operation when one division is inoperable because its normal or emergency power source is inoperable and a system, subsystem, train, component or device in another division is inoperable for another reason.

The provisions of this specification permit the ACTION statements associated with individual systems, subsystems, trains, components, or devices to be consistent with the ACTION statements of the associated electrical power source. It allows operation to be governed by the time limits of the ACTION statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual ACTION statements for each system, subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 3.8.1.1 requires in part that two emergency diesel generators be OPERABLE. The ACTION statement provides for a 10-day out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable ACTION statement for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be OPERABLE, and all redundant systems, subsystems, trains, components, and devices must be OPERABLE, or otherwise satisfy Specification 3.0.5 (i.e., be capable of performing their design function and have at least one normal or one emergency power source OPERABLE). If they are not satisfied, action is required in accordance with this specification.

As a further example, Specification 3.8.1.1 requires in part that two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system be OPERABLE. The ACTION statement provides a 24 hour out-of-service time when both required offsite circuits are not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable normal power sources, both of the offsite circuits, would also be inoperable. This would dictate invoking the applicable ACTION statements for each of the applicable LCOs. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In case, this would

Unit 2

Annotated Pages



### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and
- b. Two separate and independent diesel generator sets (Set A: DG 1-2A and DG-1C, Set B: DG-2B and DG-2C) each with:
  1. Separate day tanks containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generators and 700 gallons of fuel for the 2850 kw diesel generators.
  2. A separate fuel transfer pump for each diesel.
- c. A fuel storage system consisting of four, independent storage tanks each containing a minimum of 25,000 gallons of useable fuel.\*

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With only one an offsite A.C. circuit inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours ~~8 hours~~ and at least once per 8 24 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on both diesel generator sets 1-2A and 2B within 24 8 hours unless such surveillance has been performed within the previous 24 hours 7 days or the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable.
- b. With one diesel generator set inoperable, for reasons other than the yearly scheduled maintenance,\*\* demonstrate the OPERABILITY operability of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours 8 hours and at least once per 8 72 hours thereafter; and. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on the remaining diesel generator

\* One operable fuel storage tank must be available for each required diesel generator.

\*\* If this scheduled maintenance exceeds 10 days, the diesel generator set must be declared inoperable.

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

~~set on two\* diesel generators within 24 12 hours, unless the diesel generators are already operating. Restore the inoperable diesel generator set to OPERABLE status within 10 18 days or be in at least HOT STANDBY SHUTDOWN within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable if only one of the four individual diesel generator units is inoperable.~~

- c. ~~With one offsite A.C. circuit and one diesel generator set of the above required A.C. electrical power sources inoperable, for reasons other than the yearly scheduled maintenance,\*\* demonstrate the OPERABILITY of the remaining offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours and at least once per 8 hours thereafter. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on two\* the remaining diesel generators set within 8 12 hours, unless the diesel generators are already operating. Restore at least one of the inoperable A.C. sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. power source (offsite A.C. circuit or diesel generator set) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statements a or b, as appropriate, with the time requirement of the action statement based on the time of initial loss of the remaining inoperable A.C. source.~~
- d. ~~With both two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of the remaining A.C. sources both diesel generator sets by performing Surveillance Requirement 4.8.1.1.2.a.4, on both diesel generator sets within 8 with 2 hours, unless the diesel generators are already operating. Restore at least one of the inoperable offsite A.C. circuits sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite A.C. circuit source restored, restore both the other offsite A.C. circuits to OPERABLE status within 72 hours 7 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~
- e. ~~With both of the above required diesel generator sets inoperable, demonstrate the OPERABILITY of the remaining A.C. sources two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours and at least once per 8 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, items 1, 2, 3, 4, and 6 on one all remaining diesel generators in a diesel generator set on the other Unit within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable diesel generator sets to OPERABLE status:~~

\* The two diesel generators chosen to be tested shall verify that at least one train of LOCA/shutdown loads is capable of being powered at each Unit.

\*\* If this scheduled maintenance exceeds 10 days, the diesel generator set must be declared inoperable.

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

1. Within 24 hours or be in at least HOT STANDBY within the next 6 hours if (DG 1-2A and DG-2C) or (DG-2B and DG-1C) or (DG-1C and DG-2C) are inoperable; or
2. Within 8 hours or be in at least HOT STANDBY within the next 6 hours if DG 1-2A and DG-2B are inoperable; or
3. Within 2 hours or be in at least HOT STANDBY within the next 6 hours if three or more diesel generators are inoperable.

Restore both diesel generator sets to OPERABLE status within 10-18 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the day tank.
  2. Verifying the fuel level in the fuel storage tanks.
  3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
  4. Verifying the diesel starts and accelerates to at least 900 rpm for the 2850 kw generator and 514 rpm for the 4075 kw generators in less than or equal to 12 seconds. The generator voltage and frequency shall be  $\geq 3952$  volts and  $\geq 57$  Hz within 12 seconds after the start signal and operates for 5 minutes.
  5. Verifying the generator is synchronized, loaded to 2700-2850 kw for the 2850 kw generator and 3875-4075 kw for the 4075 kw generator and operates for greater than or equal to 60 minutes.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE (PER DIESEL)

<u>NUMBER OF FAILURES IN LAST 20 100 VALID TESTS*</u>	<u>NUMBER OF FAILURES IN LAST 100 VALID TESTS*</u>	<u>TEST FREQUENCY</u>
$\leq 1$ 2	$\leq 4$	At least once per 31 14 days
$\geq 2^{**}$ 3	$\geq 5$	At least once per 7 days

\* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, Revision 1, August 1977, where the last 100 tests are but determined on a per diesel generator basis. ~~For the purposes of this test schedule, only valid tests conducted after the OL issuance date shall be included in the computation of the "last 100 valid tests."~~

For the purpose of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul to like-new condition is completed, provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. These tests shall be in accordance with the routine Surveillance Requirements 4.8.1.1.2a.4) and 4.8.1.1.2a.5). If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to return the failure count to zero requires NRC approval.

\*\* The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.

## ELECTRICAL POWER SYSTEMS

### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit from the offsite transmission network to the switchyard and from the switchyard to the onsite Class 1E distribution system, and
- b. Diesel generator 1-2A, 1C or 2B each with:
  1. A day tank containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generator and 700 gallons of fuel for the 2850 kw diesel generator.
  2. A fuel storage tank containing a minimum volume of 25,000 gallons of useable fuel, and
  3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

#### ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirement 4.8.1.1.2.a.5.



## APPLICABILITY

### BASES

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3.0.5 This specification delineates what additional conditions must be satisfied to permit operation to continue, consistent with the ACTION statements for power sources, when a normal or emergency power source is not OPERABLE. It specifically prohibits operation when one division is inoperable because its normal or emergency power source is inoperable and a system, subsystem, train, component or device in another division is inoperable for another reason.

The provisions of this specification permit the ACTION statements associated with individual systems, subsystems, trains, components, or devices to be consistent with the ACTION statements of the associated electrical power source. It allows operation to be governed by the time limits of the ACTION statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual ACTION statements for each system, subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 3.8.1.1 requires in part that two emergency diesel generators be OPERABLE. The ACTION statement provides for a ~~72-hour~~ 10-day out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable ACTION statement for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be OPERABLE, and all redundant systems, subsystems, trains, components, and devices must be OPERABLE, or otherwise satisfy Specification 3.0.5 (i.e., be capable of performing their design function and have at least one normal or one emergency power source OPERABLE). If they are not satisfied, action is required in accordance with this specification.

As a further example, Specification 3.8.1.1 requires in part that two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system be OPERABLE. The ACTION statement provides a 24 hour out-of-service time when both required offsite circuits are not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable normal power sources, both of the offsite circuits, would also be inoperable. This would dictate invoking the applicable ACTION statements for each of the applicable LCOs. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In case this would

Unit 2

Typed Pages



### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and
- b. Two separate and independent diesel generator sets (Set A: DG 1-2A and DG-1C, Set B: DG-2B and DG-2C) each with:
  1. Separate day tanks containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generators and 700 gallons of fuel for the 2850 kw diesel generators.
  2. A separate fuel transfer pump for each diesel.
- c. A fuel storage system consisting of four, independent storage tanks each containing a minimum of 25,000 gallons of useable fuel.\*

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With only one offsite A.C. circuit operable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours and at least once per 8 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, on both diesel generator sets within 24 hours unless such surveillance has been performed within the previous 24 hours or the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one diesel generator set inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours and at least once per 8 hours thereafter. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, on the remaining diesel generator set within 24 hours, unless the

\* One operable fuel storage tank must be available for each required diesel generator.

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

diesel generators are already operating. Restore the inoperable diesel generator set to OPERABLE status within 10 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable if only one of the four individual diesel generator units is inoperable.

- c. With one offsite A.C. circuit and one diesel generator set inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining offsite A.C. circuit within 2 hours and at least once per 8 hours thereafter. If the diesel generator set became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generator set by performing Surveillance Requirement 4.8.1.1.2.a.4, on the remaining diesel generator set within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable A.C. sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. source (offsite A.C. circuit or diesel generator set) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statements a or b, as appropriate, with the time requirement of the action statement based on the time of initial loss of the remaining inoperable A.C. source.
- d. With both of the offsite A.C. circuits inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.2.a.4, on both diesel generator sets within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable offsite A.C. circuits to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite A.C. circuit restored, restore the other offsite A.C. circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With both of the diesel generator sets inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on both offsite A.C. circuits within 2 hours and at least once per 8 hours thereafter; and by performing Surveillance Requirement 4.8.1.1.2.a.4, on all remaining diesel generators within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable diesel generator sets to OPERABLE status:

## ELECTRICAL POWER SYSTEMS

### ACTION (Continued)

1. Within 24 hours or be in at least HOT STANDBY within the next 6 hours if (DG 1-2A and DG-2C) or (DG-2B and DG-1C) or (DG-1C and DG-2C) are inoperable; or
2. Within 8 hours or be in at least HOT STANDBY within the next 6 hours if DG 1-2A and DG-2B are inoperable; or
3. Within 2 hours or be in at least HOT STANDBY within the next 6 hours if three or more diesel generators are inoperable.

Restore both diesel generator sets to OPERABLE status within 10 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the day tank.
  2. Verifying the fuel level in the fuel storage tanks.
  3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
  4. Verifying the diesel starts and accelerates to at least 900 rpm for the 2850 kw generator and 514 rpm for the 4075 kw generators in less than or equal to 12 seconds. The generator voltage and frequency shall be  $\geq 3952$  volts and  $\geq 57$  Hz within 12 seconds after the start signal and operates for 5 minutes.
  5. Verifying the generator is synchronized, loaded to 2700-2850 kw for the 2850 kw generator and 3875-4075 kw for the 4075 kw generator and operates for greater than or equal to 60 minutes.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

<u>NUMBER OF FAILURES IN LAST 20 VALID TESTS*</u>	<u>NUMBER OF FAILURES IN LAST 100 VALID TESTS*</u>	<u>TEST FREQUENCY</u>
$\leq 1$	$\leq 4$	Once per 31 days
$\geq 2^{**}$	$\geq 5$	Once per 7 days

\* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, but determined on a per diesel generator basis.

For the purpose of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul to like-new condition is completed, provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. These tests shall be in accordance with the routine Surveillance Requirements 4.8.1.1.2a.4) and 4.8.1.1.2a.5). If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to return the failure count to zero requires NRC approval.

\*\* The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.

## ELECTRICAL POWER SYSTEMS

### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit from the offsite transmission network to the switchyard and from the switchyard to the onsite Class 1E distribution system, and
- b. Diesel generator 1-2A, 1C or 2B each with:
  1. A day tank containing a minimum volume of 900 gallons of fuel for the 4075 kw diesel generator and 700 gallons of fuel for the 2850 kw diesel generator.
  2. A fuel storage tank containing a minimum volume of 25,000 gallons of useable fuel, and
  3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

#### ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

---

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirement 4.8.1.1.2.a.5.



## APPLICABILITY

### BASES

---

3.0.5 This specification delineates what additional conditions must be satisfied to permit operation to continue, consistent with the ACTION statements for power sources, when a normal or emergency power source is not OPERABLE. It specifically prohibits operation when one division is inoperable because its normal or emergency power source is inoperable and a system, subsystem, train, component or device in another division is inoperable for another reason.

The provisions of this specification permit the ACTION statements associated with individual systems, subsystems, trains, components, or devices to be consistent with the ACTION statements of the associated electrical power source. It allows operation to be governed by the time limits of the ACTION statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual ACTION statements for each system, subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 3.8.1.1 requires in part that two emergency diesel generators be OPERABLE. The ACTION statement provides for a 10-day out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable ACTION statement for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be OPERABLE, and all redundant systems, subsystems, trains, components, and devices must be OPERABLE, or otherwise satisfy Specification 3.0.5 (i.e., be capable of performing their design function and have at least one normal or one emergency power source OPERABLE). If they are not satisfied, action is required in accordance with this specification.

As a further example, Specification 3.8.1.1 requires in part that two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system be OPERABLE. The ACTION statement provides a 24 hour out-of-service time when both required offsite circuits are not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable normal power sources, both of the offsite circuits, would also be inoperable. This would dictate invoking the applicable ACTION statements for each of the applicable LCOs. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the ACTION statement for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In case, this would

## ATTACHMENT 2

### SAFETY ANALYSIS JOSEPH M. FARLEY NUCLEAR PLANT ELECTRICAL POWER SYSTEM TECHNICAL SPECIFICATION CHANGES

#### PROPOSED CHANGES:

The proposed revisions to Technical Specification 3/4.8.1 for both units include:

- (i) Revising Unit 1 Index Page IX to provide the correct page numbers.
- (ii) Revising the diesel fuel oil storage system requirement to reflect that each storage tank must contain a minimum of 25,000 gallons of usable fuel rather than merely specifying 25,000 gallons of fuel. This change is also applicable to Specification 3/4.8.2.
- (iii) Revising the ACTION associated with an offsite circuit inoperable to reflect new requirements for surveillance activities and offsite circuit restoration. The revision also deletes the exception to Specification 3.0.4.
- (iv) Revising the ACTION associated with one diesel generator set inoperable to reflect new requirements for surveillance activities and removing note "\*\*\*" which states that if the scheduled yearly maintenance of a diesel generator set exceeds 10 days, the diesel generator set must be declared inoperable. The revision also reflects new requirements for diesel generator operability status restoration.
- (v) Revising the ACTION associated with one offsite circuit and one diesel generator set inoperable to reflect new requirements for surveillance activities and removing note "\*\*\*" which states that if the scheduled yearly maintenance of a diesel generator set exceeds 10 days, the diesel generator set must be declared inoperable. The revision also reflects new requirements for diesel generator operability status restoration and offsite circuit restoration.
- (vi) Revising the ACTION associated with both of the offsite circuits inoperable to reflect new requirements for surveillance activities on the diesel generator sets. The revision also reflects new requirements for offsite circuit restoration.
- (vii) Revising the ACTION associated with both of the diesel generator sets inoperable to reflect new requirements for surveillance activities on offsite A.C. sources. The revision also reflects new requirements for diesel generator operability status restoration.



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ELECTRICAL TECHNICAL SPECIFICATION CHANGES  
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- (viii) Adding a test schedule table for the diesel generators in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108.
- (ix) Revising the Bases for 3.0.5 to correctly state the allowed outage time for one diesel generator.

BACKGROUND:

By letter dated July 30, 1991, the NRC requested a meeting with SNC to discuss the emergency A.C. power systems at FNP. The meeting was requested due to the unique technical specifications and diesel generator configuration at FNP. A meeting was held on October 4, 1991 in which SNC personnel presented an overview of the FNP A.C. electrical system design, method of operation, and basis for Technical Specification 3/4.8.1.

After evaluating the information presented, other documentation available, and operational occurrences at FNP, the NRC issued a letter on May 7, 1992 which requested that the FNP Technical Specification 3/4.8.1 be examined in light of the restrictions contained in the Westinghouse Standard Technical Specification, Revision 4A (STS), Section 3/4.8.1. The letter also requested an additional meeting with the NRC Staff to explore where changes could be made to achieve enhanced operating conservatism. The issue was further discussed at a June 15, 1992 meeting in which SNC agreed to the Staff's request.

At a subsequent meeting held on July 31, 1992, SNC agreed that clarifications to the FNP Technical Specification 3/4.8.1 should be made to preclude potential misuse of these provisions in the future and to resolve the NRC Staff's concerns. SNC further stated that once an indication is received from the NRC that the approach presented is acceptable, a technical specifications amendment request would be submitted within 90 days.

By letter dated September 15, 1992, the NRC stated that the conceptual revisions presented appear to result in a significant improvement to FNP Technical Specification 3/4.8.1. However, the NRC stated that SNC must first submit the proposed technical specification amendment before final approval could be granted. The letter further requested that the technical specification amendment request be submitted within 90 days of the date of that letter.

DISCUSSION:

The NRC's concerns regarding the present FNP electrical system technical specifications are understood to be as follows:

- Annual diesel generator maintenance could last for up to 10 days without declaring the diesel generator inoperable.
- The present specification allows an 18-day outage for a diesel generator.
- The present specification includes an exception to Technical Specification 3.0.4 for an inoperable diesel generator or offsite circuit.
- The present specification allows a 7-day outage for an offsite circuit.

To address the NRC's concerns, SNC compared the FNP technical specification to the Standard Technical Specifications Revision 4A. Regarding the specific issues, SNC proposes that changes be made to the electrical system technical specifications as follows:

1. The proposed specification clarifies that diesel generators are declared inoperable during scheduled preventive maintenance without allowance of a 10-day grace period for operability; however, no surveillance testing of the other unaffected diesel generators will be required during that time. The rationale for performing the additional surveillance testing is to look for a common-mode failure. If a diesel is intentionally taken out of service for scheduled maintenance, there is no need to look for a common-mode failure. This is consistent with the STS.
2. The proposed specification reduces the allowed outage time for an inoperable diesel generator from 18 days to 10 days.
3. The proposed specification removes the exception to Technical Specification 3.0.4 so that a change of operating modes with an offsite circuit inoperable is no longer allowed. This is consistent with the S.S.
4. The proposed specification reduces the allowed outage time for an offsite circuit to 3 days. This is consistent with the STS.
5. The proposed specification requires that, with one offsite circuit inoperable, the remaining offsite circuit be verified operable within 2 hours.

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6. The proposed specification revises the surveillance test schedule such that the diesel generators are tested every 31 days. This is consistent with the STS.
7. The proposed specification requires that the diesel generators be tested every 7 days when greater than or equal to 2 failures out of the last 20 tests occurs or when greater than or equal to 5 failures out of the last 100 tests occurs. This is consistent with the STS.

As mentioned in Item 2 above, the allowed outage time for a diesel is being reduced from 18 days to 10 days, rather than to 3 days as specified in the STS. In addition, the exception to Technical Specification 3.0.4, which would allow a change in operating mode with one diesel generator inoperable, remains in the technical specification. These two provisions are justified based upon the high degree of flexibility of the FNP electrical system design. The STS are based upon a single unit plant which has 2 diesel generators, whereas FNP has 5 diesel generators for 2 units. For all combinations of a single inoperable diesel generator coincident with a dual unit loss of offsite power and a LOCA on the either unit, at least one safety-related train will be automatically powered at each unit. In addition, manual transfer can restore loads that may not be automatically energized. Although the simultaneous failure of two diesel generators is beyond the design basis, at FNP with 3 remaining diesel generators at least one train of emergency loads can be powered for both units with manual control room operator action. Thus, loss of a single diesel generator at FNP is not as critical as at a station with only two diesel generators.

Sufficient time must be allowed to perform required inspection, maintenance, and testing essential for continual diesel generator reliability. Since FNP elects to perform diesel generator maintenance during power operation, the 3-day LCO is too short a time to permit proper trouble-shooting, repairs and preoperational testing of the diesel generators. The proposed 10-day LCO will provide adequate time to perform the necessary tasks to ensure continued reliability of the diesel generators at FNP. For these reasons, the allowance of a 10-day outage of a diesel generator is acceptable.

Since SNC elects to perform diesel maintenance while at power, circumstances could arise which would necessitate an operating mode change while diesel generator maintenance is being performed. Considering the high degree of flexibility of the diesel generator system design as described above, an exception to Technical Specification 3.0.4 is also justifiable. This exception will allow a change of operating modes with a single diesel generator inoperable.

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Item 5 above relating to the action statement surveillance time for verifying offsite circuit operability also differs from the STS. FNP proposes to allow 2 hours rather than 1 hour to verify that the remaining offsite circuit is operable when one of the offsite circuits is inoperable. Providing an additional hour for this surveillance will allow the operators to focus their attention on plant stabilization following an LOSP. Operators have sufficient procedural guidance to ensure that adequate electrical power is available following a plant transient without redirecting their attention to performing the surveillance test procedure.

In addition to the changes which are proposed to satisfy the Staff concerns, SNC is proposing to adopt a diesel generator surveillance test schedule in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108. This surveillance test schedule is consistent with the STS and will reduce the number of routine surveillance starts on the diesel generators which will provide assurance of continued or possibly improved reliability.

Within the proposed specification, a clarification to the minimum fuel storage in each storage tank is proposed to reflect a minimum of 25,000 gallons of useable fuel in each tank. The intent of this change is to ensure that at least 25,000 gallons of fuel oil is available to be delivered to the diesel generators. A portion of each diesel fuel oil storage tank is not useable due to that volume being below the transfer pump suction. Stating that the minimum allowed level is 25,000 gallons of useable fuel oil ensures that the emergency electrical power system is capable of meeting the requirements stated in the FSAR of 7 days of operation with an additional 10 percent capacity.

A reference to hot shutdown in Specification 3.8.1.1 Action b), has been changed to reflect the correct mode of hot standby. Hot standby is the plant mode of operation just below critical operation. This wording is consistent with the STS.

CONCLUSION:

The proposed changes to the FNP technical specifications are in accordance with the discussions held with the NRC regarding their concerns and are in general agreement with the STS Rev. 4A. Where there are differences between the proposed changes and the STS, a sound technical basis exist based upon the high degree of flexibility afforded by the FNP design.

### ATTACHMENT 3

SIGNIFICANT HAZARDS CONSIDERATION EVALUATION  
PURSUANT TO 10 CFR 50.92  
JOSEPH M. FARLEY NUCLEAR PLANT  
ELECTRICAL POWER SYSTEM TECHNICAL SPECIFICATION CHANGES

#### PROPOSED CHANGES:

The proposed revisions to Technical Specification 3/4.8.1 for both units include:

- (i) Revising Unit 1 Index Page IX to provide the correct page number.
- (ii) Revising the fuel storage system requirement to reflect that each storage tank must contain a minimum of 25,000 gallons of usable fuel rather than merely specifying 25,000 gallons of fuel. This revision is also necessary to Technical Specification 3/4.8.2.
- (iii) Revising the ACTION associated with an offsite circuit inoperable to reflect new requirements for surveillance activities and offsite circuit restoration. The revision also deletes the exception to Specification 3.0.4.
- (iv) Revising the ACTION associated with one diesel generator set inoperable to reflect new requirements for surveillance activities and removing note "\*\*\*" which stated that if the scheduled yearly maintenance of a diesel generator set exceeded 10 days, the diesel generator set must be declared inoperable. The revision also reflects new requirements for diesel generator operability status restoration.
- (v) Revising the ACTION associated with one offsite circuit and one diesel generator set inoperable to reflect new requirements for surveillance activities and removing note "\*\*\*" which stated that if the scheduled yearly maintenance of a diesel generator set exceeded 10 days, the diesel generator set must be declared inoperable. The revision also reflects new requirements for diesel generator operability status restoration and offsite circuit restoration.
- (vi) Revising the ACTION associated with both of the offsite circuits inoperable to reflect new requirements for surveillance activities on the diesel generator sets. The revision also reflects new requirements for offsite circuit restoration.
- (vii) Revising the ACTION associated with both of the diesel generator sets inoperable to reflect new requirements for surveillance activities on offsite A.C. sources. The revision also reflects new requirements for diesel generator operability status restoration.



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- (viii) Adding a test schedule table for the diesel generators in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108.
- (ix) Revising the Bases for 3.0.5 to correctly state the allowed outage time for one diesel generator.

BACKGROUND:

By letter dated July 30, 1991, the NRC requested a meeting with SNC to discuss the emergency A.C. power systems at FNP. The meeting was requested due to the unique technical specifications and diesel generator configuration at FNP. A meeting was held on October 4, 1991 in which SNC personnel presented an overview of the FNP A.C. electrical system design, method of operation, and basis for Technical Specification 3/4.8.1.

After evaluating the information presented, other documentation available, and operational occurrences at FNP, the NRC issued a letter on May 7, 1992 which requested that the FNP Technical Specification 3/4.8.1 be examined in light of the restrictions contained in the Westinghouse Standard Technical Specification, Revision 4A (STS), Section 3/4.8.1. The letter also requested an additional meeting with the NRC Staff to explore where changes could be made to achieve enhanced operating conservatism. This issue was further discussed at a June 15, 1992 meeting in which SNC agreed to the Staff's request.

At a subsequent meeting held on July 31, 1992, SNC agreed that clarifications to the FNP Technical Specification 3/4.8.1 should be made to preclude potential misuse of these provisions in the future and to resolve the NRC Staff's concerns. SNC further stated that once an indication is received from the NRC that the approach presented is acceptable, a technical specifications amendment request would be submitted within 90 days.

By letter dated September 15, 1992, the NRC stated that the conceptual revisions presented appear to result in a significant improvement to FNP Technical Specification 3/4.8.1. However, the NRC stated that SNC must first submit the proposed technical specification amendment before final approval could be granted. The letter further requested that the technical specification amendment request be submitted within 90 days of the date of that letter.

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DISCUSSION:

SNC compared the FNP technical specification to the Standard Technical Specifications Rev. 4A, which were prepared by the NRC for use at the Comanche Peak Steam Electric Station. The changes described above (excluding minor editorial revisions), bring the FNP technical specification into agreement with the STS with two exceptions. Regarding these two specific issues, SNC proposes the following changes to the electrical system technical specifications:

As mentioned in Item 2 above, the allowed outage time for a diesel is being reduced from 18 days to 10 days, rather than to 3 days as specified in the STS. In addition, the exception to Technical Specification 3.0.4, which would allow a change in operating mode with one diesel generator inoperable, remains in the technical specification. These two provisions are justified based upon the high degree of flexibility of the FNP electrical system design. The STS are based upon a single unit plant which has 2 diesel generators, whereas FNP has 5 diesel generators for 2 units. For all combinations of a single inoperable diesel generator coincident with a dual unit loss of offsite power and a LOCA on the either unit, at least one safety-related train will be automatically powered at each unit. Thus, loss of a single diesel generator at FNP is not as critical as at a station with only two diesel generators.

Sufficient time must be allowed to perform the required inspection, maintenance, and testing essential for continual diesel generator reliability. Since FNP performs the diesel generator maintenance during power operation, the 3-day LCO is too short a time to permit proper trouble-shooting, repairs and preoperational testing of the diesel generators. The proposed 10-day LCO will provide adequate time to perform the necessary tasks to ensure continued reliability of the diesel generators at FNP. For these reasons, the allowance of a 10-day outage of a diesel generator is acceptable.

Item 5 above also differs from the STS. As a matter of practicality, FNP proposes to allow 2 hours rather than 1 hour to verify that the remaining offsite circuit is operable when one of the offsite circuits is inoperable. Providing an additional hour for this surveillance will allow the operators to focus their attention on plant stabilization following an LOSP. Operators have sufficient procedural guidance to ensure that adequate electrical power is available following a plant transient without redirecting their attention to performing the surveillance test procedure.

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In addition, SNC is proposing to adopt a diesel generator surveillance test schedule in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108. This surveillance test schedule is consistent with the STS and will provide assurance of continued reliability without subjecting the diesel generators to excessive starts.

ANALYSIS:

SNC has reviewed the requirements of 10 CFR 50.92 as they relate to the identified proposed changes to the technical specifications and considers these changes not to involve a significant hazards consideration. In support of this conclusion, the following analysis is provided:

- (1) The proposed changes to the electrical system technical specifications will not involve a significant increase in the probability or consequences of an accident previously evaluated. The changes made to the technical specifications will increase the availability of the electrical systems required to mitigate the consequences of an accident by reducing the time allowed for continued operation with an offsite circuit or a diesel generator inoperable. The reduction in the number of diesel generator surveillance starts is expected to improve reliability. The proposed changes are generally in agreement with the STS which have been previously reviewed and approved by the NRC.
- (2) The proposed changes will not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes do not involve physical changes to the facility and do not result in a change in the manner in which the offsite circuits or the diesel generators provide electrical service to the plant. The assumptions and conclusions of the accident analyses presented in the FSAR are unaffected by these proposed changes. Therefore, a new or different kind of accident will not occur as a result of these changes.
- (3) The proposed changes do not involve a significant reduction in a margin of safety. The proposed changes do not alter the manner in which safety limits, limiting safety system setpoints, or limiting conditions for operation are determined. By increasing the restrictions upon plant operation with an offsite electrical circuit or a diesel generator out of service, the availability of power to equipment essential for safe operation is enhanced. In addition, the reduction in the number of diesel generator starts is expected to improve reliability. Therefore, a significant reduction in a margin to safety will not occur due to these proposed technical specification changes.

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CONCLUSION:

Based upon the analysis provided herein, SNC has determined that the proposed changes to the technical specifications will not significantly increase the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in a margin of safety. Therefore, Southern Nuclear Operating Company has determined that the proposed change meets the requirements of 10 CFR 50.92(c) and does not involve a significant hazards consideration.

#### ATTACHMENT 4

##### ENVIRONMENTAL CONSIDERATION JOSEPH M. FARLEY NUCLEAR PLANT ELECTRICAL POWER SYSTEM TECHNICAL SPECIFICATION CHANGES

SNC has determined that the proposed change to the Technical Specifications does not involve a significant hazards consideration and does not affect the types or amounts of any radiological or non-radiological effluents that may be released offsite. The proposed changes do not adversely affect plant safety since the probability of an accident is not affected, nor is there any effect on the consequences of any accident. No changes are being made in the types or amounts of any radiological or nonradiological effluents that may be released offsite. The proposed changes do not involve any other environmental impacts. No increase in individual or cumulative occupational radiation exposure will result from this change. Additionally, these changes do not involve the use of any resources not previously considered in the Final Environmental Statement related to the operation of Farley Nuclear Plant. Therefore, the proposed changes to the technical specifications will not significantly affect the quality of the environment.