ATTACHMENT

REVISED

TECHNICAL SPECIFICATION BASES

(Pages B3/4 8-14 through –17)

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION (Continued)

The 10-year Frequency is consistent with the recommendations of Regulatory Guide 1.108, paragraph 2.b, and Regulatory Guide 1.137, paragraph C.2.f.

SR 4.8.1.1.2.g

This SR provided assurance that any accumulation of sediment over time or the normal wear on the system has not degraded the diesels.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that: (1) the facility can be maintained in the shutdown or refueling condition for extended time periods, and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The alternate onsite emergency power source will be capable of being loaded with, but not limited to, one train of the following equipment: RHR, ECW, CCW, associated instrumentation, Control Room Makeup and Cleanup Filtration System and a 150-ton EAB Chiller. This alternate onsite emergency power source will be capable of being started and loaded in sufficient time to prevent the reactor coolant temperature from exceeding design limits.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," Revision 2, December 1979; 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977; and ASTM D975-81, ASTM D1552-79, ASTM D262282, ASTM D4294-83, and ASTM D2276-78. The standby diesel generators auxiliary systems are designed to circulate warm oil and water through the diesel while the diesel is not running, to preclude cold ambient starts. For the purposes of surveillance testing, ambient conditions are considered to be the hot prelube condition.

In order to ensure the ability of the batteries to perform their intended function, the batteries are normally maintained in a fully charged state and the environment in which the batteries are located is maintained within the parameters used to determine battery sizing and operation. Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values, and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates, and compares the battery capacity at that time with the rated capacity.

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION (Continued)

The Surveillance Requirements for demonstrating the OPERABILITY of the station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

The voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The seven-day Frequency is conservative with respect to manufacturer recommendations and IEEE-450 (Ref. 9).

SR 4.8.2.1.a

This action is performed on a nominal seven-day cycle and documents inspection of the battery and battery room condition to the following attributes:

- Charger output current and voltage,
- Pilot cell voltage, specific gravity and temperature (values-recorded)

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage, and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, are characteristic of a charged cell with adequate capacity. The seven-day frequency is conservative with respect to manufacturer, IEEE Std 450-1980 and regulatory guide recommendations.

SR 4.8.2.1.b

This action is performed on a nominal 92-day cycle and documents measurement of the battery parameters to include the following attributes:

- Voltage and specific gravity of each cell
- Electrolyte temperature of selected representative cells
- Connections are visually inspected and resistance measurement is performed only on a connection that appears to be loose or corroded

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage, and specific gravity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery. The 92-day frequency is consistent with manufacturer and regulatory guide recommendations.

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION (Continued)

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to seven days. During this seven-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

SR 4.8.2.1.c.1, 2 & 3

This action is performed on an 18-month (maximum) cycle and documents inspection of the battery to include the following attributes:

- Detailed visual inspection of each cell, including plate condition
- Detailed visual inspection of battery rack
- Bolted connections cleaned, coated with anti-corrosion material and retorqued
- Resistance of bolted connections measured and recorded

Visual inspection and resistance measurements of inter-cell, inter-rack, inter-tier, and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anticorrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection. The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR provided visible corrosion is removed during performance of SR. The surveillance frequency of 18 months exceeds the IEEE-450 recommendation of 12 months, and is consistent with extension of the refuel cycle to 18 months.

SR 4.8.2.1.c.4

This action is performed on an 18-month (maximum) cycle and documents the capability of the battery charger to supply rated current at 125 V for a period of eight hours. The battery charger supply is required to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied. The surveillance frequency is acceptable, and is intended to be consistent with the expected fuel cycle lengths.

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION (Continued)

SR 4.8.2.1.d

A battery service test is a special test of battery capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length should correspond to the design duty cycle requirements. The surveillance frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.129, which state that the battery service test should be performed during refueling operations, or at some other outage, with intervals between tests not to exceed 18 months.

SR 4.8.2.1.e

A battery performance discharge test is a test of constant current capacity of a battery, normally done in the "as found" condition, after having been in service, to detect any change in the capacity determined by the acceptance test. This test is intended to determine overall battery degradation due to age and usage. A modified performance discharge test is allowed in lieu of a service test once per 60 months.

The modified performance discharge test is a simulated duty cycle consisting of just two rates; the one minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

SR 4.8.2.1.f

The performance discharge test surveillance frequency for this test is normally 60 months. If the battery has reached 85% of its expected life, or if the battery capacity has decreased by 10 percent or more of the manufacturer's rating, the surveillance frequency is reduced to 18 months because the test must be performed during the refueling operations. The 18 month interval exceeds the IEEE-450 recommendation.

3/4.8.4 (Not Used)