

3.10 LIMITING CONDITIONS FOR OPERATION

3. Emergency Buses

The emergency 4160 volt Buses 3 and 4, and 480 volt Buses 8 and 9 shall be energized and operable.

4. Off-Site Power

- a. At least one off-site transmission line and at least one start-up transformer in service.
- b. One of the following additional sources of delayed access power:

The main stepup transformer and unit auxiliary transformer available and capable of supplying power to the emergency 4160 volt buses or,

The 4160 volt tie line to Vernon Hydro-Electric Station capable of supplying power to either of the two emergency 4160 volt buses.

5. 480 V Uninterruptible Power Systems

Both 480 V Uninterruptible Power Systems (UPS-1A, UPS-1B) and their respective Motor Control Centers (89A, 89B) shall be energized and operable.

4.10 SURVEILLANCE REQUIREMENTS

3. Emergency Buses

The emergency 4160 volt buses and 480 volt buses shall be checked daily.

4. Off-Site Power

The status of the off-site power sources shall be checked daily.

5. 480 V Uninterruptible Power Systems

- a. The requirements of Specifications 4.10.A.2(a) and (b) shall be satisfied for each 480 V Uninterruptible Power System battery bank.
- b. Each Uninterruptible Power System battery bank shall be subjected to a performance discharge test every 5 years.

850 210346 850304
PDR ADOCK 05000271
P PDR

3.10 LIMITING CONDITIONS FOR OPERATION

4.10 SURVEILLANCE REQUIREMENTS

6. Reactor Protection System Power Protection

Two RPS power protection panels for each inservice RPS MG set or alternate power source shall be operable.

- c. Each 480 V Uninterruptible Power System shall be checked daily.
- d. 480 V Motor Control Centers 89A and 89B shall be checked daily.
- e. Once per operating cycle, the actual conditions under which the 480 V Uninterruptible Power Systems are required will be simulated and a test conducted to demonstrate equipment performance.

6. Reactor Protection System Power Protection

Once per operating cycle, the operability of each overvoltage, undervoltage, and underfrequency protective device shall be demonstrated by the performance of an instrument channel calibration test. Settings shall be verified to be in accordance with Table 4.10.1.

3.10 LIMITING CONDITIONS FOR OPERATION

3. Off-Site Power

- a. From and after the date that both startup transformers and one diesel generator or associated buses are made or found to be inoperable for any reason, reactor operation may continue provided the requirements of Specification 3.5.H.1 are satisfied.
- b. From and after the date that both delayed-access off-site power sources become unavailable, reactor operation may continue for seven days provided both emergency diesel generators, associated buses, and all low pressure core and containment cooling systems are operable.

4. 480 V Uninterruptible Power Systems

From and after the date that one Uninterruptible Power System or its associated Motor Control Center are made or found to be inoperable for any reason, the requirements of Specification 3.5.A.4 shall be satisfied.

5. RPS Protection System Power Protection

From and after the date that one or more of the RPS power protection panels on an inservice RPS MC set or an alternate power source is made or found to be inoperable, the panel shall be restored to operable status within 72 hours. If the panel cannot be restored to operable status within 72 hours, it shall be tripped.

4.10 SURVEILLANCE REQUIREMENTS

3. Off-Site Power

- a. When it is determined that one of the diesel generators or associated buses is inoperable, the requirements of Specification 4.5.H.1 shall be satisfied.
- b. When it is determined that both delayed access off-site power sources are unavailable, both diesel generators, associated buses and all low pressure core and containment cooling systems shall be demonstrated to be operable immediately and daily thereafter.

4. 480 V Uninterruptible Power System

When it is determined that one Uninterruptible Power System or its associated Motor Control Center is inoperable, the requirements of Specification 4.5.A.4 shall be satisfied.

3.10 LIMITING CONDITIONS FOR OPERATION

C. Diesel Fuel

There shall be a minimum of 25,000 usable gallons of diesel fuel in the diesel fuel oil storage tank.

4.10 SURVEILLANCE REQUIREMENTS

C. Diesel Fuel

1. The quantity of diesel generator fuel shall be logged weekly and after each operation of the unit.
2. Once a month a sample of diesel fuel shall be taken and checked for quality. The quality shall be within the applicable limits specified on Table I of ASTM D975-68 and logged.

VYNPS

Table 4.10.1

Reactor Protection System Power Protection

<u>Parameter</u>	<u>Setpoint</u>	
	<u>Panel A1, A2, B1, B2</u>	<u>Panel C1 and C2</u>
Overvoltage	≤ 125.5 volts	≤ 125.5 volts
Overvoltage Time Delay	≤ 0.35 seconds	≤ 4 seconds
Undervoltage	≥ 111 volts	≥ 111 volts
Undervoltage Time Delay	≤ 0.35 seconds	≤ 4.0 seconds
Underfrequency	≥ 56.5 Hz	≥ 56.5 Hz
Underfrequency Time Delay	≤ 0.35 seconds	≤ 0.35 seconds

AUXILIARY ELECTRIC POWER SYSTEMS

- A. The objective of this Specification is to assure that adequate power will be available to operate the emergency safeguards equipment. Adequate power can be provided by any one of the following sources: either of the startup transformers, backfeed through the main transformer, the 4160 volt line from the Vernon Hydroelectric Station or either of the two diesel generators. The backfeed through the main transformer and 4160 volt Vernon line are both delayed access off-site power sources. Backfeeding through the main transformer can be accomplished by disconnecting the main generator from the main transformer and energizing the auxiliary transformer from the 345 kV switchyard through the main transformer. The time required to perform this disconnection is approximately six hours. The 4160 volt line from the Vernon Hydroelectric Station can be connected to either of the two emergency buses within seconds by simple manual switching operation in the Main Control Room.

Two 480 V Uninterruptible Power Systems, each consisting of a battery bank, battery charger, and a solid state inverter, supply power to the LPCIS valves via designated Motor Control Centers. The 480 V Uninterruptible Power Systems are redundant and independent of any on-site power sources.

This Specification assures that at least two off-site and two on-site power sources, and both 480 V Uninterruptible Power Systems will be available before the reactor is taken beyond "just critical" testing. In addition to assuring power source availability, all of the associated switchgear must be operable as specified to assure that the emergency cooling equipment can be operated, if required, from the power sources.

Station service power is supplied to the station through either the unit auxiliary transformer or the startup transformers. In order to start up the station, at least one startup transformer is required to supply the station auxiliary load. After the unit is synchronized to the system, the unit auxiliary transformer carries the station auxiliary load, except for the station cooling tower loads which are always supplied by one of the startup transformers. The station cooling tower loads are not required to perform an engineered safety feature function in the event of an accident; therefore, an alternate source of power is not essential. Normally one startup transformer supplies 4160 volt Buses 1 and 3, and the other supplies Buses 2 and 4; however, the two startup transformers are designed with adequate capacity such that, should one become or be made inoperable, temporary connections can be made to supply the total station load (less the cooling towers) from the other startup transformer.

A battery charger is supplied for each battery. In addition, the two 125 volt station batteries and the two 24 volt ECCS instrumentation batteries each have a spare charger available. Since one spare 24 volt and one 125 volt charger are available, one battery charger can be allowed out of service for maintenance and repairs.

Power for the Reactor Protection System is supplied by 120 V ac motor generators with an alternate supply from MCC-8B. Two redundant, Class 1E, seismically qualified power protection panels are connected in series with each ac power source. These panels provide overvoltage, undervoltage, and underfrequency protection for the system. Setpoints are chosen to be consistent with the input power requirements of the equipment connected to the bus.

- B. Adequate power is available to operate the emergency safeguards equipment from either startup transformer or for minimum engineered safety features from either of the emergency diesel generators. Therefore, reactor operation is permitted for up to seven days with both delayed-access off-site power sources lost.

Each of the diesel generator units is capable of supplying 100 percent of the minimum emergency loads required under postulated design basis accident conditions. Each unit is physically and electrically independent of the other and of any off-site power source. Therefore, one diesel generator can be allowed out of service for a period of seven days without jeopardizing the safety of the station.