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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 66 TO FACILITY OPERATING LICENSE NO. NPF-41,

AMENDMENT NO. 52 TO FACILITY OPERATING LICENSE NO. NPF-51,

AND AMENDMENT NO. 39 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 September 9, 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 change would remove the feature which causes the shutdown cooling isolation valves to automatically close on rising reactor coolant system pressure. Additional information, which was not outside the scope of the proposed no significant hazards consideration determination, was submitted by letter dated September 3, 1992.

2.0 DISCUSSION AND EVALUATION

The proposed changes would remove the Auto-Closure Interlock (ACI) and strengthen administrative procedures. Over the past several years, there has been increased effort to improve the reliability of the shutdown cooling system (SDCS) in pressurized water reactors. It was recognized that ACIs on suction isolation valves of the SDCS have been a frequent cause of loss of SDCS events. The present Technical Specification requires surveillance of the ACI. The proposed changes would delete this requirement but retain the surveillance of the Open Permissive Interlock (OPI). The Palo Verde Units 1, 2, and 3 currently have an alarm on the SDCS isolation valve position. These alarms will be tested at each refueling.

The staff review of this issue has focused on the effect that the proposed change has on the Event V (inter-system LOCA outside of containment) sequence and on the availability of the SDCS. We have reviewed the licensee's PRA

analysis of the Event V sequence. We have reviewed and approved the removal of the ACI for several other plants. Most of the plants for which ACI removal has been approved did not have the alarm on the SDCS isolation valve position. Thus, they were removing the ACI and adding the alarm as well as administrative controls. Since Palo Verde already had the alarm, only the administrative controls will be added.

Combustion Engineering performed the evaluation of the removal of the ACI as a means to improve shutdown cooling for Palo Verde Units 1, 2, and 3. The evaluation addresses the seven guidelines for ACI removal recommended by the NRC in a memorandum from B. W. Sheron dated January 28, 1985.

1. The means available to minimize Event V concerns. The PVNGS design provides a double barrier between the RCS and the SDC system. Procedural controls, training, alarms and the OPI minimize the potential that the double barrier will not be available. In addition, there is a third isolation valve in each SDCS line, located just outside containment.

2. Alarms to notify the operator that SDCS suction valves are mispositioned. Visual and audible alarms are provided in the main control room to inform the operator that any of the SDC system suction valves are not fully closed when the RCS pressure is above the SDC system pressure setpoint. The alarms will be tested at each refueling to ensure reliability and are designed to alert the operator upon alarm circuit failure.

3. Verification of the Adequacy of Relief Valve Capacity. Original design calculations to ensure that relief devices in the SDCS suction lines have adequate capacity to prevent overpressurization of the SDCS have been reviewed to confirm that ACI was not credited in the selection of limiting events or mitigation of the resulting transients.

4. Means other than ACI to ensure that both isolation valves are closed. The proposed modification uses alarms, position indication, procedures, and training to ensure that the double barrier is established upon heatup.

5. Assurance that the OPI is not affected by the change. The OPI function will be maintained in its present form.

6. Assurance that valve position indication will remain available in the control room after the change. The proposed change does not affect the existing valve position indication in the control room. The position indication is independent of the alarms.

7. Assessment of the effect of ACI removal on SDCS availability and LTOP. Combustion Engineering performed an analysis on the impact of removing the ACI from the SDCS. The analysis was performed to determine the

change in Interfacing System LOCA (ISLOCA) frequency, the change in SDCS unavailability and the impact on mitigating LTOP events due to removal of the ACI.

ISLOCA Results

The results indicate no change in the ISLOCA probability when the ACI is removed.

SDCS Unavailability Results

With the removal of the ACI the SDCS unavailability changes from 5.05E-02 to 3.08E-02. This change represents a 39% decrease in unavailability during refueling.

Mitigating LTOP Events

Palo Verde Units 1, 2, and 3 employ six-inch valves in the SDCS with sufficient capacity to mitigate LTOP events that may occur during shutdown cooling operations. Because these valves are located downstream of the inside containment SDCS suction valves, inadvertent closure of the SDCS valves by ACI will isolate the relief valves and eliminate protection of the RCS piping if an LTOP event occurs. Since the removal of the ACI decreases the unavailability of the SDCS, the number of inadvertent closures of the SDCS decreases and the availability of the relief valves (for LTOP protection) increases.

The staff finds that the removal of the ACI produces a safety benefit in the SDCS availability and no change in the ISLOCA frequency. Thus the total impact is a safety benefit and is acceptable.

3.0 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.

4.0 PUBLIC COMMENTS

Allen L. Mitchell and Linda E. Mitchell filed a petition (Mitchell Petition) to intevene on November 26, 1991, alleging that the proposed amendment requests involve significant hazards considerations. The Mitchell Petition gave no reasons for the NRC staff to consider and was dismissed with prejudice by the Atomic Safety and Licensing Board on March 4, 1992 (35 NRC 107 (1992)).

5.0 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 change 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 published a proposed determination that the amendments involve no significant hazards consideration (56 FR 55942). The Mitchell Petition alleged that the amendments involved significant hazards considerations, but provided no reasons for the staff to assess. Thus, the NRC staff's proposed no significant hazards consideration determination remains undisputed. 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 these amendments.

6.0 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: October 7, 1992