

PROPOSED TECHNICAL SPECIFICATION CHANGES

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3.7 Auxiliary Electrical Systems

Applicability

Applies to the auxiliary electrical power systems.

Objectives

To specify conditions of operation for plant station power necessary to ensure safe reactor operation and combined availability of the engineered safety features.

Specifications

- 3.7.1 The reactor shall not be heated or maintained above 200°F unless the following conditions are met (except as permitted by Paragraph 3.7.2):
- A. Any one of the following combinations of power sources operable:
 - 1. Startup Transformer No. 1 and Startup Transformer No. 2.
 - 2. Startup Transformer No. 2 and Unit Auxiliary Transformer provided that the latter one is connected to the 22KV line from the switchyard rather than to the generator bus.
 - B. All 4160 V switchgear, 480 V load centers 480 V motor control centers and 120 V AC distribution panels in both of the ESAS distribution systems are operable and are being powered from either one of the two startup transformers or the unit auxiliary transformer.
 - C. Both diesel generator sets are operable each with:
 - 1. a separate day tank containing a minimum of 160 gallons of fuel,
 - 2. a separate emergency storage tank containing a minimum of 138 inches (20,000 gallons) of fuel,
 - 3. a separate fuel transfer pump, and
 - 4. a separate starting air compressor.
 - D. Both station batteries are operable and each is capable of supplying power to the 125V d-c distribution system. At least one battery charger associated with each station battery is operable.
 - E. At least 2 of 3 d-c control power sources to the 125V d-c switchyard distribution system are operable.
 - F. The off-site power undervoltage and protective relaying interlocks associated with required startup transformer power sources shall be operable per Table 3.5.1-1.
 - G. The selective load-shed features associated with Startup Transformer No. 2 shall be operable if selected for auto transfer.

3.7.2

- A. The specifications in 3.7.1 may be modified to allow one of the following conditions to exist after the reactor has been heated above 200F. Except as indicated in the following conditions, if any of these conditions are not met, a hot shutdown shall be initiated within 12 hours. If the condition is not cleared within 24 hours, the reactor shall be brought to cold shutdown within an additional 24 hours.
- B. In the event that one of the offsite power sources specified in 3.7.1.A (1 or 2) is inoperable, reactor operation may continue for up to 24 hours if the availability of the diesel generators is immediately verified.
- C. Either one of the two diesel generators may be inoperable for up to 7 days in any month provided that during such 7 days the operability of the remaining diesel generator is demonstrated immediately and daily thereafter, there are no inoperable ESF components associated with the operable diesel generator, and provided that the two sources of off-site power specified in 3.7.1.A(1) or 3.7.1.A(2) are available.
- D. Any 4160V, 480V, or 120V switchgear, load center, motor control center, or distribution panel in one of the two ESF distribution systems may be inoperable for up to 8 hours, provided that the operability of the diesel generator associated with the operable ESF distribution system is demonstrated immediately and all of the components of the operable distribution system are operable. If the ESF distribution system is not returned to service at the end of the 8 hour period, Specification 3.7.2.A shall apply.
- E. With no operable battery charger associated with one station battery, operation is allowed to continue for a period of 8 hours provided at least one battery charger is operable on the opposite train, after which Specification 3.7.2.A shall apply.
- F. One of the two station batteries and the associated distribution system may be inoperable for 8 hours provided that there are no inoperable safety related components associated with the remaining station battery which are redundant to the inoperable station battery and the operability of the diesel generator is verified immediately. If the battery is not returned to service at the end of the 8 hour period, Specification 3.7.2.A shall apply.
- G. Two control power sources from the plant to the switchyard and the attendant distribution system may be inoperable for 8 hours, after which Specification 3.7.2.A shall apply.
- H. If the requirements of Specification 3.7.1.G cannot be met, either:
 - (1) place all Startup Transformer No. 2 feeder breakers in "pull-to-lock" within 1 hour, restore the inoperable interlocks to operable status within 30 days, or submit within 30 days a Special Report pursuant to Specification 6.12.5 outlining the cause of the failure, proposed corrective action and schedule for implementation; or
 - (2) apply the action requirements of Table 3.5.1-1, Note 14.

- e. Diesel fuel from the emergency storage tank shall be sampled and found to be within acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water, and sediment.

5. Once every 31 days the pressure in the required starting air receiver tanks shall be verified to be ≥ 175 psig.

Once every 18 months, the capacity of each diesel oil transfer pump shall be verified to be at least 10 gpm.

4.6.2 Station Batteries and Switchyard Batteries

1. The voltage, temperature and specific gravity of a pilot cell in each bank and the overall battery voltage of each bank shall be measured and recorded daily.
2. Measurements shall be made quarterly of voltage of each cell to the nearest 0.01 volt, of the specific gravity of each cell, and of the temperature of every fifth cell in each bank. The level of the electrolyte shall be checked and adjusted as required. All data, including the amount of water added to any cell, shall be recorded.
3. Once every 18 months, a performance discharge test shall be conducted in accordance with the manufacturer's instructions, the purpose of determining battery capacity.
4. Any battery charger which has not been loaded while connected to its 125V d-c distribution system for at least 30 minutes during every quarter shall be tested and loaded while connected to its bus for 30 minutes.

4.6.3 Emergency Lighting

The correct functioning of the emergency lighting system shall be verified once every 18 months.

MARKUP OF CURRENT ANO-1 TECHNICAL SPECIFICATIONS

(FOR INFO ONLY)

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Objectives

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Specifications

- 3.7.1 The reactor shall not be heated or maintained above 200°F unless the following conditions are met (except as permitted by Paragraph 3.7.2):
- A. Any one of the following combinations of power sources operable:
 - 1. Startup Transformer No. 1 and Startup Transformer No. 2.
 - 2. Startup Transformer No. 2 and Unit Auxiliary Transformer provided that the latter one is connected to the 22KV line from the switchyard rather than to the generator bus.
 - B. All 4160 V switchgear, 480 V load centers ~~and~~ 480 V motor control centers and 120 V AC distribution panels in both of the ESAS distribution systems are operable and are being powered from either one of the two startup transformers or the unit auxiliary transformer.
 - C. Both diesel generator sets are operable each with:
 - 1. a separate day tank containing a minimum of 160 gallons of fuel,
 - 2. a separate emergency storage tank containing a minimum of 138 inches (20,000 gallons) of fuel,
 - 3. a separate fuel transfer pump, and
 - 4. a separate starting air compressor.
 - D. Both station batteries are operable and each is capable of supplying power to the 125V d-c distribution system. At least ~~2 of the 3 one battery chargers are~~ associated with each station battery is operable.
 - E. At least 2 of 3 d-c control power sources to the 125V d-c switchyard distribution system are operable.
 - F. The off-site power undervoltage and protective relaying interlocks associated with required startup transformer power sources shall be operable per Table 3.5.1-1.
 - G. The selective load-shed features associated with Startup Transformer No. 2 shall be operable if selected for auto transfer.

3.7.2

- A. The specifications in 3.7.1 may be modified to allow one of the following conditions to exist after the reactor has been heated above 200F. Except as indicated in the following conditions, if any of these conditions are not met, a hot shutdown shall be initiated within 12 hours. If the condition is not cleared within 24 hours, the reactor shall be brought to cold shutdown within an additional 24 hours.
- B. In the event that one of the offsite power sources specified in 3.7.1.A (1 or 2) is inoperable, reactor operation may continue for up to 24 hours if the availability of the diesel generators is immediately verified.
- C. Either one of the two diesel generators may be inoperable for up to 7 days in any month provided that during such 7 days the operability of the remaining diesel generator is demonstrated immediately and daily thereafter, there are no inoperable ESF components associated with the operable diesel generator, and provided that the two sources of off-site power specified in 3.7.1.A(1) or 3.7.1.A(2) are available.
- D. Any 4160V, 480V, or 120V switchgear, load center, motor control center, or distribution panel in one of the two ESF distribution systems may be inoperable for up to 8 hours, provided that the operability of the diesel generator associated with the operable ESF distribution system is demonstrated immediately and all of the components of the operable distribution system are operable. If the ESF distribution system is not returned to service at the end of the 8 hour period, Specification 3.7.2.A shall apply.
- E. With no operable battery charger associated with one station battery, operation is allowed to continue for a period of 8 hours provided at least one battery charger is operable on the opposite train~~Two station battery chargers may be inoperable for 8 hours, after which Specification 3.7.2.A shall apply.~~
- F. One of the two station batteries and the associated distribution system may be inoperable for 8 hours provided that there are no inoperable safety related components associated with the remaining station battery which are redundant to the inoperable station battery and the operability of the diesel generator is verified immediately. If the battery is not returned to service at the end of the 8 hour period, Specification 3.7.2.A shall apply.
- G. Two control power sources from the plant to the switchyard and the attendant distribution system may be inoperable for 8 hours, after which Specification 3.7.2.A shall apply.
- H. If the requirements of Specification 3.7.1.G cannot be met, either:
 - (1) place all Startup Transformer No. 2 feeder breakers in "pull-to-lock" within 1 hour, restore the inoperable interlocks to operable status within 30 days, or submit within 30 days a Special Report pursuant to Specification 6.12.5 outlining the cause of the failure, proposed corrective action and schedule for implementation; or
 - (2) apply the action requirements of Table 3.5.1-1, Note 14.

e. Diesel fuel from the emergency storage tank shall be sampled and found to be within acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water, and sediment.

5. Once every 31 days the pressure in the required starting air receiver tanks shall be verified to be ≥ 175 psig.

Once every 18 months, the capacity of each diesel oil transfer pump shall be verified to be at least 10 gpm.

4.6.2 Station Batteries and Switchyard Batteries

1. The voltage, temperature and specific gravity of a pilot cell in each bank and the overall battery voltage of each bank shall be measured and recorded daily.
2. Measurements shall be made quarterly of voltage of each cell to the nearest 0.01 volt, of the specific gravity of each cell, and of the temperature of every fifth cell in each bank. The level of the electrolyte shall be checked and adjusted as required. All data, including the amount of water added to any cell, shall be recorded.
3. Once every 18 months, a performance discharge test shall be conducted in accordance with the manufacturer's instructions, the purpose of determining battery capacity.
4. Any battery charger which has not been loaded while connected to its 125V d-c distribution system for at least 30 minutes during every quarter shall be tested and loaded while connected to its bus for 30 minutes. ~~The third battery charger, which is capable of being connected to either of the two 125V d-c distribution systems, shall be loaded while connected to each bus for at least 30 minutes every quarter.~~

4.6.3 Emergency Lighting

The correct functioning of the emergency lighting system shall be verified once every 18 months.