

July 25, 2002

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 -
ISSUANCE OF AMENDMENTS RE: EQUIPMENT HATCH OPEN DURING
REFUEL OPERATIONS (TAC NOS. MB3690, MB3691, AND MB3692)

Dear Mr. Overbeck:

The Commission has issued the enclosed Amendment No. 143 to Facility Operating License No. NPF-41, Amendment No. 143 to Facility Operating License No. NPF-51, and Amendment No. 143 to Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated December 13, 2001 (102-04630), as supplemented by letter dated May 1, 2002 (102-04697).

The amendments add the following to the TSs: (1) the phrase, "or if open, capable of being closed," to the Limiting Condition for Operation 3.9.3 for the equipment hatch, during core alterations or movement of irradiated fuel assemblies inside containment, and (2) the requirement to verify the capability to close the equipment hatch, if open, in a new Surveillance Requirement 3.9.3.3. The amendments allow the equipment hatch to be open in refueling outages during the conditions stated above.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Jack Donohew, Senior Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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

Enclosures: 1. Amendment No. 143 to NPF-41
2. Amendment No. 143 to NPF-51
3. Amendment No. 143 to NPF-74
4. Safety Evaluation

cc w/encls: See next page

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

July 25, 2002

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 -
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Docket Nos. STN 50-528, STN 50-529
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 4. Safety Evaluation
 cc w/encls: See next page

** comments incorporated into safety evaluation

Package: ML022250664

NRR-058

Accession No.:ML021290540 TS: ML022210074

NRR-100

*See previous concurrence

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ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-528

PALO VERDE NUCLEAR GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 143
License No. NPF-41

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the 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 dated December 13, 2001, as supplemented by letter dated May 1, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-41 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 143, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 90 days of the date of issuance, including the incorporation of the changes to the Technical Specification Bases as described in the licensee's letters dated December 13, 2001, and May 1, 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: July 25, 2002

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-529

PALO VERDE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.143
License No. NPF-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the 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 dated December 13, 2001, as supplemented by letter dated May 1, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-51 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 143, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 90 days of the date of issuance, including the incorporation of the changes to the Technical Specification Bases as described in the licensee's letters dated December 13, 2001, and May 1, 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: July 25, 2002

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-530

PALO VERDE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.143
License No. NPF-74

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the 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 dated December 13, 2001, as supplemented by letter dated May 1, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-74 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 143, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 90 days of the date of issuance, including the incorporation of the changes to the Technical Specification Bases as described in the licensee's letters dated December 13, 2001, and May 1, 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: July 25, 2002

ATTACHMENT TO LICENSE AMENDMENT NOS. 143, 143, AND 143

FACILITY OPERATING LICENSE NOS. NPF-41, NPF-51, AND NPF-74

DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.9.3-1

3.9.3-2

INSERT

3.9.3-1

3.9.3-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 143 TO FACILITY OPERATING LICENSE NO. NPF-41,
AMENDMENT NO. 143 TO FACILITY OPERATING LICENSE NO. NPF-51,
AND AMENDMENT NO. 143 TO FACILITY OPERATING LICENSE NO. NPF-74
ARIZONA PUBLIC SERVICE COMPANY, ET AL.
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3
DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

1.0 INTRODUCTION

By application dated December 13, 2001, as supplemented by the letter dated May 1, 2002, the Arizona Public Service Company (the licensee) requested changes to the Technical Specifications (TSs) for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The licensee 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 add the following to the TSs: (1) the phrase, "or if open, capable of being closed," to Limiting Condition for Operation (LCO) 3.9.3, "Containment Penetrations," for the equipment hatch, during core alterations or movement of irradiated fuel assemblies inside containment, and (2) the requirement to verify the capability to close the equipment hatch, if open, in a new Surveillance Requirement (SR) 3.9.3.3. The proposed changes would revise item a of LCO 3.9.3 to allow the equipment hatch to be open, with direct access to the outside atmosphere, in a refueling outage during core alterations or irradiated fuel movement inside containment. The current TSs do not allow this.

The supplemental letter dated May 1, 2002, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on January 22, 2002 (67 FR 2919).

2.0 EVALUATION

The licensee has proposed to add (1) the phrase, "or if open, capable of being closed," to LCO 3.9.3 and (2) SR 3.9.3.3 requiring the verification of the capability to close the equipment hatch, if open. The proposed changes to TS 3.9.3 are to allow the equipment hatch to be open during core alterations or movement of irradiated fuel assemblies inside containment and to

verify that the capability to close the hatch, if this is needed, is in place. This allowance would be used during refueling operations when the reactor is shut down.

The licensee stated that the equipment hatch provides a means for moving large equipment components into and out of containment during plant outages, such as a refueling outage. It is a large steel assembly with a double-gasketed, flanged, and bolted cover, held in place with thirty-two swing bolts, which is raised and lowered with two dedicated hoists powered from non-Class 1E power or from a portable generator in the case of station blackout. Because it is part of the containment pressure boundary, the current TSs require that the equipment hatch be closed (1) whenever the containment must be closed and operable (this is in reactor Modes 1 through 4 in accordance with TS 3.6.1, "Containment") and (2) during fuel movements and core alterations in Mode 6 (this is in accordance with TS 3.9.3). The TS 3.9.3 requirement is to ensure that a release of radioactive material within the containment because of fuel movements or core alterations would not be released through the equipment hatch. As described in Updated Final Safety Analysis Report (UFSAR) Section 15.7.4.2 for PVNGS, the safety-related monitors of the radiation monitoring system (UFSAR Section 11.5.1.2) will initiate the containment purge isolation actuation signal (CPIAS) upon high airborne radiation levels in containment. The CPIAS will terminate the containment purge, which the licensee states will minimize the amount of containment atmosphere (and therefore radioactivity) released to the environment in the accident. As explained in Section 2.3 below, the dose consequences calculated by the licensee, however, do not take credit for the containment purge isolation, and assume a release of the radioactivity from containment to the environment within two hours of the event. There is no filtration of the radioactivity.

The licensee explained that the proposed amendments for the three units will allow it to optimize refueling outages by permitting planned outage work to proceed in conjunction with critical path activities, thereby reducing the time and cost of refueling outages. The proposed amendments will permit operations needing the equipment hatch to be open to be scheduled earlier in an outage. The licensee gave two examples of operations which needed or would need the hatch open to transport large equipment inside containment. One example occurred in Unit 1's ninth refueling outage when repairs to the pedestal crane were delayed until the fuel could be offloaded from the core. The second example is the upcoming Unit 2 steam generator replacement outage where the equipment hatch being open earlier would facilitate the movement of equipment and personnel into and out of containment. The NRC staff believes that the proposed amendments could reduce the overall risk of outages by allowing the licensee more flexibility to better plan outages with respect to the equipment hatch.

The postulated accidents that could result in a release of radioactive material through the equipment hatch would be the fuel handling accident (FHA) inside containment and the loss of cooling to the core that leads to core boiling and uncover. These are discussed below.

2.1 Administrative Controls

If the licensee opens the equipment hatch in outages when there are core alterations or fuel movement inside containment, the licensee has proposed to have the equipment hatch under administrative controls. The equipment hatch would be maintained in an isolable condition (i.e., capable of being closed and bolted) and there would be procedures in place that would require the following:

- Appropriate personnel are aware of the open status of the containment (i.e., an open equipment hatch) during movement of irradiated fuel or core alterations.
- Designated personnel are readily available to close the equipment hatch following an evacuation that would occur in the event of an FHA.
- Any obstructions (e.g., cables and hoses) that would prevent rapid closure of an open equipment hatch can be quickly removed.

A description of the administrative controls is given in the licensee's supplemental letter and will be added to the Bases of the TSs.

In its supplemental letter, the licensee stated that it estimated the time to close the open equipment hatch is less than one hour, based on a timed demonstration of such a closure of the hatch during a refueling outage, and that the time includes the installation of a minimum of four bolts to close the equipment hatch.

2.2 Tornado Missiles

In its supplemental letter, the licensee stated that the equipment hatch does not provide missile protection for the containment. During Modes 1 through 4, when containment integrity is required, this protection is provided by the equipment hatch missile shield which is located outside the containment. For Mode 6, the licensee stated that neither the missile shield nor the equipment hatch is needed for missile protection for equipment inside the containment. The licensee explained that the missile protection is provided by the secondary shield, the primary shield, the refueling cavity walls, the reactor vessel and pressurizer missile shields, the various structural beams, and the operating floor, which act as missile barriers separating each reactor coolant loop from other protected components, and missile sources. UFSAR Section 3.5.2.2 describes the missile barriers within containment that would provide protection if a tornado missile entered containment through the equipment hatch opening. For a tornado missile to come through the equipment hatch opening in Modes 5 and 6, the licensee further stated that there are no essential targets between the equipment hatch opening and the secondary shield. Based on this, the NRC staff concludes that the equipment hatch and its missile shield would not have to be put in place for protection against tornado missiles in Modes 5 and 6.

In addressing what would happen during refueling with severe weather approaching the site, the licensee stated that procedures are in place to suspend all fuel handling activities and close the equipment hatch if (1) the national weather service has issued a high wind, severe weather, severe thunderstorm, or tornado warning for the area where the plant is located, (2) the national weather service has issued a tornado watch for the area, or (3) the meteorological tower is indicating sustained or gusting winds of 50 mph or higher. A warning means a severe thunderstorm or tornado has been reported or is imminent, and people should take the necessary precautions. A watch is that severe weather is possible within the designated watch area, and people should be alert to adverse weather changes.

2.3 Postulated Accidents

The limiting event during refueling when there are core alterations or fuel handling inside containment is the FHA inside containment. The licensee has described this event in

Section 15.7.4 of the UFSAR and the NRC staff's acceptance criteria are given in Standard Review Plan (SRP) 15.7.4 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants." The parameters assumed by the NRC staff for this accident are in Regulatory Guide (RG) 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors."

The licensee's calculated potential dose consequences for the FHA inside containment, at the exclusion area boundary and low population zone, and the assumptions used for the calculated dose consequences are in the attached Tables 1 and 2, respectively. The calculated values of the potential dose consequences to the control room operators are also given in Table 1, and the assumptions are also provided in Table 2. The acceptance criteria for the potential exposure of the control room operators are in General Design Criterion (GDC) 19 in Appendix A to 10 CFR Part 50.

The licensee's potential dose consequences in Table 1 came from its application and UFSAR Table 15.7.4-5, for the exclusion area boundary and low population zone, and from the application for the control room operator doses. The assumptions for the dose consequences are in the application; UFSAR Tables 15.7.4-1, 15B-5, and 15B-6; and UFSAR Section 6.4.

In NUREG-0857, "Safety Evaluation Report Related to the Operation of Palo Verde Nuclear Generating Station, Units 1, 2, and 3," dated November 1981, the safety evaluation that was part of licensing the units, the NRC staff addressed the accident, but did not report what it concluded were the potential dose consequences of FHAs. In Section 15.4.6, "Fuel Handling Accident," of NUREG-0857, the NRC staff stated that it reviewed the licensee's analysis of the accident in the UFSAR and found that certain parameters assumed by the licensee were less conservative than values given in RG 1.25. However, the NRC staff concluded that, with irradiated fuel movement delayed 100 hours after reactor shutdown, the potential dose consequences for the accident were within the criteria in SRP 15.7.4, and acceptable.

The NRC staff also has not reported the potential dose consequences for the control room operators. In Section 6.4, "Control Room Habitability," of NUREG-0857, Supplement No. 5, dated November 1983, the NRC staff stated that it evaluated the control room doses following a postulated loss-of-coolant accident (LOCA) in accordance with SRP 6.4, "Control Room Habitability System," and concluded that the calculated whole body and thyroid doses are within the criteria of SRP 6.4 (i.e., GDC 19). Based on this, the NRC staff concluded at the licensing of PVNGS that the doses for the control room operators were acceptable. The exposure of the control room operators from the postulated LOCA was considered to bound the exposure of the operators from other accidents, which includes the FHA inside containment.

The requirement for a minimum of 100 hours decay of the irradiated fuel in the core before any fuel movement is not changed by the proposed amendments. Also, even though the licensee has demonstrated that the equipment hatch could be closed in less than 2 hours of an FHA inside containment, it has continued to assume the same 2-hour period of release that is in RG 1.25.

The licensee's assumptions for the accident are listed in Table 2 with the values in RG 1.25 for the same parameters. The assumptions made by the licensee are the same values as those in RG 1.25, or are more conservative than the values in RG 1.25. The licensee stated that the computer code ORIGEN was used to calculate the inventory of long-lived radioisotopes in the fuel assembly damaged in the accident, and that this inventory was conservatively based on a core power of 4070 megawatts thermal (MWt). The core power is above the current licensed power of 3876 MWt by the anticipated power uprate increase of 2.94 percent and an additional power uncertainty of 2 percent of the licensed power. In its application dated December 21, 2001, for PVNGS Unit 2, the licensee proposed a power uprate for Unit 2 from the 3876 to 3990 MWt, which is a power uprate of 2.94 percent. Based on the conservative assumptions made by the licensee and the NRC staff's acceptance at PVNGS licensing of the use of the licensee's calculated dose consequences in the UFSAR, the NRC staff concludes that the licensee's calculated dose consequences for the FHA inside containment can be compared to the criteria in SRP 15.7.4 for the potential dose consequences at the exclusion area boundary and low population zone. Because the potential dose consequences provided by the licensee for the FHA inside containment (for the case that the equipment hatch is not closed) are within the acceptance criteria given in SRP Section 15.7.4, the NRC staff concludes that the potential dose consequences for the proposed amendments are acceptable.

For the doses to the control room operators, the proposed amendments do not affect the NRC staff's evaluation of control room habitability given in Section 6.4 of NUREG-0857, Supplement No. 5, because the proposed amendments do not change the assumption that all radioactive releases to the control room are ground level releases, and do not change anything with respect to the control room and the operators. Also, the dose consequences for the control room operators provided by the licensee in its application and given in Table 1 are less than the GDC 19 criteria. Based on this the NRC staff concludes that the potential dose consequences to control room operators for the proposed amendments are acceptable.

For the case of a loss of cooling to the core, the licensee has stated that the time to close the open equipment hatch is shorter than the time for the core to start boiling. The licensee stated that the minimum time for the core to start boiling is 4.5 hours (at the beginning of fuel offload which is a minimum of 100 hours after plant shutdown). This time is greater than the time to close the equipment hatch, and, as pointed out by the licensee, is also greater than the time required by TS Required Action A.4 to close all containment penetrations that provide direct access from the containment to the outside (i.e., the open equipment hatch). TS Required Action A.4 would be required with the loss of cooling to the core because LCO 3.9.4 would not be met. Because of this and because both the licensee and the NRC staff have assumed the two-hour release period in RG 1.25 for the puff of radioactivity radioiodines and noble gases from the damaged fuel to leave containment, the NRC staff concludes that the time to close the equipment hatch is acceptable and has been conservatively included in the calculation of potential dose consequences of the FHA inside containment.

The time to core boiling for reduced water inventory in mid-loop operation in a refueling outage is not applicable to this review because TS 3.9.7 requires 23 feet of water above the top of the reactor vessel flange during movement of irradiated fuel assemblies within containment. Therefore, the proposed amendments do not apply to mid-loop operations.

2.4 Conclusion

Based on the administrative controls described in the licensee's application, which will be added to the TS Bases, the demonstrated short time to close the equipment hatch in the case of an accident inside containment, the potential consequences of the design basis FHA inside containment (including the doses to control room operators) which are acceptable, and the equipment hatch and/or missile shield not being needed for protection from tornado missiles during refueling, the NRC staff concludes that the proposed addition to LCO 3.9.3 is acceptable.

The licensee also proposed to add SR 3.9.3.3 to the TSs as the SR to assure the administrative controls to close the equipment hatch are in place when the hatch is open during core alterations or movement of irradiated fuel inside containment. The licensee proposed (1) a frequency of 7 days for the periodic surveillance and (2) a note that states SR 3.9.3.3 is only required when the equipment hatch is open. The licensee states in the proposed changes to Bases for SR 3.9.3.3 that the surveillance interval of 7 days was selected to be commensurate with the normal duration of time to complete fuel handling operations and the note only requires that the surveillance be met when the equipment hatch is open. The proposed frequency is consistent with similar SRs in the TSs, and the surveillance needs only be conducted when the equipment hatch is open. Also, the proposed SR is the same as that approved by NRC for the Vogtle Electric Generating Plant, Units 1 and 2, on September 11, 2000, and for the Comanche Peak Steam Electric Station, Units 1 and 2, on February 20, 2002, for the same proposed amendments. Based on this, the NRC staff concludes that the proposed SR 3.9.3.3 is acceptable.

Therefore, based on the above, the NRC staff further concludes that the proposed amendments to the TSs are acceptable.

The NRC staff has reviewed the description of the administrative controls in the licensee's application and has no disagreement with the description. In its supplemental letter, the licensee agreed to add this description to the TS Bases during the implementation of the amendments and this will be a condition of the amendments to the operating licenses. Therefore, when the amendments are incorporated into the TSs, the description of the administrative controls would be in the Bases of the TSs. Any changes to the description of the administrative controls is then controlled by Section 5.5.14 of the Administrative Section of the TSs, which is acceptable to the staff.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change the 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 (67 FR 2919 dated January 22, 2002). 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.

5.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachments: 1. Table 1, Calculated Radiological Dose Consequences (Rem)
2. Table 2, Assumptions Used in Calculating Radiological Dose Consequences

Principal Contributor: Jack Donohew

Date: July 25, 2002

TABLE 1

CALCULATED RADIOLOGICAL DOSE CONSEQUENCES (REM)

<u>Exclusion Area Boundary</u>	<u>Licensee Doses*</u>	<u>NRC Acceptance Criteria SRP 15.7.4 Criteria</u>
Whole Body	0.39	6
Thyroid	74.7	75
<u>Low Population Zone</u>	<u>Licensee Doses*</u>	<u>NRC Acceptance Criteria SRP 15.7.4 Criteria</u>
Whole Body	0.11	6
Thyroid	20.8	75
<u>Control Room (operator)</u>	<u>Licensee Doses</u>	<u>NRC Acceptance Criteria GDC-19 Criteria</u>
Whole Body	0.13	5
Thyroid	11.5	Equivalent to 5 rem whole body**

* The doses are from (1) the application and PVNGS Updated Final Safety Analysis Report (UFSAR) Table 15.7.4-5 for the radiological consequences at the exclusion area boundary and (2) the application for the control room operator exposures.

** Guideline doses provided in Standard Review Plan (SRP) Section 6.4 define the dose equivalent as 30 rem to the thyroid.

TABLE 2

ASSUMPTIONS USED IN CALCULATING RADIOLOGICAL DOSE CONSEQUENCES
FUEL HANDLING ACCIDENT INSIDE CONTAINMENT

<u>Parameters</u>	<u>Licensee Value¹</u>	<u>NRC Staff Value RG 1.25²</u>
Power level (MWt)	4070	
Number of fuel rods damaged	236	
Number of assemblies affected	1.0	1.0
Shutdown time (hours)	72	100
Power radial peaking factor	1.7	1.65
Percentage of gap activity released to pool	100	100
Minimum water depth over fuel (feet)	23	23
Pool decontamination factors: thyroid/noble gases	100/1	100/1
Fission product release duration (hours)	2.0	2.0
Release fractions:		
Radioiodine	15.0%	12.0% ³
Noble gases	15.0%	10.0%
Krypton gases	30.0%	30.0%
Radioiodine forms:		
Elemental	75.0%	75.0%
Organic	25.0%	25.0%
<u>Receptor Point Variables (per TID-14844)</u>		
Exclusion area boundary		
Atmospheric relative concentration, X/Q (sec/m ³)		
0-2 hours	1.6 x 10 ⁻⁴	Use site-specific data
Control room		
Atmospheric Dispersion, X/Q (sec/m ³)	1.56 x 10 ⁻³	
Control room volume (feet ³)	1.61 x 10 ⁺⁵	
Unfiltered intake (scfm)	10	
Intake and recirculation filter efficiency (iodine)		
elemental (%)	95	
organic (%)	95	
particulate (%)	99	
Minimum filtration rate (feet ³ /minute)	25,740	

¹ The application and PVNGS Updated Final Safety Analysis Report (UFSAR) Tables 15.7.4-1, 15B-5, and 15B-6, and Section 6.4 on the potential dose consequences parameters.

² NRC Regulatory Guide (RG) 1.25.

³ Higher extended burnup (70,000 MWD/MTU) release fraction for Iodine 131 from NUREG/CR-5009

Palo Verde Generating Station, Units 1, 2, and 3

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