



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 59 TO FACILITY OPERATING LICENSE NO. NPF-41,
AMENDMENT NO. 46 TO FACILITY OPERATING LICENSE NO. NPF-51,
AND AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NO. NPF-74
ARIZONA PUBLIC SERVICE COMPANY, ET AL.
PALO VERDE NUCLEAR GENERATING STATION, UNIT NOS. 1, 2, AND 3
DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

1.0 INTRODUCTION

By letter dated December 26, 1991, the Arizona Public Service Company (APS or the licensee) submitted a request for changes to the Technical Specifications (TS) for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3 (Appendix A to Facility Operating License Nos. NPF-41, NPF-51, and NPF-74, respectively). The Arizona Public Service Company submitted this request on behalf of itself, the Salt River Project Agricultural Improvement and Power District, Southern California Edison Company, El Paso Electric Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority. The proposed changes would revise the technical specifications to allow replacement of the existing 125V dc batteries with new batteries.

2.0 DISCUSSION

Two predominant problems developed with the existing Exide Corporation batteries after installation. First, the seal between the cover and the terminal posts was not entirely effective. When the electrolyte enters the positive post seal area and becomes trapped, corrosion of the post takes place. The corrosion builds up over time, and when the growth exerts enough pressure on the seal area, the plastic nut around the seal or the cell cover, or both, crack to relieve the pressure. The second problem was copper contamination. The battery posts are constructed of copper cast in lead. When there is a defect in the lead post casting that allows the electrolyte to penetrate the lead and contact the copper, electroplating occurs, removing copper from the copper insert in the position post and depositing it on the negative plates. Based on experience and guidance from Exide Corporation, Arizona Public Service Company (APS) concluded that both the cover cracks and copper contamination were indicative of the problems that could cause service degradation of the batteries. By letter dated December 26, 1991, the licensee proposed an amendment which would allow replacement of the existing Exide 125V dc batteries with AT&T batteries.

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3.0 EVALUATION

The licensee has proposed to modify Technical Specifications 3/4 8.2, DC Sources, Table 4.8-2, by splitting it into two sections, one for the existing (Exide) batteries and another for the replacement (AT&T) batteries. The split-table configuration will be maintained until both Trains A and B batteries are replaced.

The licensee has selected AT&T LINEAGE 2000 Round Cell Battery Model KS-20472 as the replacement battery. The battery will be installed on AT&T LINEAGE 2000 battery stand made of polyester glass and metal, reinforced to ensure seismic qualification.

The licensee has also proposed to amend Surveillance Requirement 4.8.2.1.b to consider overcharge voltage as "above 150V" instead of "above 145V" which is consistent with the manufacturer's suggested method of applying boost and equalizing charge and is, therefore, acceptable.

The licensee has also proposed to amend Surveillance Requirement 4.8.2.1.e and 4.8.2.1.f based on the IEEE-450 replacement criteria of 80% of manufacturer's rating; therefore, the battery's rated capacity should be at least 125% (1.25 aging factor) of the load expected at the end of its service life. The new replacement batteries are designed such that their capacity actually improves with age. The proposed surveillance requirement for AT&T batteries in 4.8.2.1.e is to verify that the battery capacity is at least 90% of the manufacturer's rating when subjected to a performance discharge test, and the proposed surveillance requirement in 4.8.2.1.f is that degradation is indicated when the battery capacity drops more than 5% of rated capacity. These surveillance requirements improve the current battery sizing design margin between load and battery rated capacity. They are conservative and are, therefore, acceptable.

The proposed Technical Specification would allow replacement of the existing 125V dc batteries with new batteries during each unit's refueling outage. Technical Specification 3.8.2.2 states that "As a minimum, one dc train shall be operable and energized." The battery replacement will be conducted with one dc train available, as required. We find this to be acceptable.

Because of their continuing problems, the existing Exide batteries are approaching the end of their useful life; therefore, it will be prudent to replace them with the new AT&T batteries. The replacement batteries are being purchased to meet the same requirements as the installed batteries and the performance of plant safety functions will not be degraded by the new batteries. The AT&T cell does not lose capacity with age, and therefore, it should last for the life of the plant.

4.0 SUMMARY

The licensee has proposed a revision to Technical Specification Section 3/4 8.2 which would allow replacement of the existing 125 V dc batteries with new batteries during each unit's refueling outage. The staff has reviewed the licensee's submittal and has concluded that Palo Verde Station can be operated safely with new batteries and there is reasonable assurance that adequate dc power will be available to mitigate any credible event that can occur during and after the replacement of batteries and, therefore, the proposed Technical Specification change is acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arizona State official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 surveillance requirements. The NRC 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (57 FR 2586). Accordingly, the 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 or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: March 6, 1992

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