

April 5, 1996

Mr. William L. Stewart  
Executive Vice President, Nuclear  
Arizona Public Service Company  
Post Office Box 53999  
Phoenix, Arizona 85072-3999

SUBJECT: ISSUANCE OF AMENDMENTS FOR THE PALO VERDE NUCLEAR GENERATING STATION  
UNIT NO. 1 (TAC NO. M94381), UNIT NO. 2 (TAC NO. M94382), AND UNIT  
NO. 3 (TAC NO. M94383)

Dear Mr. Stewart:

The Commission has issued the enclosed Amendment No. 105 to Facility Operating License No. NPF-41, Amendment No. 97 to Facility Operating License No. NPF-51, and Amendment No. 77 to Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station, Unit Nos. 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications in response to your application dated December 20, 1995.

These amendments would change the instrument setpoint for the reactor trip and main steam isolation signal (MSIS) actuation on low steam generator pressure from  $\geq 919$  psia with an allowable value of  $\geq 911$  psia to  $\geq 895$  psia with an allowable value of  $\geq 890$  psia. The proposed setpoint change is a result of a revised calculation performed by the licensee during its setpoint verification program. The recalculation resulted in a reduced instrument uncertainty, justifying a lower instrument setpoint.

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,

Original Signed By  
Charles R. Thomas, Project Manager  
Project Directorate IV-2  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

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

- Enclosures: 1. Amendment No. 105 to NPF-41
- 2. Amendment No. 97 to NPF-51
- 3. Amendment No. 77 to NPF-74
- 4. Safety Evaluation

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- BHolian CThomas
- EPeyton CMH2 (SE)
- JKilcrease, RIV JWermiel
- JDyer, RIV

cc w/encls: See next page

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PDR ADOCK 05000528  
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DOCUMENT NAME: PV94381.AMD

OFC	LA:PDIV-2	PDIV-2	PDIV-2	HIO	OGC
NAME	EPeyton	CThomas:pk	BHolian	JWermiel	R Bachmann
DATE	2/23/96	2/24/96	2/21/96	2/14/96	2/15/96

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with comments

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- LHurley, RIV
- OGC, 015B18
- JBianchi, WCFO (2)
- ACRS, T2E26
- CThomas
- CMH2 (SE)
- JWermiel

cc w/encls: See next page

DOCUMENT NAME: PV94381.AMD

OFC	LA:PDIV-2	PDIV-2	PDIV-2	HICP	OGC
NAME	EPeyton	CThomas:pk	BHolian	JWermiel	RBarthmann
DATE	2/23/96	2/24/96	2/1/96	2/14/96	2/15/96

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with  
comment



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

April 5, 1996

Mr. William L. Stewart  
Executive Vice President, Nuclear  
Arizona Public Service Company  
Post Office Box 53999  
Phoenix, Arizona 85072-3999

SUBJECT: ISSUANCE OF AMENDMENTS FOR THE PALO VERDE NUCLEAR GENERATING STATION  
UNIT NO. 1 (TAC NO. M94381), UNIT NO. 2 (TAC NO. M94382), AND UNIT  
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Dear Mr. Stewart:

The Commission has issued the enclosed Amendment No. 105 to Facility Operating License No. NPF-41, Amendment No. 97 to Facility Operating License No. NPF-51, and Amendment No. 77 to Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station, Unit Nos. 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications in response to your application dated December 20, 1995.

These amendments would change the instrument setpoint for the reactor trip and main steam isolation signal (MSIS) actuation on low steam generator pressure from  $\geq 919$  psia with an allowable value of  $\geq 911$  psia to  $\geq 895$  psia with an allowable value of  $\geq 890$  psia. The proposed setpoint change is a result of a revised calculation performed by the licensee during its setpoint verification program. The recalculation resulted in a reduced instrument uncertainty, justifying a lower instrument setpoint.

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 cursive script, appearing to read "Charles R. Thomas".

Charles R. Thomas, Project Manager  
Project Directorate IV-2  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

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

Enclosures: 1. Amendment No. 105 to NPF-41  
2. Amendment No. 97 to NPF-51  
3. Amendment No. 77 to NPF-74  
4. Safety Evaluation

cc w/encls: See next page

Mr. William L. Stewart

- 2 -

April 5, 1996

cc w/encls:

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Phoenix, Arizona 85007

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USNRC  
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Regional Administrator, Region IV  
U. S. Nuclear Regulatory Commission  
Harris Tower & Pavillion  
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Arlington, Texas 76011-8064

Chairman, Board of Supervisors  
ATTN: Chairman  
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Phoenix, Arizona 85003

Mr. Aubrey V. Godwin, Director  
Arizona Radiation Regulatory Agency  
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Mr. Curtis Hoskins  
Executive Vice President and  
Chief Operating Officer  
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P.O. Box 52034  
Phoenix, Arizona 85072-2034



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 NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 105  
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 20, 1995, 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:

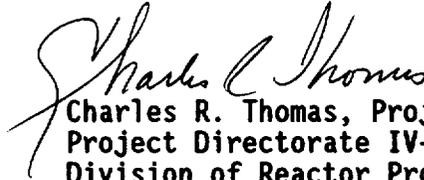
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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 105, 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 its date of issuance to be implemented within 45 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Charles R. Thomas, Project Manager  
Project Directorate IV-2  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: April 5, 1996

**ATTACHMENT TO LICENSE AMENDMENT**

**AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. NPF-41**

**DOCKET NO. STN 50-528**

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

**REMOVE**

2-3  
3/4 3-25  
3/4 3-27

**INSERT**

2-3  
3/4 3-25  
3/4 3-27

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
<b>1. TRIP GENERATION</b>		
<b>A. Process</b>		
1. Pressurizer Pressure - High	≤ 2383 psia	≤ 2388 psia
2. Pressurizer Pressure - Low	≥ 1837 psia (2)	≥ 1821 psia (2)
3. Steam Generator Level - Low	≥ 44.2% (4)	≥ 43.7% (4)
4. Steam Generator Level - High	≤ 91.0% (9)	≤ 91.5% (9)
5. Steam Generator Pressure - Low	≥ 895 psia (3)	≥ 890 psia (3)
6. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
7. Reactor Coolant Flow - Low		
a. Rate	≤ 0.115 psi/sec (6)(7)	≤ 0.118 psi/sec (6)(7)
b. Floor	≥ 11.9 psid (6)(7)	≥ 11.7 psid (6)(7)
c. Band	≤ 10.0 psid (6)(7)	≤ 10.2 psid (6)(7)
8. Local Power Density - High	≤ 21.0 kW/ft (5)	≤ 21.0 kW/ft (5)
9. DNBR - Low	≥ 1.30 (5)	≥ 1.30 (5)
<b>B. Excure Neutron Flux</b>		
<b>1. Variable Overpower Trip</b>		
a. Rate	≤10.6%/min of RATED THERMAL POWER (8)	≤11.0%/min of RATED THERMAL POWER (8)
b. Ceiling	≤110.0% of RATED THERMAL POWER (8)	≤111.0% of RATED THERMAL POWER (8)
c. Band	≤9.7% of RATED THERMAL POWER (8)	≤9.9% of RATED THERMAL POWER (8)

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
2. Logarithmic Power Level - High (1)		
a. Startup and Operating	≤ 0.010% of RATED THERMAL POWER	≤ 0.011% of RATED THERMAL POWER
b. Shutdown	≤ 0.010% of RATED THERMAL POWER	≤ 0.011% of RATED THERMAL POWER
C. Core Protection Calculator System		
1. CEA Calculators	Not Applicable	Not Applicable
2. Core Protection Calculators	Not Applicable	Not Applicable
D. Supplementary Protection System		
Pressurizer Pressure - High	≤ 2409 psia	≤ 2414 psia
II. RPS LOGIC		
A. Matrix Logic	Not Applicable	Not Applicable
B. Initiation Logic	Not Applicable	Not Applicable
III. RPS ACTUATION DEVICES		
A. Reactor Trip Breakers	Not Applicable	Not Applicable
B. Manual Trip	Not Applicable	Not Applicable

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
I. SAFETY INJECTION (SIAS)		
A. Sensor/Trip Units		
1. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
2. Pressurizer Pressure - Low	≥ 1837 psia <sup>(1)</sup>	≥ 1821 psia <sup>(1)</sup>
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
II. CONTAINMENT ISOLATION (CIAS)		
A. Sensor/Trip Units		
1. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
2. Pressurizer Pressure - Low	≥ 1837 psia <sup>(1)</sup>	≥ 1821 psia <sup>(1)</sup>
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
III. CONTAINMENT SPRAY (CSAS)		
A. Sensor/Trip Units		
Containment Pressure High - High	≤ 8.5 psig	≤ 8.9 psig
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
IV. MAIN STEAM LINE ISOLATION (MSIS)		
A. Sensor/Trip Units		
1. Steam Generator Pressure - Low	≥ 895 psia <sup>(3)</sup>	≥ 890 psia <sup>(3)</sup>
2. Steam Generator Level - High	≤ 91.0% NR <sup>(2)</sup>	≤ 91.5% NR <sup>(2)</sup>
3. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TRIP VALUES</u>	<u>ALLOWABLE VALUES</u>
V. RECIRCULATION (RAS)		
A. Sensor/Trip Units		
Refueling Water Storage Tank - Low	7.4% of Span	7.9 ≥ % of Span ≥ 6.9
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation System	Not Applicable	Not Applicable
VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1)		
A. Sensor/Trip Units		
1. Steam Generator #1 Level - Low	≥ 25.8% WR <sup>(4)</sup>	≥ 25.3% WR <sup>(4)</sup>
2. Steam Generator Δ Pressure - SG2 > SG1	≤ 185 psid	≤ 192 psid
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)		
A. Sensor/Trip Units		
1. Steam Generator #2 Level - Low	≥ 25.8% WR <sup>(4)</sup>	≥ 25.3% WR <sup>(4)</sup>
2. Steam Generator Δ Pressure - SG1 > SG2	≤ 185 psid	≤ 192 psid
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
VIII. LOSS OF POWER		
A. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	≥ 3250 volts	≥ 3250 volts
B. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	3697 to 3786 volts	3697 to 3786 volts
IX. CONTROL ROOM ESSENTIAL FILTRATION	≤ 2 x 10 <sup>-5</sup> μCi/cc	≤ 2 x 10 <sup>-5</sup> μCi/cc

TABLE 3.3-4 (Continued)

TABLE NOTATIONS

- (1) In MODES 3-6, value may be decreased manually, to a minimum of 100 psia, as pressurizer pressure is reduced, provided the margin between the pressurizer pressure and this value is maintained at less than or equal to 400 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.
- (2) % of the distance between steam generator upper and lower level narrow range instrument nozzles.
- (3) In MODES 3-4, value may be decreased manually as steam generator pressure is reduced, provided the margin between the steam generator pressure and this value is maintained at less than or equal to 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.
- (4) % of the distance between steam generator upper and lower level wide range instrument nozzles.



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 NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 97  
License No. NPF-51

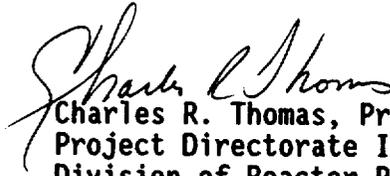
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority dated December 20, 1995, 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. 97, 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 its date of issuance to be implemented within 45 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Charles R. Thomas, Project Manager  
Project Directorate IV-2  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: April 5, 1996

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 97 TO FACILITY OPERATING LICENSE NO. NPF-51

DOCKET NO. STN 50-529

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3/4 3-25

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<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. TRIP GENERATION		
A. Process		
1. Pressurizer Pressure - High	$\leq 2383$ psia	$\leq 2388$ psia
2. Pressurizer Pressure - Low	$\geq 1837$ psia (2)	$\geq 1821$ psia (2)
3. Steam Generator Level - Low	$\geq 44.2\%$ (4)	$\geq 43.7\%$ (4)
4. Steam Generator Level - High	$\leq 91.0\%$ (9)	$\leq 91.5\%$ (9)
5. Steam Generator Pressure - Low	$\geq 895$ psia (3)	$\geq 890$ psia (3)
6. Containment Pressure - High	$\leq 3.0$ psig	$\leq 3.2$ psig
7. Reactor Coolant Flow - Low		
a. Rate	$\leq 0.115$ psi/sec (6)(7)	$\leq 0.118$ psi/sec (6)(7)
b. Floor	$\geq 11.9$ psid (6)(7)	$\geq 11.7$ psid (6)(7)
c. Band	$\leq 10.0$ psid (6)(7)	$\leq 10.2$ psid (6)(7)
8. Local Power Density - High	$\leq 21.0$ kW/ft (5)	$\leq 21.0$ kW/ft (5)
9. DNBR - Low	$\geq 1.30$ (5)	$\geq 1.30$ (5)
B. Excore Neutron Flux		
1. Variable Overpower Trip		
a. Rate	$\leq 10.6\%$ /min of RATED THERMAL POWER (8)	$\leq 11.0\%$ /min of RATED THERMAL POWER (8)
b. Ceiling	$\leq 110.0\%$ of RATED THERMAL POWER (8)	$\leq 111.0\%$ of RATED THERMAL POWER (8)
c. Band	$\leq 9.7\%$ of RATED THERMAL POWER (8)	$\leq 9.9\%$ of RATED THERMAL POWER (8)

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
2. Logarithmic Power Level - High (1)		
a. Startup and Operating	≤ 0.010% of RATED THERMAL POWER	≤ 0.011% of RATED THERMAL POWER
b. Shutdown	≤ 0.010% of RATED THERMAL POWER	≤ 0.011% of RATED THERMAL POWER
C. Core Protection Calculator System		
1. CEA Calculators	Not Applicable	Not Applicable
2. Core Protection Calculators	Not Applicable	Not Applicable
D. Supplementary Protection System		
Pressurizer Pressure - High	≤ 2409 psia	≤ 2414 psia
II. RPS LOGIC		
A. Matrix Logic	Not Applicable	Not Applicable
B. Initiation Logic	Not Applicable	Not Applicable
III. RPS ACTUATION DEVICES		
A. Reactor Trip Breakers	Not Applicable	Not Applicable
B. Manual Trip	Not Applicable	Not Applicable

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
I. SAFETY INJECTION (SIAS)		
A. Sensor/Trip Units		
1. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
2. Pressurizer Pressure - Low	≥ 1837 psia <sup>(1)</sup>	≥ 1821 psia <sup>(1)</sup>
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
II. CONTAINMENT ISOLATION (CIAS)		
A. Sensor/Trip Units		
1. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
2. Pressurizer Pressure - Low	≥ 1837 psia <sup>(1)</sup>	≥ 1821 psia <sup>(1)</sup>
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
III. CONTAINMENT SPRAY (CSAS)		
A. Sensor/Trip Units		
Containment Pressure High - High	≤ 8.5 psig	≤ 8.9 psig
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
IV. MAIN STEAM LINE ISOLATION (MSIS)		
A. Sensor/Trip Units		
1. Steam Generator Pressure - Low	≥ 895 psia <sup>(3)</sup>	≥ 890 psia <sup>(3)</sup>
2. Steam Generator Level - High	≤ 91.0% NR <sup>(2)</sup>	≤ 91.5% NR <sup>(2)</sup>
3. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable

PALO VERDE - UNIT 2

3/4 3-25

Amendment No. 64, 97

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TRIP VALUES</u>	<u>ALLOWABLE VALUES</u>
<b>V. RECIRCULATION (RAS)</b>		
<b>A. Sensor/Trip Units</b>		
Refueling Water Storage Tank - Low	7.4% of Span	7.9 ≥ % of Span ≥ 6.9
<b>B. ESFA System Logic</b>	Not Applicable	Not Applicable
<b>C. Actuation System</b>	Not Applicable	Not Applicable
<b>VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1)</b>		
<b>A. Sensor/Trip Units</b>		
1. Steam Generator #1 Level - Low	≥ 25.8% WR <sup>(4)</sup>	≥ 25.3% WR <sup>(4)</sup>
2. Steam Generator Δ Pressure - SG2 > SG1	≤ 185 psid	≤ 192 psid
<b>B. ESFA System Logic</b>	Not Applicable	Not Applicable
<b>C. Actuation Systems</b>	Not Applicable	Not Applicable
<b>VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)</b>		
<b>A. Sensor/Trip Units</b>		
1. Steam Generator #2 Level - Low	≥ 25.8% WR <sup>(4)</sup>	≥ 25.3% WR <sup>(4)</sup>
2. Steam Generator Δ Pressure - SG1 > SG2	≤ 185 psid	≤ 192 psid
<b>B. ESFA System Logic</b>	Not Applicable	Not Applicable
<b>C. Actuation Systems</b>	Not Applicable	Not Applicable
<b>VIII. LOSS OF POWER</b>		
<b>A. 4.16 kV Emergency Bus Undervoltage        (Loss of Voltage)</b>	≥ 3250 volts	≥ 3250 volts
<b>B. 4.16 kV Emergency Bus Undervoltage        (Degraded Voltage)</b>	3697 to 3786 volts	3697 to 3786 volts
<b>IX. CONTROL ROOM ESSENTIAL FILTRATION</b>	≤ 2 x 10 <sup>-5</sup> μCi/cc	≤ 2 x 10 <sup>-5</sup> μCi/cc

PALO VERDE - UNIT 2

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Amendment No. 19,84



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 NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 77  
License No. NPF-74

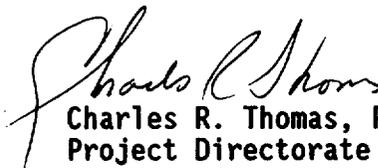
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority dated December 20, 1995, 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. 77, 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 its date of issuance to be implemented within 45 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Charles R. Thomas, Project Manager  
Project Directorate IV-2  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: April 5, 1996

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 77 TO FACILITY OPERATING LICENSE NO. NPF-74

DOCKET NO. STN 50-530

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE

2-3  
3/4 3-25

INSERT

2-3  
3/4 3-25

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. TRIP GENERATION		
A. Process		
1. Pressurizer Pressure - High	≤ 2383 psia	≤ 2388 psia
2. Pressurizer Pressure - Low	≥ 1837 psia (2)	≥ 1821 psia (2)
3. Steam Generator Level - Low	≥ 44.2% (4)	≥ 43.7% (4)
4. Steam Generator Level - High	≤ 91.0% (9)	≤ 91.5% (9)
5. Steam Generator Pressure - Low	≥ 895 psia (3)	≥ 890 psia (3)
6. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
7. Reactor Coolant Flow - Low		
a. Rate	≤ 0.115 psi/sec (6)(7)	≤ 0.118 psi/sec (6)(7)
b. Floor	≥ 11.9 psid (6)(7)	≥ 11.7 psid (6)(7)
c. Band	≤ 10.0 psid (6)(7)	≤ 10.2 psid (6)(7)
8. Local Power Density - High	≤ 21.0 kW/ft (5)	≤ 21.0 kW/ft (5)
9. DNBR - Low	≥ 1.30 (5)	≥ 1.30 (5)
B. Excore Neutron Flux		
1. Variable Overpower Trip		
a. Rate	≤10.6%/min of RATED THERMAL POWER (8)	≤11.0%/min of RATED THERMAL POWER (8)
b. Ceiling	≤110.0% of RATED THERMAL POWER (8)	≤111.0% of RATED THERMAL POWER (8)
c. Band	≤9.7% of RATED THERMAL POWER (8)	≤9.9% of RATED THERMAL POWER (8)

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
2. Logarithmic Power Level - High (1)		
a. Startup and Operating	≤ 0.010% of RATED THERMAL POWER	≤ 0.011% of RATED THERMAL POWER
b. Shutdown	≤ 0.010% of RATED THERMAL POWER	≤ 0.011% of RATED THERMAL POWER
C. Core Protection Calculator System		
1. CEA Calculators	Not Applicable	Not Applicable
2. Core Protection Calculators	Not Applicable	Not Applicable
D. Supplementary Protection System		
Pressurizer Pressure - High	≤ 2409 psia	≤ 2414 psia
II. RPS LOGIC		
A. Matrix Logic	Not Applicable	Not Applicable
B. Initiation Logic	Not Applicable	Not Applicable
III. RPS ACTUATION DEVICES		
A. Reactor Trip Breakers	Not Applicable	Not Applicable
B. Manual Trip	Not Applicable	Not Applicable

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
I. SAFETY INJECTION (SIAS)		
A. Sensor/Trip Units		
1. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
2. Pressurizer Pressure - Low	≥ 1837 psia <sup>(1)</sup>	≥ 1821 psia <sup>(1)</sup>
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
II. CONTAINMENT ISOLATION (CIAS)		
A. Sensor/Trip Units		
1. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
2. Pressurizer Pressure - Low	≥ 1837 psia <sup>(1)</sup>	≥ 1821 psia <sup>(1)</sup>
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
III. CONTAINMENT SPRAY (CSAS)		
A. Sensor/Trip Units		
Containment Pressure High - High	≤ 8.5 psig	≤ 8.9 psig
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
IV. MAIN STEAM LINE ISOLATION (MSIS)		
A. Sensor/Trip Units		
1. Steam Generator Pressure - Low	≥ 895 psia <sup>(3)</sup>	≥ 890 psia <sup>(3)</sup>
2. Steam Generator Level - High	≤ 91.0% NR <sup>(2)</sup>	≤ 91.5% NR <sup>(2)</sup>
3. Containment Pressure - High	≤ 3.0 psig	≤ 3.2 psig
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable

PALO VERDE - UNIT 3

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Amendment No. 59, 77

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TRIP VALUES</u>	<u>ALLOWABLE VALUES</u>
V. RECIRCULATION (RAS)		
A. Sensor/Trip Units		
Refueling Water Storage Tank - Low	7.4% of Span	$7.9 \geq \% \text{ of Span} \geq 6.9$
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation System	Not Applicable	Not Applicable
VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1)		
A. Sensor/Trip Units		
1. Steam Generator #1 Level - Low	$\geq 25.8\% \text{ WR}^{(4)}$	$\geq 25.3\% \text{ WR}^{(4)}$
2. Steam Generator $\Delta$ Pressure - SG2 > SG1	$\leq 185 \text{ psid}$	$\leq 192 \text{ psid}$
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)		
A. Sensor/Trip Units		
1. Steam Generator #2 Level - Low	$\geq 25.8\% \text{ WR}^{(4)}$	$\geq 25.3\% \text{ WR}^{(4)}$
2. Steam Generator $\Delta$ Pressure - SG1 > SG2	$\leq 185 \text{ psid}$	$\leq 192 \text{ psid}$
B. ESFA System Logic	Not Applicable	Not Applicable
C. Actuation Systems	Not Applicable	Not Applicable
VIII. LOSS OF POWER		
A. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	$\geq 3250 \text{ volts}$	$\geq 3250 \text{ volts}$
B. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	3697 to 3786 volts	3697 to 3786 volts
IX. CONTROL ROOM ESSENTIAL FILTRATION	$\leq 2 \times 10^{-5} \mu\text{Ci/cc}$	$\leq 2 \times 10^{-5} \mu\text{Ci/cc}$

PALO VERDE - UNIT 3

3/4 3-26

Amendment No. 19, 67



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. NPF-41,

AMENDMENT NO. 97 TO FACILITY OPERATING LICENSE NO. NPF-51,

AND AMENDMENT NO. 77 TO FACILITY OPERATING LICENSE NO. NPF-74

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

PALO VERDE NUCLEAR GENERATING STATION, UNIT NOS. 1, 2, AND 3

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

1.0 INTRODUCTION

By application dated December 20, 1995, the Arizona Public Service Company (APS or the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License Nos. NPF-41, NPF-51, and NPF-74, respectively) for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The Arizona Public Service Company submitted this request on behalf of itself, the Salt River Project Agricultural Improvement and Power District, Southern California Edison Company, El Paso Electric Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority.

The proposed amendment would change the instrument setpoint for the reactor trip and main steam isolation signal (MSIS) actuation on low steam generator pressure from a trip setpoint of  $\geq 919$  psia with an allowable value of  $\geq 911$  psia to a trip setpoint of  $\geq 895$  psia with an allowable value of  $\geq 890$  psia.

2.0 BACKGROUND

As part of its setpoint verification program, the licensee recalculated the instrument uncertainties associated with the setpoint. The reduced instrument uncertainty thus obtained justifies a lower instrument setpoint. The revised calculation uses more realistic (but still conservative) assumptions for accident and post-accident conditions. To remain conservative, the calculation assumes a worst-case steamline break for containment environment assumptions and does not credit the fact that the transmitters are physically located away from the steamlines or that the transmitters are mounted to a very large heat sink. In addition, the calculation assumes the instrument is required for 30 minutes and conservatively does not take credit for the high containment pressure trip limiting temperature. To achieve more realistic results, the revised calculation uses the temperature at the instrument in lieu of the peak containment temperature during the postulated accident. The revised calculation also assumes a harsh environment only for the period of time in which the plant protection system instrument is required to mitigate the accident.

The licensee's proposed change provides additional operational margin between steam generator pressure and the MSIS and reactor trip setpoints. The current trip setpoint is  $\geq 919$  psia with an allowable value of  $\geq 911$  psia. Since the recent reduction in hot-leg temperature, normal steam generator pressure at full power is approximately 970 psia. The licensee's proposed change would lower the trip setpoint to  $\geq 895$  psia with an allowable value of  $\geq 890$  psia, which provides an additional 24 psia of margin between normal operation and the trip setpoint. The increased margin will enhance the safety of operation by decreasing the possibility of a spurious MSIS. The analytical setpoints used in the safety analysis remain unchanged.

The proposed setpoint change ensures that a reactor trip and MSIS engineered safety feature actuation will occur before the analyzed low steam generator pressure values are reached, even under worst-case accident conditions.

### 3.0 EVALUATION

The proposed technical specification (TS) changes to the instrumentation setpoint for the reactor trip and MSIS actuation on low steam generator pressure are as follows:

TS Table 2.2-1, "Reactor Protective Instrumentation Trip Setpoint Limits," Item 1.A.5, "Steam Generator Pressure - Low" - change the trip setpoint from  $\geq 919$  psia to  $\geq 895$  psia and change the allowable values from  $\geq 911$  psia to  $\geq 890$  psia.

TS Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoint Values," Item IV.A.1, "Steam Generator Pressure - Low" - change the trip setpoint" from  $\geq 919$  psia to  $\geq 985$  psia and change the allowable value from  $\geq 911$  psia to  $\geq 890$  psia.

The proposed revised trip setpoint and allowable value ensure that sufficient margin exists below the full load operating value for steam pressure so as not to interfere with normal plant operation, but are still high enough to provide the required protection (reactor trip and main steamline isolation) in the event of an excessive steam demand event. The setpoint change and the allowable value change was determined in accordance with Instrument Society of America Standard SP67.04 and Revision 2 of Regulatory Guide 1.105, "Instrument Setpoints," and is therefore acceptable.

TS Table 3.3-4, "Table Notations," Item (3) - change "In MODES 3-6" to "In MODES 3-4."

The purpose of Table Notation, Item (3) is to provide guidance on operation below the steam generator pressure trip setpoint in Modes 3-4. However, Table Notation, Item (3) currently indicates Modes 3-6. This is not consistent with the table notation in the Units 2 and 3 TS, and Table 3.3-3 indicates the MSIS engineered safety features actuation system instrumentation is not required below Mode 4. Table 3.3-3, Notation b, also provides guidance on operation below the steam generator pressure trip setpoint in Modes 3-4. Additionally,

steam generator operability is not required in Modes 5 and 6; hence, the typographical error needs to be corrected.

The proposed change to Unit 1 TS is purely administrative, correcting a typographical error in Notation 3 of Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Values." The proposed change is therefore acceptable.

#### 4.0 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.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (61 FR 7544). 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: C. Thomas

Date: April 5, 1996