



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 74 TO FACILITY OPERATING LICENSE NO. NPF-14 AND

AMENDMENT NO. 40 TO FACILITY OPERATING LICENSE NO. NPF-22

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NOS. 50-387 AND 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

1.0 INTRODUCTION

By letters dated June 10, 1987 and September 1, 1987, Pennsylvania Power & Light Company requested changes in Technical Specification 4.8.2.1.d.2.b to modify the load profiles for batteries 1D612, 1D622, 1D623 and 1D642. These changes were necessary to accommodate the installation of ATWS alternate rod injection solenoid valves and to recognize additional loads associated with emergency lighting. In support of the changed load profiles, the licensee indicated in its September 1, 1987 letter that the Unit 1 125 V dc batteries would be replaced by larger capacity batteries. Subsequently by letter dated September 24, 1987, the licensee requested to modify the previous request and confirmed that adoption of the revised battery load profiles stated in the Technical Specification amendment request can be adequately met by the existing batteries. The licensee also requested the approval of larger capacity batteries in the event that they are installed because the supporting evaluation would still apply.

The proposed changes consist of revisions to Technical Specification 4.8.2.1.d.2.b to modify the Channels A,B,C and D 125 VDC battery load profiles to the following:

- b) For 125-volt batteries\*
  - 1) Channel A battery 1D612
    - 343 amperes for 60 seconds
    - 114 amperes for the remainder of the 4 hour test
  - 2) Channel B battery 1D622
    - 344 amperes for 60 seconds
    - 116 amperes for the remainder of the 4 hour test
  - 3) Channel C battery 1D632
    - 318 amperes for 60 seconds
    - 100 amperes for the remainder of the 4 hour test
  - 4) Channel D battery 1D642
    - 336 amperes for 60 seconds
    - 117 amperes for the remainder of the 4 hour test

\* Previous ampere values were the following: Channel A 325/107; Channel B 323/105, Channel C 340/121, Channel D 323/104.

8711230351 871106  
PDR ADDCK 05000387  
P PDR

## 2.0 EVALUATION:

The licensee has proposed a revision to Technical Specification 4.8.2.1.d.2.b to change load profiles for 125 volt batteries to accommodate the installation of alternate rod injection system and additional loads for emergency lighting. In accordance with the licensee's Final Safety Analysis Report (FSAR) section 8.3.2.1.1.4 and IEEE Standard 450-1972, the Class 1E 125 Vdc battery system initial rated capacity/size selection is made 25 percent greater than the load requires to allow for degradation in output due to battery aging. The battery size calculation also considers the effect of the temperature environment in which the battery must operate. Capacity/size should be increased for temperatures below 77°F and can be decreased for temperatures above 77°F. However, battery capacity increases with increases in temperature are accompanied by decreases in battery life (accelerated aging) which is also a factor in the licensee's battery size/capacity/life program. IEEE 450 also prescribes recommended procedures for periodically conducting battery capacity tests to evaluate battery capability during its service lifetime. Recommendation is made to replace the battery when its capacity has decreased to 80 percent of its rated capacity (100 percent of design battery load). IEEE Standard 485-1978 recommends that the most severe service conditions to which a battery will be subjected be used to determine the battery size. Battery cell selection and sizing criteria and battery duty cycle (load profile) diagrams are provided in the standard. The licensee has verified that the batteries have adequate capacity to power the actual loads on the 125 V dc system. The licensee states that the new load profiles contained in the proposed amendment to the Technical Specifications envelop the actual loads.

The staff has reviewed the licensee's submittal and has found that the batteries conform to IEEE Standard 450-1972, and are adequately sized to supply the additional loads without a reduction in the margin of safety and, therefore, the proposed change is acceptable. The staff has also evaluated the addition of the new larger capacity batteries and has found that they are adequately sized to supply the additional loads and may be installed when satisfactory tests can be performed.

## 3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding.

Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of these amendments.

#### 4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (52 FR 26595) on July 15, 1987; a second notice was published (52 FR 35802) on September 23, 1987; and a third notice was published (52 FR 36849) on October 1, 1987; and consulted with the State of Pennsylvania. No public comments were received, and the State of Pennsylvania did not have any comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: N. Trehan and C. Woodard

Dated: November 6, 1987