



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

July 28, 2011

Mr. Randall K. Edington
Executive Vice President Nuclear/
Chief Nuclear Officer
Mail Station 7602
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: REVISE UPDATED SAFETY ANALYSIS
REPORT FOR ELEMENT OF METHDOLOGY USED FOR STEAM
GENERATOR TUBE RUPTURE ACCIDENTS (TAC NOS. ME4434, ME4435,
AND ME4436)

Dear Mr. Edington:

The Commission has issued the enclosed Amendment No. 186 to Renewed Facility Operating License No. NPF-41, Amendment No. 86 to Renewed Facility Operating License No. NPF-51, and Amendment No. 186 to Renewed Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3, respectively. The amendments consist of changes to the Updated Final Safety Analysis Report (UFSAR) in response to your application dated July 22, 2010, as supplemented by letter dated April 8, 2011.

The amendment revises an element of the methodology used in evaluating the radiological consequences of design basis steam generator tube rupture (SGTR) accidents. Specifically, the changes will revise the PVNGS Updated Final Safety Analysis Report (UFSAR) Section 15.6.6, "Steam Generator Tube Rupture," to reflect a lower iodine spiking factor assumed for the coincident event Generated Iodine Spike (GIS) and the resulting reduction in the radiological consequences for the Limiting SGTRLOPSF [Steam Generator Tube Rupture with Loss of Offsite Power and Single Failure] Event."

R. Edington

- 2 -

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,

A handwritten signature in black ink that reads "Lauren K. Gibson". The signature is written in a cursive style.

Lauren K. Gibson, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Enclosures:

1. Amendment No. 186 to NPF-41
2. Amendment No. 186 to NPF-51
3. Amendment No. 186 to NPF-74
4. Safety Evaluation

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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-528

PALO VERDE NUCLEAR GENERATING STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 186
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 July 22, 2010, as supplemented by letter dated April 8, 2011, 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.

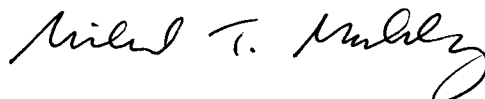
2. Accordingly, the license is amended by changes to the Updated Final Safety Analysis Report and, as indicated in the attachment to this license amendment, Paragraph 2.C(2) of Renewed Facility Operating License No. NPF-41 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-41
and Technical Specifications

Date of Issuance: July 28, 2011



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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-529

PALO VERDE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 186
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 July 22, 2010, as supplemented by letter dated April 8, 2011, 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.

Enclosure 2

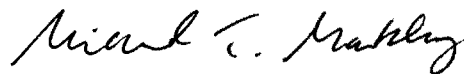
2. Accordingly, the license is amended by changes to the Updated Final Safety Analysis Report and, as indicated in the attachment to this license amendment, Paragraph 2.C(2) of Renewed Facility Operating License No. NPF-51 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-51
and Technical Specifications

Date of Issuance: July 28, 2011



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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-530

PALO VERDE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 186
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 July 22, 2010, as supplemented by letter dated April 8, 2011, 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 Updated Final Safety Analysis Report and, as indicated in the attachment to this license amendment, Paragraph 2.C(2) of Renewed 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. 186, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-74
and Technical Specifications

Date of Issuance: July 28, 2011

ATTACHMENT TO LICENSE AMENDMENT NOS. 186, 186, AND 186

RENEWED 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 Renewed Facility Operating Licenses Nos. NPF-41, NPF-51, and NPF-74 with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License No. NPF-41

REMOVE

INSERT

5

5

Renewed Facility Operating License No. NPF-51

REMOVE

INSERT

6

6

Renewed Facility Operating License No. NPF-74

REMOVE

INSERT

4

4

(1) Maximum Power Level

Arizona Public Service Company (APS) is authorized to operate the facility at reactor core power levels not in excess of 3990 megawatts thermal (100% power), in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating 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) Antitrust Conditions

This renewed operating license is subject to the antitrust conditions delineated in Appendix C to this renewed license.

(4) Operating Staff Experience Requirements

Deleted

(5) Post-Fuel-Loading Initial Test Program (Section 14, SER and SSER 2)*

Deleted

(6) Environmental Qualification

Deleted

(7) Fire Protection Program

APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11, subject to the following provision:

APS may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

* The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

(1) Maximum Power Level

Arizona Public Service Company (APS) is authorized to operate the facility at reactor core power levels not in excess of 3990 megawatts thermal (100% power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating 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) Antitrust Conditions

This renewed operating license is subject to the antitrust conditions delineated in Appendix C to this renewed operating license.

(4) Operating Staff Experience Requirements (Section 13.1.2, SSER 9)*

Deleted

(5) Initial Test Program (Section 14, SER and SSER 2)

Deleted

(6) Fire Protection Program

APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11, subject to the following provision:

APS may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(7) Inservice Inspection Program (Sections 5.2.4 and 6.6, SER and SSER 9)

Deleted

* The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

- (4) Pursuant to the Act and 10 CFR Part 30, 40, and 70, APS to receive, possess, and use in amounts required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
 - (5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, APS to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) Maximum Power Level

Arizona Public Service Company (APS) is authorized to operate the facility at reactor core power levels not in excess of 3990 megawatts thermal (100% power), in accordance with the conditions specified herein.
 - (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating 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) Antitrust Conditions

This renewed operating license is subject to the antitrust conditions delineated in Appendix C to this renewed operating license.
 - (4) Initial Test Program (Section 14, SER and SSER 2)

Deleted
 - (5) Additional Conditions

The Additional Conditions contained in Appendix D, as revised through Amendment No. 171, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Additional Conditions.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 186, 186, AND 186 TO RENEWED FACILITY

OPERATING LICENSE NOS. NPF-41, NPF-51, AND 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 July 22, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML102150352), as supplemented by letter dated April 8, 2011 (ADAMS Accession No. ML111111A063), Arizona Public Service Company (APS, the licensee) requested changes to the Updated Final Safety Analysis Report (UFSAR) for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The supplemental letter dated April 8, 2011, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 28, 2010 (75 FR 81669).

The amendment would change an element of methodology (assumption) used in evaluating the radiological consequences of design basis Steam Generator Tube Rupture (SGTR) accidents for PVNGS. Specifically, the proposed amendment would revise the PVNGS UFSAR Chapter 15, Section 15.6.3, "Steam Generator Tube Rupture," by changing the iodine spiking factor used for a coincident event-generated iodine spike (GIS) from a value of 500 to a value of 335. A spiking model that assumes that iodine release rate from the fuel rods increases to a value 335 times that release rate corresponding to the iodine concentration at the technical specification (TS) equilibrium value of 1.0 microcuries per gram ($\mu\text{Ci/gm}$) Dose Equivalent Iodine – 131 (DEI-131) would be used to estimate the primary coolant iodine concentration.

2.0 REGULATORY EVALUATION

The NRC staff previously provided guidance for the use of a GIS spiking factor of 335 in SGTR analyses in Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," July 2000 (ADAMS Accession No. ML003716792), and in RG 1.195, "Methods and Assumptions for Evaluating Radiological

Consequences of Design Basis Accidents at Light-Water Nuclear Power Reactors," May 2003 (ADAMS Accession No. ML031490640). By memorandum dated May 8, 2006¹, the Generic Issue 197 Review Panel addressed an Advisory Committee on Reactor Safeguards recommendation that the NRC staff develop a mechanistic understanding of iodine spiking phenomena so that the analyses would reflect current plant operations and the capabilities of modern fuel rods to prevent coolant contamination. Specifically, this study evaluated whether the spiking factor used for accident analyses at plants with iodine coolant concentrations limited to less than 1.0 $\mu\text{Ci/g}$ DEI-131 and with the adoption of the alternative repair criteria would be too low if the TS limit on iodine concentrations in the coolant during normal operations were reduced. The NRC staff ultimately concluded that the issue did not represent a new safety concern.

The applicable regulatory acceptance criteria for postulated accidents is provided in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 100.11, "Determination of Exclusion Area, Low Population Zone, and Population Center Distance," for offsite doses and in 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 19, "Control Room Habitability," for control room (CR) doses. The acceptance criteria are 5 roentgen equivalent man (rem) whole body in the CR, 25 rem whole body or 300 rem thyroid at the exclusion area boundary (EAB), and 25 rem whole body or 300 rem thyroid at the outer boundary of the low population zone (LPZ). The postulated SGTR with a coincident loss of offsite power, a GIS, and a failed open Atmospheric Dump Valve (ADV) at PVNGS is described in PVNGS UFSAR Section 15.6.3.

The PVNGS current licensing basis incorporates the source term methodology consistent with the guidance of NUREG-1465, "Accident Source Terms for Light-Water Nuclear Power Plants," February 1995 (ADAMS Accession No. ML041040063), and U.S. Atomic Energy Commission, Technical Information Document (TID) – 14844, "Calculation of Distance Factors for Power and Test Reactor Sites," dated March 23, 1962 (ADAMS Accession No. ML021750625). In addition, Revision 2 of the NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 15.6.3, "Radiological Consequences of Steam Generator Tube Failure (PWR)" (ADAMS Accession No ML052350149), states, in part, that

[F]or the postulated accident with the equilibrium iodine concentration for continued full power operation in combination with an assumed accident initiated iodine spike, the calculated doses should not exceed a small fraction of the [10 CFR Part 100] guideline values, i.e., 10 percent or 2.5 rem and 30 rem, respectively, for the whole-body and thyroid doses.

Therefore, Revision 2 of NUREG-0800 established guidance that offsite radiological dose consequences are limited to a small fraction, or 10 percent, of the 10 CFR Section 100.11 guideline values. However, the licensing basis of the SGTR accident for both the GIS and pre-accident generated iodine spike (PIS) cases is based upon an acceptance criterion of 100 percent of the 10 CFR Part 100 guideline values for PVNGS. The guideline value is a maximum thyroid dose of 300 rem. The use of this acceptance criteria was approved by the

¹ Uhle, J. L., U.S. Nuclear Regulatory Commission, memorandum to Carl J. Paperiello, U.S. Nuclear Regulatory Commission, "Results of Initial Screening of Generic Issue 197, 'Iodine Spiking Phenomena,'" dated May 8, 2006 (ADAMS Accession No. ML061100331).

NRC staff in NUREG-0857, "Safety Evaluation Report related to the operation of Palo Verde Nuclear Generating Station, Units 1, 2, and 3," December 1984.

3.0 TECHNICAL EVALUATION

3.1 Proposed Changes

By letter dated July 22, 2010, the licensee stated, in part, that

The current PVNGS licensing basis accident analyses for postulated SGTR events account for both the GIS and pre-accident Generated Iodine Spike (PIS) cases as coincident occurrences. For the GIS cases, a spiking model is used that increases the primary coolant iodine concentration by increasing the iodine release rate from the fuel pins to the primary coolant. The initial release rate from the fuel pins corresponds to the iodine concentration at the TS equilibrium value of 1.0 $\mu\text{Ci/gm}$ DeQ Iodine (I)-131, [DEI-131], and iodine removal mechanisms (i.e., radioactive decay and primary coolant purification flow). The fuel pin release rate over the 8-hour SGTR accident duration is assumed to increase to a value that is 500 times that of the initial release rate. . . . The proposed methodology element change would revise the GIS iodine spiking factor from a value of 500 to a value of 335 for SGTR accident analyses.

The amendment would make the following changes in the PVNGS UFSAR Chapter 15, Section 15.6.3:

- "A spiking factor of 500 is employed for the GIS at the time of event initiation" would be revised to read: "A spiking factor of 335 is employed for the GIS at the time of event initiation."
- In Table 15.6.3-5, the dose for the event case GIS at an evaluation period and location of 0-2 hours at EAB would be changed from "182" to "124" rem and the dose for the event case GIS at an evaluation period and location of 0-8 hours at LPZ would be changed from "125" to "84" rem.

3.2 Offsite Radiological Dose Consequences

By letter dated July 22, 2010, the licensee proposed the following changes to the offsite radiological dose consequences:

The methodology element change for a postulated SGTR with a coincident loss of offsite power, a GIS, and a failed open ADV (i.e., one of the two Steam Generator Tube Rupture with Loss of Offsite Power and Single Failure (SGTRLOPSF) analyses described in PVNGS UFSAR Section 15.6.3), would result in the previously reported 2-hour thyroid dose value of 182 rem at the EAB to be reduced to approximately 124 rem (assuming all other analysis inputs, methods, and assumptions remain unchanged). Likewise, the previously reported 8-hour thyroid dose at the LPZ limit for this event combination would be reduced from 125 rem to approximately 84 rem.

Additionally, in its letter dated July 22, 2010, the licensee stated that

The previously reported [PIS iodine spike] 2-hour and 8-hour thyroid dose values of 294 rem and 91 rem, respectively, would not be affected by the proposed methodology change.

The licensee also stated that the PIS dose limit of 91 rem for the 8-hour thyroid dose value would replace the GIS case as the bounding maximum LPZ dose limit.

The NRC staff reviewed the proposed change provided in the license amendment request (LAR) and the supplemental information provided related to the acceptance criteria used for the licensing basis PVNGS SGTR accidents. Based on engineering judgment, the staff determined that the proposed change would result in a reduced dose value that is directly proportional to the reduction in spiking factor value. The staff conducted confirmatory calculations to verify the licensee's dose values, and confirmed that APS used the same methodology and/or assumptions previously approved by NRC staff for PVNGS, but with use of a GIS spiking factor value of 335 as the only change to the radiological model. The NRC staff also compared the licensee's resulting offsite radiological doses against the site-specific acceptance criteria of 300 rem thyroid and determined that licensee's results are acceptable.

3.3 Control Room Radiological Dose Consequences

By letter dated July 22, 2010 letter, the licensee stated, in part, that

The proposed methodology element change has no effect on previously reported dose consequences for control room personnel following a postulated SGTR event. The consequences reported in UFSAR Chapter 6 are based on a PIS, rather than a GIS.

The NRC staff reviewed the licensee's proposed change and determined that there are no changes to the CR dose for the SGTR event, and is, therefore, acceptable.

3.4 Acceptability of Revised Spiking Factor Value

In accordance with SRP Section 15.6.3, Palo Verde's current SGTR analyses assume an iodine spiking factor of 500. This spiking factor value was previously analyzed by NRC staff in Generic Issue 197 (ML0611003312), "Results of Initial Screening of Generic Issue (GI) 197 - Iodine Spiking Phenomena," where as the spiking factor of 500 was chosen as a bounding factor (upper bound) for iodine spiking events. In GI 197, the staff stated that the "... guidance [SRP] was developed to be consistent with the release fractions and timing from the TID-14844 source term and the whole body and thyroid doses stated in 10 CFR 100.11. In addition, for plants that utilize TID-14844 source terms and the corresponding whole body and thyroid criteria, such as Palo Verde, the guidance provided in RG 1.195, Appendix E, allows licensee's to use a GIS spiking values of 335 as an acceptable radiological assumption regarding core inventory and the release of radionuclides from the fuel. Therefore, based on the NRC staff's evaluation of the proposed change against the scope and/or regulatory requirements of the SRP, RG 1.195, and 10 CFR 100.11, we find the licensee's use of a revised iodine spiking factor of 335 acceptable.

3.5 NRC Staff Conclusion

As described above, the NRC staff conducted a review to assess the impact of the proposed licensing basis changes on the postulated design basis SGTR. The staff concludes that the proposed changes in the subject LAR are conservative and the licensee will continue to meet the applicable dose acceptance criteria, as identified in Section 2.0 of this evaluation, following implementation of these proposed changes. The staff further concludes with reasonable assurance that PVNGS, Units 1, 2, and 3, as modified by this amendment, will continue to provide sufficient safety margin, with adequate defense-in-depth, to mitigate unanticipated events and to compensate for uncertainties in accident progression, analysis assumptions, and input parameters. Therefore, the NRC staff concludes that the proposed license amendment is acceptable with respect to the radiological dose consequences of the design basis accidents.

4.0 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.

5.0 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. 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 published in the *Federal Register* on December 28, 2010 (75 FR 81669). 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.

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

Principal Contributor: LaRay J. Benton

Date: July 28, 2011

R. Edington

- 2 -

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/

Lauren K. Gibson, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Enclosures:

1. Amendment No. 186 to NPF-41
2. Amendment No. 186 to NPF-51
3. Amendment No. 186 to NPF-74
4. Safety Evaluation

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ADAMS Accession No. ML111810338

***SE memo dated**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/DRA/AADB/BC	OGC	NRR/LPL4/BC	NRR/LPL4/PM
NAME	LGibson	JBurkhardt	TTate*	BMizuno	MMarkley	LGibson
DATE	7/7/11	7/6/11	6/30/11	7/27/11	7/28/11	7/28/11

OFFICIAL AGENCY RECORD