

November 27, 1990

Mr. William F. Conway
Executive Vice President, Nuclear
Arizona Public Service Company
P. O. Box 53999
Phoenix, Arizona 85072-3999

Dear Mr. Conway:

SUBJECT: NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT FOR PALO VERDE
NUCLEAR GENERATING STATION, UNIT NO. 1 (TAC NO. 79071)

Enclosed for your information is a copy of a Notice of Consideration of
Issuance of Amendment to Facility Operating Licenses and Proposed No
Significant Hazards Consideration Determination and Opportunity for Hearing
related to your application dated November 14, 1990, to revise the technical
specifications relating to the next inspection of steam generator tubes.

This notice has been forwarded to the Office of the Federal Register for
publication.

Sincerely,

original signed by Lawrence E. Kokajko
Charles M. Trammell, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
Notice

cc w/enclosure:
See next page

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Mr. William F. Conway
Arizona Public Service Company

Palo Verde

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UNITED STATES NUCLEAR REGULATORY COMMISSIONARIZONA PUBLIC SERVICE COMPANY, ET AL.DOCKET NO. 50-528PALO VERDE NUCLEAR GENERATING STATION, UNIT NO. 1NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO
FACILITY OPERATING LICENSE AND PROPOSED NO SIGNIFICANT HAZARDS
CONSIDERATION DETERMINATION AND OPPORTUNITY FOR HEARING

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-41, issued to Arizona Public Service Company, Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power and Southern California Public Power Authority (licensees), for operation of the Palo Verde Nuclear Generating Station, Unit No. 1, located in Maricopa County, Arizona.

The proposed amendment would extend the date for the next regular inspection of steam generator tubes. This amendment was requested by the licensee's letter of November 14, 1990.

Before issuance of the proposed license amendment, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the request for amendment involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant

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increase in the probability or consequences of an 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 of safety.

The licensee has provided an analysis that addressed the above three standards in the amendment application. The NRC staff has reviewed the licensee's analysis as follows:

1. The proposed Technical Specification amendment will not increase the probability or consequences of an accident previously evaluated because the Unit 1 steam generator tubes have been eddy current examined on four previous occasions since 1981. The most recent examination was July 1989, with 100 percent of the tubes being examined. The results of the examination determined that the indications identified are primarily associated with mechanical wear as opposed to chemistry or corrosion problems. The mechanical wear is due to vibration associated with normal plant operation. The overall results of the examination are very good, in that after completion of the second fuel cycle, the total number of degraded and/or defective tubes was minimal (19 tubes being plugged) and no significant wear patterns were observed.

Since the July 1989 eddy current examination, Unit 1 was shutdown until June 1990. During this time there was no mechanical wear that could contribute to tube degradation. Also during this shutdown period, chemistry control was maintained in accordance with plant procedures which dictates strict adherence to prescribed lay-up practices and specifications.

The Unit 1 steam generators entered wet-layup conditions on April 15, 1989. Other than the nitrogen overpressure not being maintained within specifications because of the main steam isolation valve (MSIV) work undertaken and the wet-layup recirculation line out of service for rework, the remaining chemistry control was well maintained with only a few instances when chemistry analyses indicated out of specification conditions. The pH was slightly low (SG #1) at 9.7 (specification is 9.8 to 10.5) on May 5, 1989. Chloride, sulfate, and sodium were well below the 1.0 ppm specification limit during the entire period. Hydrazine ranged from 81 to 176 ppm with an average of 123 ppm (75-200 ppm is the range).

The two occurrences of possible concern were the lack of a nitrogen overpressure while the MSIV work was undertaken and the lack of sampling between September 25, 1989 and November 16, 1989. During wet-layup, steam generator sampling is accomplished via the wet-layup recirculation line. This line was out of service due to repair of a valve in the recirculation system. The first hydrazine analysis after this period showed no appreciable depletion in hydrazine concentration. Subsequent samples taken after restoration of the recirculation system showed a slight change from 155 to 123 ppm. Similar conditions existed for SG#2 during this time period with hydrazine still well within the band of 75 to 200 ppm as prescribed in procedure 74AC-9CY04. And again the sodium, chloride, and sulfate were well within the wet-layup specification. Both steam generators had hydrazine contents of at least 80 ppm, with chloride, sulfate, and sodium below the 1 ppm limit. Both steam generators had one day where the pH dropped below the specified 9.8.

The concern with the lack of nitrogen overpressure and wet-layup chemistry would be the potential impact of corrosion on the steam generator. In order to evaluate this possibility, an evaluation was undertaken by the steam generator manufacturer.

The materials of construction for the steam generators are grouped in the following categories:

- Alloy 600 is used for the heat transfer steam generator tubes.
- Ferritic stainless steel (type 405 or 409) used for eggcrates, batwings and flow distribution plate.
- Low alloy steels or carbon steel is used for tubesheet stay, shells, baffles, dryers and separators.

In summary, the lack of nitrogen overpressure surveillance when considered in conjunction with the remaining wet-layup chemistry is not expected to have any adverse corrosion effects. Specifically, pitting should not occur in the Alloy 600 tubing. Although the water was exposed to oxygen, the pH was maintained between 9.8 and 10.5, (except for one day where the pH dropped to 9.7) above which should prevent copper chloride (CuCl_2) induced pitting of Alloy 600 tubing. Therefore, general corrosion is not a problem with Alloy 600 at these shutdown conditions.

General corrosion is also not a problem with ferritic stainless steels containing at least 11 percent chromium (Cr) at these shutdown conditions.

General corrosion is a concern with low alloy and carbon steel surfaces exposed to the vapor phase during wet-layup if sufficient nitrogen overpressure

is not maintained. It is assumed that atmospheric air would eventually replace the nitrogen originally present. As such, the presence of oxygen in the vapor space permits the oxidation of the protective magnetite (Fe_3O_4) to the less protective hematite (Fe_2O_3 - rust). At startup, this will add to the amount of material that must be processed and removed. In the immersed section, general corrosion of the carbon and low alloy steels will not occur due to the high pH and the presence of hydrazine.

The presence of oxygen in the vapor space of the steam generators during shutdown should not affect the integrity of the system. Its presence however, is expected to increase the general corrosion to the exposed carbon steel and low alloy steel surfaces and create more sludge.

The accident or event of concern regarding the steam generators would be a steam generator tube rupture (SGTR). The radiological releases calculated for a SGTR event with a loss of offsite power and a fully stuck open atmospheric dump valve (ADV) are well within the guidelines of 10 CFR Part 100. The RCS and secondary system pressures are well below 110 percent of the design pressure limits, thus assuring the integrity of these systems.

Additionally, no violation of the fuel thermal limits occurs, since the minimum DNBR remains above the 1.24 value throughout the duration of the event.

Based on the July 1989 100 percent eddy current examination, where no significant wear patterns or corrosion buildup was observed and the fact that chemistry was maintained during wet-layup, the proposed change will not increase the probability of an accident previously evaluated. The proposed change will

not increase the consequences of an accident previously evaluated due to the fact that in the event of a steam generator tube rupture the calculated radiological releases are well within the guidelines of Part 100.

2. The proposed Technical Specification amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated because the Chapter 15 analysis assumes that the plant is challenged by a SGTR that includes additional events and failures beyond those postulated by the NRC Standard Review Plan (SRP) 15.6.3. In addition to the conservative assumptions of the SRP (loss of offsite power, iodine spiking, etc.), this analysis postulates that the operators open an ADV on the affected steam generator and that it both runs to the full open position and sticks full open for the duration of the transient. The results of which are well within the guidelines of 10 CFR Part 100 for any radiological releases and the RCS and secondary system pressures are well below the design pressure limits. Therefore the proposed Technical Specification amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed Technical Specification amendment does not involve a significant reduction in a margin of safety because no changes are being made to the way the facility is being operated. Thus, no new failure modes are being introduced.

If a SGTR were to occur, diagnosis of the event is facilitated by radiation monitors, which initiate alarms and inform the operator of abnormal levels and that corrective operator action is required. Additional diagnostic information is provided by RCS pressure and pressurizer level response indicating a leak, and by level response in the affected steam generator.

The most limiting SGTR event is for a leak flow equivalent to a double-ended rupture of a U-tube at full power conditions. This event has been analyzed for Palo Verde (UFSAR Section 15.6.3) and concludes that the resultant radiological releases are well within 10 CFR 100 guidelines and the RCS and secondary system pressures are well below 110 percent of the design pressure limits and no violation of the fuel thermal limits occurs. Therefore, the proposed Technical Specification amendment will not involve a significant reduction in a margin of safety.

Therefore, based on the above considerations, the Commission has made a proposed determination that the request for amendment involves no significant hazards consideration.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination. The Commission will not normally make a final determination unless it receives a request for a hearing.

Written comments may be submitted by mail to the Regulatory Publications Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room P-223, Phillips Building, 7920 Norfolk Avenue, Bethesda, Maryland, from 7:30 a.m. to 4:15 p.m. Copies of written comments received may be examined at the NRC Public Document Room, the Gelman Building, 2120 L Street N.W., Washington, D.C. The filing of requests for hearing and petitions for leave to intervene is discussed below.

By January 3, 1991, the licensees may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written petition for leave to intervene. Requests for a hearing and petitions for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. Interested persons should consult a current copy of 10 CFR 2.714 which is available at the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C. 20555 and at the local public document room located at the Phoenix Public Library, 12 East McDowell Road, Phoenix, Arizona 85004.

If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR§2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may