

# 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. 74 License No. NPF-41

- 1. The Nuclear Regulatory Commission (the Commission) has found that:
  - Α. 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 October 26, 1993, as supplemented by letter dated March 28, 1994, 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;
  - Β. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission:
  - С. 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
  - Ε. 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) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 74, 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 must be fully implemented no later than 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Theodore & Lucy

Theodore R. Quay, Director Project Directorate IV-3 Division of Reactor Projects III/IV Office of Nuclear Reactor Regulation

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Attachment: Changes to the Technical ·Specifications

Date of Issuance: April 19, 1994

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## ATTACHMENT TO LICENSE AMENDMENT

# AMENDMENT\_NO. 74 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 vertical lines indicating the areas of change.

<u>Remove</u>	r	<u>Insert</u>
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### 5.3 REACTOR CORE

# FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 241 fuel assemblies with each fuel assembly normally containing 236 fuel rods or burnable poison rods clad with Zircaloy-4 except that limited substitution of fuel rods by filler rods consisting of Zircaloy-4 or stainless steel may be made if justified by a cycle specific reload analysis. Each fuel rod shall have a nominal active fuel length of 150 inches and contain a maximum total weight of approximately 1950 grams uranium. Each burnable poison rod shall have a nominal active poison length of 136 inches. The initial core loading shall have a maximum enrichment of 3.35 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum radially averaged enrichment of 4.30 weight percent U-235 at any axial location.\*

# CONTROL ELEMENT ASSEMBLIES

5.3.2 The reactor core shall contain 76 full-length and 13 part-length

# 5 4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

# 5.4.1 The Reactor Coolant System is designed and shall be maintained:

- a. In accordance with the code requirements, specified in Section 5.2 of the FSAR with allowance for normal degradation pursuant of the applicable surveillance requirements,
- b. For a pressure of 2500 psia, and
- c. For a temperature of 650°F, except for the pressurizer which is 700°F.

#### VOLUME

5.4.2 The total water and steam volume of the Reactor Coolant System is 13,900 + 300/-0 cubic feet at a nominal  $T_{avg}$  of 593°F.

<sup>\*</sup>No fuel with an enrichment greater than 4.0 weight percent U-235 shall be stored in a high density mode in the spent fuel storage facility.

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5.5 METE	OROLOGICAL TOWER LOCATION	N		1
5.5.1 Th	e meteorological tower si	hall be located a	s shown on Figur	<b>e 5.1+1.</b>
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5.6 FUEL	STORAGE			•
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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. 60 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 October 26, 1993, as supplemented by letter dated March 28, 1994, 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 Part 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) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 60, 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 must be fully implemented no later than 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Cheodore & Lucy

Theodore R. Quay, Director Project Directorate IV-3 Division of Reactor Projects III/IV Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 19, 1994

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# ATTACHMENT TO LICENSE AMENDMENT

#### AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. NPF-51

#### DOCKET NO. STN 50-529 •

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#### 5.3 REACTOR CORE

#### FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 241 fuel assemblies with each fuel assembly normally containing 236 fuel rods or burnable poison rods clad with Zircaloy-4 except that limited substitution of fuel rods by filler rods consisting of Zircaloy-4 or stainless steel may be made if justified by a cycle specific reload analysis. Each fuel rod shall have a nominal active fuel length of 150 inches and contain a maximum total weight of approximately 1950 grams uranium.' Each burnable poison rod shall have a nominal active poison length of 136 inches. The initial core loading shall have a maximum enrichment of 3.35 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum radially averaged enrichment of 4.30 weight percent U-235 at any axial location.\*

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#### CONTROL ELEMENT ASSEMBLIES

5.3.2 The reactor core shall contain 76 full-length and 13 part-length control element assemblies.

#### 5.4 REACTOR COOLANT SYSTEM

#### DESIGN PRESSURE AND TEMPERATURE

5.4.1 The Reactor Coolant System is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 5.2 of the FSAR with allowance for normal degradation pursuant of the applicable surveillance requirements,
- b. For a pressure of 2500 psia, and
- c. For a temperature of 650°F, except for the pressurizer which is 700°F.

#### VOLUME

5.4.2 The total water and steam volume of the Reactor Coolant System is 13,900 + 300/-0 cubic feet at a nominal  $T_{ava}$  of 593°F.

\*No fuel with an enrichment greater than 4.0 weight percent U-235 shall be stored in a high density mode in the spent fuel storage facility.

#### 5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

5.6.1 CRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with: The set into an designed and shall be maintained with: The set into an designed and shall be maintained.

- a. A  $k_{r,r}$  equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of 2.6% delta k/k for uncertainties as described in Section 9.1 of the FSAR.
- b. A nominal 9.5 inch center-to-center distance between fuel assemblies placed in the storage racks in achigh density configuration:

5.6.1.2 The keff for new fuel for the first core loading stored dry in the spent fuel storage racks shall not exceed 0.98 when aqueous foam moderation is assumed.

#### DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 137 feet - 6 inches.

#### CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more than 1329 fuel assemblies of the storage capacity limited to no more t

#### 5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

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5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Tables 5.7-1 and 5.7-2.

PALO VERDE - UNIT 2



# 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. 46 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 October 26, 1993, as supplemented by letter dated March 28, 1994, 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:

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# (2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 46, 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 must be fully implemented no later than 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Theodore R. Quay

Theodore R. Quay, Director Project Directorate IV-3 Division of Reactor Projects III/IV Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 19, 1994

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# ATTACHMENT TO LICENSE AMENDMENT

#### AMENDMENT NO. 46 TO FACILITY OPERATING LICENSE NO. NPF-74

# DOCKET NO. STN 50-530

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

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# 5.3 REACTOR CORE

#### FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 241 fuel assemblies with each fuel assembly normally containing 236 fuel rods or burnable poison rods clad with Zircaloy-4 except that limited substitution of fuel rods by filler rods consisting of Zircaloy-4 or stainless steel may be made if justified by a cycle specific reload analysis. Substitution of up to a total of 80 fuel rods clad with zirconium-based alloys other than Zircaloy-4 may also be made in two fuel assemblies for in-reactor performance evaluation purposes during Cycles 4, 5 and 6. Each fuel rod shall have a nominal active fuel length of 150 inches and contain a maximum total weight of approximately 1950 grams uranium. Each burnable poison rod shall have a nominal active poison length of 136 inches. The initial core loading shall have a maximum enrichment of 3.35 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum radially averaged enrichment of 4.30 weight percent U-235 at any axial location.\*

#### CONTROL ELEMENT ASSEMBLIES

5.3.2 The reactor core shall contain 76 full-length and 13 part-length control element assemblies.

#### 5.4 REACTOR COOLANT SYSTEM

#### DESIGN PRESSURE AND TEMPERATURE

5.4.1 The Reactor Coolant System is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 5.2 of the FSAR with allowance for normal degradation pursuant of the applicable surveillance requirements,
- b. For a pressure of 2500 psia, and
- c. For a temperature of 650°F, except for the pressurizer which is 700°F.

#### VOLUME

5.4.2 The total water and steam volume of the Reactor Coolant System is 13,900 + 300/-0 cubic feet at a nominal  $T_{ava}$  of 593°F.

\*No fuel with an enrichment greater than 4.0 weight percent U-235 shall be stored in a high density mode in the spent fuel storage facility.

PALO VERDE - UNIT 3

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#### 5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

# 5.6 FUEL STORAGE

#### 5.6.1 CRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

- a. A k enterpoint to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of 2.6% delta k/k for uncertainties as described in Section 9.1 of the FSAR.
- b. A nominal 9.5 inch center-to-center distance between fuel assemblies placed in the storage racks in a high density configuration.

5.6.1.2 The  $k_{eff}$  for new fuel-for the first core loading stored dry in the spent fuel storage racks shall not exceed 0.98 when aqueous foam moderation is assumed.

#### DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 137 feet - 6 inches.

#### CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1329 fuel assemblies.

#### 5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Tables 5.7-1 and 5.7-2.

#### PALO VERDE - UNIT 3