

ATTACHMENT B

**SUPPLEMENT TO MARKED UP PAGES FOR
PROPOSED CHANGES TO APPENDIX A
TECHNICAL SPECIFICATIONS OF
FACILITY OPERATING LICENSES
NPF-37, NPF-66, NPF-72, AND NPF-77**

**BYRON STATION UNITS 1 & 2
REVISED PAGES:**

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**BRAIDWOOD STATION UNITS 1 & 2
REVISED PAGES:**

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ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 145 volts, by verifying that:

- 1) The parameters in Table 4.8-2 meet the Category B limits,
- 2) There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm*, and
- 3) The average electrolyte temperature of all connected cells is above 60°F.

c. At least once per 18 months by verifying that:

- 1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
- 2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,
- 3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm*, and
- 4) The battery charger will supply a load equal to the manufacturer's rating for at least 8 hours.

d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for 240 minutes when the battery is subject to a battery service test;

95% (AT+T) 80% (Gould)

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1.2d.;

or a modified performance discharge test

(AT+T) and the performance discharge test (Gould)

or modified performance discharge tests

5% (AT+T) 10% (Gould)

f. At least once per 18 months during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

capacity the

or modified performance test

100% (AT+T) 90% (Gould)

4.8.2.1.3 At least once per 12 hours, when in specification 3.8.2.1.c.(2), verify the total crosstie loading will not exceed 63 amps.

*Obtained by subtracting the normal resistance of: 1) the cross room rack connector (400×10^{-6} ohm, typical) and 2) the bi-level rack connector (50×10^{-6} ohm, typical); from the measured cell-to-cell connection resistance.

ELECTRIC POWER SYSTEMS

BASES

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

The Surveillance Requirement for demonstrating the OPERABILITY of the station batteries is 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."

ADD
INSERT
"D"

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, 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.

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, is characteristic of a charged cell with adequate capacity. 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.

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 7 days. During this 7-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 2.05 volts, ensures the battery's capability to perform its design function.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 95% (AT&T) 80% (Gould)
- e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1.2d; *Or a modified performance discharge test* *modified*
- (AT&T) and the performance discharge test (Gould)
- f. At least once per 18 months during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating. *Capacity* *the* *Or modified performance discharge tests*
- 5% AT&T 10% (Gould)
- Or modified performance test
- 100% (AT&T) 90% (Gould)
- 4.8.2.1.3 At least once per 12 hours, when in specification 3.8.2.1.c.(2), verify the total crosstie loading will not exceed 63 amps.

ELECTRIC POWER SYSTEMS

BASES

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

The Surveillance Requirement for demonstrating the OPERABILITY of the station batteries is 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."

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ATTACHMENT B (Continued)

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...The modified performance discharge test is described in the April 24, 1992 Draft Revision to IEEE Std 450, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications." It is permissible to perform a modified performance discharge test on the AT&T battery in lieu of a service test and a performance discharge test as required by Regulatory Guide 1.129, Regulatory Position C.1, because the test discharge rate envelopes the load cycle of the service test.

Verification of the crosstie loading limits in Specifications 3.8.2.1 and 3.8.2.2 ensures that the OPERABLE battery will have sufficient capacity to energize the design basis loads of its DC bus while maintaining the limited DC loads of the inoperable DC bus on a shutdown unit.

*NOTE: Highlighted change indicates supplement