

3.10 LIMITING CONDITIONS FOR OPERATION

4.10 SURVEILLANCE REQUIREMENTS

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2. Battery Systems

The following battery systems shall be operable:

- a. The four Neutron Monitoring and Process Radiation Batteries, associated chargers, and 24 VDC Distribution Panels.
- b. The two main station battery systems consisting of:
 1. Battery A1, Battery Charger A or Spare Charger AB and Bus DC-1.
 2. Battery B1, Battery Charger B or Spare Charger AB and Bus DC-2.
- c. Two Switchyard Batteries each with one associated charger and its associated DC distribution panel.

- b. The undervoltage automatic starting circuit of each diesel generator shall be tested once a month.
- c. Once per operating cycle, the actual conditions under which the diesel generators are required to start automatically will be simulated and a test conducted to demonstrate that they will start within 13 seconds and accept the emergency load and start each load within the specified starting time. The results shall be logged.

2. Battery Systems

- a. Every week the specific gravity, temperature, level, and voltage of the pilot cell and overall battery voltage shall be measured and logged.
- b. Every three months the voltage of each cell, and temperature, level, and specific gravity of each cell, and overall battery voltage shall be measured and logged.
- c. Once per operating cycle each ECCS, AS-2, and Main Station battery shall be subjected to a Service (Load Profile) discharge test. The specific gravity and voltage of each cell shall be measured after the recharge at the end of the discharge test and logged.

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- d. Both ECCS Instrumentation batteries, associated chargers, and distribution panels.
- e. The Alternate Shutdown AS-2 battery, one of the two associated chargers, and DC Distribution panel DC-2AS.
- f. Both UPS batteries, associated Uninterruptible Power Supplies and MCC 89A and B.

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- d. Once every five years, each ECCS, UPS, AS-2, and Main Station Battery shall be subjected to a Performance (capacity) Discharge Test. This test will be performed in lieu of the Service Test requirements of 4.10.A.2.c above.
- e. Each 480 V Uninterruptible Power System shall be checked daily.
- f. 480 V Motor Control Centers 89A and 89B shall be checked daily.
- g. 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.

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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.

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.

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| 5. Reactor Protection System Power Protection

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

5. 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.

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- d. From and after the date that the AS-2 125 Volt battery system is made or found to be inoperable for any reason, continued reactor operation is permissible provided Diesel Generator DG1-1A control power is transferred to Station Battery B1 and a fire watch is established to inspect the cable vault a minimum of every two hours.
- e. From and after the date that one of the two 24 Volt Neutron Monitoring and Process Radiation Monitoring battery systems is found or made to be inoperable for any reason, continued reactor operation is permissible providing the minimum channel requirements of Sections 3.1 and 3.2 for the Neutron Monitoring and Process Radiation Monitoring systems are met.
- f. From and after the date that one of the two 125 volt Switchyard battery systems is found or made to be inoperable for any reason, continued reactor operation is permissible provided that the other 125 volt Switchyard battery system is operable.

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A battery charger is supplied for each battery. In addition, the two 125 volt station batteries have a spare charger available. Since one spare 125 volt station charger is available, one station 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.

4.10 (Continued)

Both diesel generators have air compressors and air receiver tanks for starting. It is expected that the air compressors will run only infrequently. During the monthly check of the units, each receiver will be drawn down below the point at which the compressor automatically starts to check operation and the ability of the compressors to recharge the receivers.

Following the tests of the units and at least weekly, the fuel volume remaining will be checked. At the end of the monthly load test of the diesel generators, the fuel oil transfer pump will be operated to refill the day tank and to check the operation of the pump. The day tank level indicator and alarm switches will be checked at this time.

The test of the diesels and Uninterruptible Power Systems during each refueling interval will be more comprehensive in that it will functionally test the system; i.e., it will check starting and closure of breakers and sequencing of loads. The units will be started by simulation of a loss of coolant accident. In addition, a loss of normal power condition will be imposed to simulate a loss of offsite power. The timing sequence will be checked to assure proper loading in the time required. Periodic tests between refueling intervals check the capability of the diesels to start in the required time and to deliver the expected emergency load requirements. Periodic testing of the various components plus a functional test at a refueling interval are sufficient to maintain adequate reliability.

- B. Although the Main Station, ECCS, AS-2, and UPS batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

The Performance Discharge test provides adequate indication and assurance that the batteries have the specified ampere hour capacity. The rate of discharge during this test shall be in accordance with the manufacturer's discharge characteristic curves for the associated batteries. The results of these tests will be logged and compared with the manufacturer's recommendation of acceptability.

The Service Discharge test provides a test of the batteries ability to satisfy the design requirements (battery duty cycle) of the associated DC system. This test will be performed using simulated or actual loads at the rates and for the durations specified in the design load profile.

- C. Logging the diesel fuel supply weekly and after each operation assures that the minimum fuel supply requirements will be maintained. During the monthly test for quality of the diesel fuel oil, a viscosity test and water and sediment test will be performed as described in ASTM D975-68. The quality of the diesel fuel oil will be acceptable if the results of the tests are within the limiting requirements for diesel fuel oils shown on Table 1 of ASTM D975-68.