September 9, 1999

Mr. Gregg R. Overbeck
Senior Vice President, Nuclear
Arizona Public Service Company
P. O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, AND 3 - NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR HEARING (TAC NOS. MA5685, MA5686, AND MA5687)

Dear Mr. Levine:

The Commission has requested the Office of the Federal Register to publish the enclosed notice in the *Federal Register*. This notice relates to your application for amendments dated June 8, 1999. The proposed amendments would increase spent fuel pool storage capacity by crediting soluble boron and decay time in the safety analysis for the spent fuel pool storage racks and increase the maximum radially averaged fuel enrichment from 4.3 weight percent to 4.8 weight percent.

Sincerely,

ORIG. SIGNED BY
Nageswaran Kalyanam, Project Manager, Section 2
Project Directorage IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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Docket Nos. STN 50-528, STN 50-529,
and STN 50-530

Enclosure: Notice

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 9, 1999

Mr. James M. Levine
Senior Vice President, Nuclear
Arizona Public Service Company
P. O. Box 53999
Phoenix, AZ 85072-3999

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, AND 3 - NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR HEARING (TAC NOS. MA5685, MA5686, AND MA5687)

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Nageswaran Kalyanam, Project Manager, Section 2
Project Directorage IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529,
and STN 50-530

Enclosure: Notice

cc w/encl: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION

ARIZONA PUBLIC SERVICE COMPANY

DOCKET NO. STN 50-528, STN 50-529, AND STN 50-530

NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR A HEARING

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to Facility Operating Licenses Nos. NPF-41, NPF-51, and NPF-74 issued to Arizona Public Service Company for operation of the Palo Verde Nuclear Generating Station Units 1, 2, and 3 located in Maricopa County, Arizona.

The proposed amendments would revise Technical Specification (TS) 3.7.15, "Fuel Storage Pool Boron Concentration," TS 3.7.17, "Spent Fuel Assembly Storage," and TS 4.3.1, "Criticality," to increase spent fuel pool storage capacity by crediting soluble boron and decay time in the safety analysis for the spent fuel pool storage racks. The proposed amendments would also increase the maximum radially averaged fuel enrichment from 4.3 weight percent to 4.8 weight percent.

Before issuance of the proposed license amendments, 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 amendment request 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 amendments would not (1) involve a significant increase in the probability or consequences of an accident

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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. As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

> Standard 1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?
>
> No. Analyses to support the proposed amendment have been developed using conservative methodology. An analysis and review of relevant plant operations shows that there is no significant increase in the probability of an accident previously evaluated. The analysis of the potential events and of the increase in fuel enrichment discussed below also show that there is no significant increase in the consequences of an accident previously evaluated.
>
> The fuel handling accident described in the Updated Final Safety Analysis Report (UFSAR) section 15.7.4, "Radiological Consequences of Fuel Handling Accidents" was reviewed for this proposed amendment. The fuel handling accident that is of concern in the UFSAR is the dropping of a single fuel assembly during fuel handling. Changing the fuel assembly storage array and burnup versus enrichment criteria, crediting soluble boron in the spent fuel pool, and increasing enrichment does not [a]ffect the method of handling spent fuel or the design of the fuel handling equipment. The fuel assembly design (clad material and structural components) is not affected by this change. Therefore, this change will not increase the probability that a fuel handling accident will occur.
>
> The current fuel handling accident analysis for Palo Verde assumes a TID-14844 (Technical Information Document), "Calculation of Distance Factors for Power and Test Reactor Sites" equilibrium source term. The TID-14844 equilibrium source term is based on rated core thermal power and an infinite cycle. Therefore, the source term is independent of fuel assembly enrichment and fuel cycle length. As such, the proposed increase in maximum radially averaged enrichment for fuel assemblies stored in the spent fuel storage racks and the new fuel storage racks from 4.3 weight percent to 4.8 weight percent does not affect the dose calculation for the Palo Verde fuel handling accident analysis. Changing the fuel assembly storage array and burnup versus enrichment criteria, crediting soluble boron in the spent fuel pool, and increasing enrichment does not affect the spent fuel pool water level, water depth over a damaged fuel assembly, or the systems (e.g., fuel building essential ventilation system and radiation monitoring system) that may be available to reduce the doses associated with the current fuel handling accident analysis for Palo Verde. The radiological consequences of the fuel handling accident discussed in UFSAR section 15.7.4.1 remain bounding with these changes and are less than 10 CFR 100 limits, and therefore, this change will not increase the consequences of a fuel handling accident.
>
> Fuel assembly placement in the spent fuel pool will continue to be controlled by approved procedures and in accordance with the Technical Specification fuel storage

configuration limits as it currently is. Therefore, this change will not increase the probability of an accidental misloading of a fuel assembly in the spent fuel pool.

The consequences of a single fuel assembly misloaded into a region in the spent fuel pool intended for a less reactive fuel assembly were reviewed based on the proposed amendment. The maximum increase in the spent fuel pool effective multiplication factor (k_{eff}) due to a single misloaded fuel assembly was one of the factors used to determine the minimum soluble boron credit requirement. The minimum soluble boron credit required to maintain k_{eff} [less than or equal to] 0.95 (including all biases and uncertainties) assuming the most limiting single fuel assembly misloading event was determined to be 900 ppm. This is much less than the Technical Specification 3.7.15, "Fuel Storage Pool Boron Concentration" minimum boron requirement of 2150 ppm. Therefore, taking credit for soluble boron in the spent fuel pool to offset an increase in the number of fuel assemblies stored in the spent fuel pool and increasing maximum radially averaged enrichment does not [a]ffect the consequences of a fuel assembly misloading event since the k_{eff} for the spent fuel pool remains less than 0.95.

The spent fuel pool cooling requirements are described in UFSAR section 9.1.3, "Spent Fuel Pool Cooling and Cleanup System." The design basis of the spent fuel cooling system is to provide adequate cooling to the spent fuel during all operating conditions (including full core offload) for up to 1205 fuel assemblies. The proposed amendment will increase the spent fuel pool storage limit [to] 1205 assemblies. This change does not affect the design basis spent fuel pool heat load calculation since the spent fuel pool will be limited to the design basis limit of 1205 fuel assemblies. This change does not affect the operation or function of the spent fuel pool cooling system. Therefore, since the design basis and operation of the spent fuel pool cooling system are not affected by this change, this change will not increase the probability or the consequences of a loss of spent fuel pool cooling event.

Technical Specification 4.3.1.2 requires that the new fuel storage racks be designed and maintained with a k_{eff} [less than or equal to] 0.95 when fully flooded with unborated water and k_{eff} [less than or equal to] 0.98 if moderated with aqueous foam (including all biases and uncertainties). The current analysis of record assumes a maximum radially averaged fuel enrichment of 4.3 weight percent to determine that the k_{eff} for the new fuel storage racks met these limits. A new analysis was performed to determine that the proposed increase in maximum radially averaged enrichment (i.e., from 4.3 to 4.8 weight percent) would still meet the limits. The new analysis conservatively assumed a radially averaged enrichment of 5.0 weight percent U-235. Using a maximum radially averaged fuel enrichment of 5.0 weight percent U-235, the new analysis determined that the k_{eff} for the new fuel storage racks would continue to be [less than or equal to] 0.95 when fully flooded with unborated water and [less than or equal to] 0.98 if moderated by aqueous foam (including all biases and uncertainties). The increased radially averaged enrichment will not affect the requirement to maintain the new fuel subcritical (Technical Specification 4.3.1.2.b and c) when stored in the new fuel storage racks. There will be no dose consequences associated with these changes, since the new fuel will continue to remain subcritical at all times. Therefore, since the criticality requirements are maintained, this change will not involve a significant increase in the probability or consequences of a criticality event in the new fuel storage racks.

The current analysis of record for the new fuel elevator, the fuel upender and transfer machine, and the intermediate fuel storage rack assumes a maximum radially averaged fuel enrichment of 4.3 weight percent with a resultant k_{eff} in unborated water of [less than or equal to] 0.95. Using a radially averaged enrichment of 5.0 weight percent, the new analysis determined that the k_{eff} in unborated water would continue to be [less than or equal to] 0.95 (including all biases and uncertainties). The increased radially averaged enrichment will not affect the requirement to maintain the fuel subcritical when in the new fuel elevator, the fuel upender and transfer machine, or the intermediate fuel storage rack. There will be no dose consequences associated with these changes, since the fuel will continue to remain subcritical at all times. Therefore, since the criticality requirements are maintained, this change will not involve a significant increase in the probability or consequences of a criticality event in this equipment.

Therefore, the proposed change crediting soluble boron and the increased maximum radially averaged enrichment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

Standard 2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed amendment credits the negative reactivity associated with some of the soluble boron present in the spent fuel pool. Based on these changes, an analysis was performed to verify that the Palo Verde design has sufficient margin to detect and mitigate a boron dilution of the spent fuel pool prior to exceeding the spent fuel pool k_{eff} limit of 0.95 (including all biases and uncertainties). The analysis determined that the most limiting boron dilution event was a fire in the fuel building. Assuming a spent fuel pool average bulk boron concentration of 2150 ppm (Technical Specification 3.7.15), this event would result in boron dilution to a minimum average bulk boron concentration of 1900 ppm. This is much greater than the minimum 900 ppm boron concentration required to maintain k_{eff} [less than or equal to] 0.95 (assuming the most limiting single fuel assembly misloading event). Therefore, the spent fuel pool will remain subcritical following a boron dilution event. The analysis shows that there is no credible boron dilution event that would result in an inadvertent criticality in the spent fuel pool. In addition, the criticality analysis shows that even if the spent fuel pool were filled with unborated water, the spent fuel pool would remain subcritical.

Taking credit for soluble boron does not make any change to the design or operation of the spent fuel racks, fuel assemblies, fuel handling equipment, or plant systems that can deliver non-borated water to the spent fuel pool. Increasing the maximum allowable radially averaged enrichment of the fuel assemblies in storage does not make any change to the design or operation of the fuel assemblies except to increase the allowed reactivity and fission product inventory of future assemblies, both of which are bounded by the new criticality analyses and the current fuel handling accident analysis (UFSAR 15.7.4). Since system interfaces and operating characteristics remain the same, no new fuel handling-related accident can be postulated.

Therefore, the proposed change crediting soluble boron and the increased maximum radially averaged enrichment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Standard 3. Does the proposed change involve a significant reduction in a margin of safety?

No. The Technical Specification changes in the proposed amendment, the proposed spent fuel pool storage configuration, and the Technical Specification 3.7.15 requirement for minimum spent fuel boron concentration provide sufficient safety margin to ensure that the fuel assemblies stored in the spent fuel pool will remain subcritical. The criticality analysis, performed using the approved NRC methodology, shows that the minimum spent fuel pool soluble boron concentration in current Technical Specifications (2150 ppm) will maintain k_{eff} less than the maximum limit of 0.95. The criticality analyses determined that even with the spent fuel pool filled with unborated water, k_{eff} would remain below 1.0 (including all biases and uncertainties). Soluble boron is used to offset uncertainties, tolerances, and off-normal conditions and to provide subcritical margin so that the spent fuel pool k_{eff} will remain less than or equal to 0.95 at all times. A boron dilution was also evaluated and it was determined that the spent fuel pool boron concentration could not be reduced below the minimum boron concentration (900 ppm) required by the criticality analysis. Therefore, even with a boron dilution event the spent fuel pool k_{eff} will remain less than or equal to 0.95.

Therefore, the proposed change crediting soluble boron and the increased maximum radially averaged enrichment does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request 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.

Normally, the Commission will not issue the amendments until the expiration of the 30-day notice period. However, should circumstances change during the notice period such that failure to act in a timely way would result, for example, in derating or shutdown of the facility, the Commission may issue the license amendments before the expiration of the 30-day notice period, provided that its final determination is that the amendment involves no significant hazards consideration. The final determination will consider all public and State comments

received. Should the Commission take this action, it will publish in the FEDERAL REGISTER a notice of issuance and provide for opportunity for a hearing after issuance. The Commission expects that the need to take this action will occur very infrequently.

Written comments may be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room 6D59, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, from 7:30 a.m. to 4:15 p.m. Federal workdays. Copies of written comments received may be examined at the NRC Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC.

The filing of requests for hearing and petitions for leave to intervene is discussed below.

By October 20, 1999, the licensee may file a request for a hearing with respect to issuance of the amendments 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 request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition 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, NW., Washington, DC, and at the local public document room located at the Phoenix Public Library, 1221 N. Central Avenue, 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 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 be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to 15 days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than 15 days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter. Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner shall provide a brief explanation of the bases of the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. Petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a supplement which

satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held.

If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment.

If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, or may be delivered to the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, by close of business on the above date. A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to Nancy C. Loftin, Esq., Corporate Secretary and Counsel, Arizona Public Service Company, P.O. Box 53999, Mail Station 9068, Phoenix, Arizona 85072-3999, attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the presiding Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

The Commission hereby provides notice that this is a proceeding on an application for a license amendment falling within the scope of section 134 of the Nuclear Waste Policy Act of 1982 (NWPA), 42 U.S.C. 10154. Under section 134 of the NWPA, the Commission, at the request of any party to the proceeding, must use hybrid hearing procedures with respect to "any matter which the Commission determines to be in controversy among the parties."

The hybrid procedures in section 134 provide for oral argument on matters in controversy, preceded by discovery under the Commission's rules and the designation, following argument of only those factual issues that involve a genuine and substantial dispute, together with any remaining questions of law, to be resolved in an adjudicatory hearing. Actual adjudicatory hearings are to be held on only those issues found to meet the criteria of section 134 and set for hearing after oral argument.

The Commission's rules implementing section 134 of the NWPA are found in 10 CFR Part 2, Subpart K, "Hybrid Hearing Procedures for Expansion of Spent Fuel Storage Capacity at Civilian Nuclear Power Reactors" (published at 50 FR 41662 dated October 15, 1985). Under those rules, any party to the proceeding may invoke the hybrid hearing procedures by filing with the presiding officer a written request for oral argument under 10 CFR 2.1109. To be timely, the request must be filed within ten (10) days of an order granting a request for hearing or petition to intervene. The presiding officer must grant a timely request for oral argument. The presiding officer may grant an untimely request for oral argument only upon a showing of good cause by the requesting party for the failure to file on time and after providing the other parties

an opportunity to respond to the untimely request. If the presiding officer grants a request for oral argument, any hearing held on the application must be conducted in accordance with the hybrid hearing procedures. In essence, those procedures limit the time available for discovery and require that an oral argument be held to determine whether any contentions must be resolved in an adjudicatory hearing. If no party to the proceeding timely requests oral argument, and if all untimely requests for oral argument are denied, then the usual procedures in 10 CFR Part 2, Subpart G apply.

For further details with respect to this action, see the application for amendment dated June 8, 1999, which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Phoenix Public Library, 1221 N. Central Avenue, Phoenix, Arizona 85004.

Dated at Rockville, Maryland, this 9th day of September 1999.

FOR THE NUCLEAR REGULATORY COMMISSION

Nageswaran Kalyanam, Project Manager, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation