



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 42 TO FACILITY OPERATING LICENSE NO. NPF-41
ARIZONA PUBLIC SERVICE COMPANY, ET. AL.
PALO VERDE NUCLEAR GENERATING STATION, UNIT 1
DOCKET NO. STN 50-528

1.0 INTRODUCTION

By letter dated December 23, 1988, the Arizona Public Service Company (APS) 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 (licensees), requested a change to the Technical Specifications for the Palo Verde Nuclear Generating Station, Unit 1 (Appendix A to Facility Operating License No. NPF-41). The proposed change would revise Surveillance Requirement 4.1.3.1.2 to exempt control element assembly (CEA) #64 from further exercise tests for the remainder of Cycle 2 operations (approximately 3 months).

The licensees requested that this proposed change be processed expeditiously because unnecessary challenges to plant safety would be avoided if the requested change is granted prior to the next required performance of the CEA exercise test. In accordance with the existing Technical Specifications, the next test would be required on or before January 14, 1989.

2.0 DISCUSSION AND EVALUATION

The NRC staff has evaluated the proposed changes and concludes that they are acceptable. The staff's evaluation is given below.

During the last three performances of the monthly CEA Exercise Test (41ST-1SF01) CEA #64 has experienced slippage. This results in perturbations in the core power distribution which could cause a reactor trip.

Licensee investigations have determined that the cause of the CEA slippage is an intermittent ground on the coil of the lower gripper assembly of CEA #64. The ground occurs immediately following the voltage increase associated with energizing the lower lift coil, thereby placing a load on the lower gripper assembly. The magnitude of the ground varies, so slippage does not occur on every movement of CEA #64. When slippage does occur it is because the ground is large enough to degrade coil voltage sufficiently to allow the lower gripper assembly to disengage from the CEA drive shaft. Slippage will then occur until the upper or lower gripper assembly sufficiently engages the drive shaft.

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Surveillance Requirement 4.1.3.1.2 requires that each full-length CEA not fully inserted and each part-length CEA which is inserted in the core shall have its operability determined by movement of at least 5 inches every 31 days. This CEA exercise test helps to ensure that CEAs are not untrippable due to excessive friction or mechanical interference. Adequate shutdown margin is assured if all CEAs are properly positioned and capable of dropping into the core when required.

The licensees stated in their submittal that all performances of the CEA motion test to date show that CEA #64 can be inserted into the core. Also, CEA #64 has fallen into the core as required during each of the six reactor trip events Unit 1 has experienced during the current operating cycle.

The licensees' analysis also stated the following:

"It is unlikely that an obstruction would develop between now and the end of the current cycle that would render CEA #64 untrippable. However, even if CEA #64 would not drop into the core when required, this condition is within the bounds of the safety analyses. All analyses in which shutdown CEA reactivity is critical require that the most reactive CEA be assumed to remain stuck outside the core (refer to Section 15.0.3.3.3 of the CESSAR FSAR). In addition, SHUTDOWN MARGIN (as defined in Technical Specification Bases Section 3/4.1.1) would not be adversely affected by this change because it is determined by considering a single malfunction resulting in the highest worth CEA failing to insert."

The staff concurs with the licensees' analysis. CEA #64 is part of shutdown group 'B' and is located on the periphery of the core. CEA #64 should remain trippable since the degraded lower gripper coil will remain de-energized during steady state operation and reactor trip events. The coil is only energized when CEA insertion or withdrawal is attempted. Therefore, shutdown margin would not be adversely affected by this change. However, should CEA #64 become stuck prior to the end of the current operating cycle, the question of adequate shutdown margin for continued operation would constitute an unreviewed safety question and would require a separate analysis.

Exempting CEA #64 from further rod motion testing for approximately three months until the end of the current operating cycle would eliminate the possibility of an unnecessary challenge to plant safety systems by precluding the possibility of a dropped CEA. The licensees plan to replace the lower gripper coil during the upcoming refueling outage.

On the basis of the above evaluation, the staff concludes that the proposed change to Technical Specifications Surveillance Requirement 4.1.3.1.2 is acceptable. Further, the staff agrees that exigent circumstances are present in that performance of the CEA exercise test would be an unnecessary challenge to plant safety.

3.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations if operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of any accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin or safety.

This amendment has been evaluated against the standards in 10 CFR 50.92. A discussion of these standards as they relate to the amendment request follows:

Standard 1 - Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change authorizes no design or operational changes. CEA #64 should remain capable of being inserted into the core when required. CEA #64 has been shown to be capable of insertion during all previous performances of the rod motion test and has fallen into the core during each of the six reactor trip events during the current operating cycle. Even if CEA #64 would not drop into the core as required, this condition is within the bounds of the safety analyses, which assume that the most reactive CEA remains stuck outside the core. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Standard 2 - Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment does not vary, affect or provide any physical changes to the facility. Therefore, it would not introduce new systems, modes of operation, failure modes or other plant perturbations. The lower gripper coil for CEA-64 would only be energized during CEA inward or outward motion. The coil is not energized when the reactor is tripped nor during steady state operation. Therefore, the requested Technical Specification change will not create the possibility of an accident or malfunction of a different type than those already evaluated in the FSAR.

Standard 3 - Involve a significant reduction in a margin of safety.

The requested amendment does not involve a significant reduction in a margin of safety because the proposed change does not affect the design basis of the plant. CEA #64 is expected to remain trippable for the remainder of the current operating cycle. In the event that it does not trip on demand, the safety analyses already address the condition where the single most reactive CEA fails to drop into the core during design basis events.

The staff, therefore, has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration.

Accordingly, the Commission has determined that this amendment involves no significant hazards considerations.

4.0 CONTACT WITH STATE OFFICIAL

The Arizona Radiation Regulatory Agency has been advised of the proposed determination of no significant hazards consideration with regard to this change. No comments were received.

5.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves changes to surveillance requirements of a facility component located within the restricted area as defined in 10 CFR Part 20.

The staff has determined that the amendment involves 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 amendment involves no significant hazards consideration and there has been no public comment on such finding. According, the amendment meets 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 to be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

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, (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. We, therefore, conclude that the proposed change is acceptable.

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Dated: January 13, 1989

