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50-237

December 3, 1982

Mr. Paul O'Connor
Project Manager
Operating Reactor Branch No. 5
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Dresden 2
SEP Topic VIII - 3.A, Station Battery Capacity
Test Requirements

NRC Docket 50-237

Dear Mr. O'Connor:

10CFR50 (GDC18), as implemented by Regulatory Guide 1.129, requires periodic testing for determining battery capacity and demonstrating that the batteries will provide sufficient power under accident conditions. The staff proposes that the testing of the batteries be in accordance with IEEE Std. 450-1975 and IEEE Std. 308-1974. The Staff proposed tests are as follows:

1. At least once per 18 months, during shutdown, a battery service test should be performed to verify that the battery capacity is adequate to supply and maintain in operable status all of the actual emergency loads for two hours.
2. At least once per 60 months, during shutdown, a battery discharge test should be performed to verify that the battery capacity is a least 80% of the manufacturer's rating.

Each refueling outage the Dresden station batteries are subjected to a manufacturer rated capacity discharge test. The operating surveillance procedure DOS 6900-2, Battery Capacity Test verifies the capacity is equal to or greater than 85% of the manufacturer's rating every 18 months.

The 250 volt battery must have a minimum 842 ampere-hour rating. This is significantly greater than the FSAR required 722 ampere-hour rating. The station discharge capacity test involves discharging the battery at 100% design rating of 996 ampere-hours for a full 8 hours. For FSAR required loads, a service test would only consume 38% of the design battery rating after the first 30 minutes. For the remaining 3 hours and 30 minutes the service test would consume 35% of the battery capacity, representing a total 73% of the battery capacity for 4 hours. However, after 2 hours of a service test the discharge rate is 21% less than the station discharge capacity test for the remaining 6 hours.

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The 125 volt battery must have a minimum 423 ampere-hour rating with a design rating of 498 ampere-hours, once again in excess of the FSAR required 390 ampere-hour rating. Presently, the station capacity discharge test involves discharging the battery at a design rating of 498 ampere-hours for 8 hours at 62.3 amperes. The station has proposed to perform the discharge capacity test at an increased rate of discharge for 6 hours, representing a total 498 ampere-hours. This will increase the safety-margin of the discharge test for FSAR required loads for an additional 2 hours. A service test would only consume 8% of the design battery rating after the first 15 minutes. For the remaining 2 hours and 45 minutes the service test would consume 70% of the battery capacity, representing a total 78% of the battery capacity for 4 hours. Also, in the remaining 2 hours and 45 minutes, the discharge rate is the same under the Station capacity discharge test as it is for a service test. However, the last 2 hours of the proposed 6 hours station capacity discharge test consumes 24% more of the battery capacity representing a total 100% of the battery capacity at 498 ampere-hours.

In conclusion, the capacity discharge test demonstrates the ability of the battery system to deliver the FSAR required loads and to meet manufacturer's rating. Commonwealth Edison believes that the Station capacity discharge test as performed is more severe than the service test. Therefore, the capacity discharge test is more demanding and thus more conservative than a service test in determining the actual condition of the batteries to perform their intended functions. It has been demonstrated in the past that through various group isolations that the battery systems can handle FSAR required loads under high current discharge. The battery system is capable of starting and operating all required loads and is available during normal operation and following the loss of power from the alternating current system which is in accordance with IEEE 308-1974. Also, the battery system exceeds the frequency of testing under IEEE 450-1975 for every 5 years.

Please address any questions you may have concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this transmittal have been provided for your use.

Very truly yours,



Thomas J. Rausch
Nuclear Licensing Administrator
Boiling Water Reactors

SPPJ/rr
2549D

cc: RII Resident Inspector, Dresden
Gregg Cwalina, SEP Integrated Assessment Project Manager