

August 14, 1987

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

Mr. E. E. Van Brunt, Jr.
Executive Vice President
Arizona Nuclear Power Project
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Dear Mr. Van Brunt:

SUBJECT: ISSUANCE OF AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NO. NPF-41, AMENDMENT NO. 10 TO FACILITY OPERATING LICENSE NO. NPF-51, AND AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. NPF-65, FOR THE PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2 AND 3, RESPECTIVELY (TAC NOS. 64617-9, 65101-3, 65298-9, AND 65300-3)

The Commission has issued the subject Amendments, which are enclosed, to the Facility Operating Licenses for Palo Verde Nuclear Generating Station, Units 1, 2 and 3. The Amendments consist of changes to the Technical Specifications (Appendix A to each license) in response to your four applications transmitted by letters dated January 23, 1987 (as supplemented by letter dated May 15, 1987), April 6, May 4 and May 6, 1987.

The Amendments revise the following Technical Specifications for each of the three Palo Verde Units. The surveillance requirements for the hydrogen recombiner system in Specification 4.6.4.2 have been expanded to conform to the testing regimen prescribed by the vendor. The capacity specified for the pressurizer heaters in Specification 3/4.4.3 has been revised from a nominal value of 150 kW to a minimum value of 125 kW to allow for variations in the bus voltage. The definitions of the Rate and Band inputs to the Variable Over-power Trip function, noted in Table 2.2-1 of Specification 2.2, have been revised to include a limit for a decreasing Rate and to clarify that the Band value is based on a steady state input signal. Specification 3.0.3 has been revised by combining the two steps for achieving Hot Shutdown from Hot Standby within six hours and Cold Shutdown within the subsequent 24 hours, into one step for achieving Cold Shutdown from Hot Standby within 30 hours.

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Mr. E. E. Van Brunt, Jr.

- 2 -

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

Original signed by:
E. A. Licitra

E. A. Licitra, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:

1. Amendment No. 19 to NPF-41
2. Amendment No. 10 to NPF-51
3. Amendment No. 1 to NPF-65
4. Safety Evaluation

cc: See next page

DRSP/PD5
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8/30/87

DRSP/PD5
ELicitra:bd
8/13/87

OGC
8/14/87

DRSP/PD5
GKNighton
8/14/87

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Arizona Nuclear Power Project

Palo Verde

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

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. 19
License No. NPF-41

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The four applications for amendment, dated January 23, 1987 (as supplemented by letter dated May 15, 1987), April 6, May 4 and May 6, 1987, by the Arizona Public Service Company (APS) 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 (licensees), comply 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 applications, the provisions of the Act, and the 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.

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TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS

- (1) Trip may be manually bypassed above 10⁻⁴% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is less than or equal to 10⁻⁴% of RATED THERMAL POWER.
- (2) 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.
- (3) In MODES 3-6, 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.
- (5) As stored within the Core Protection Calculator (CPC). Calculation of the trip setpoint includes measurement, calculational and processor uncertainties, and dynamic allowances. Trip may be manually bypassed below 1% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is greater than or equal to 1% of RATED THERMAL POWER.

The approved DNBR limit is 1.231 which includes a partial rod bow penalty compensation. If the fuel burnup exceeds that for which an increased rod bow penalty is required, the DNBR limit shall be adjusted. In this case a DNBR trip setpoint of 1.231 is allowed provided that the difference is compensated by an increase in the CPC addressable constant BERR1 as follows:

$$BERR1_{new} = BERR1_{old} \left[1 + \frac{RB - RB_o}{100} \times \frac{d (\% POL)}{d (\% DNBR)} \right]$$

where $BERR1_{old}$ is the uncompensated value of BERR1; RB is the fuel rod bow penalty in % DNBR; RB_o is the fuel rod bow penalty in % DNBR already accounted for in the DNBR limit; POL is the power operating limit; and $d (\% POL)/d (\% DNBR)$ is the absolute value of the most adverse derivative of POL with respect to DNBR.

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS (Continued)

- (6) RATE is the maximum rate of decrease of the trip setpoint. There are no restrictions on the rate at which the setpoint can increase.
FLOOR is the minimum value of the trip setpoint.
BAND is the amount by which the trip setpoint is below the input signal unless limited by Rate or Floor.
Setpoints are based on steam generator differential pressure.
- (7) The setpoint may be altered to disable trip function during testing pursuant to Specification 3.10.3.
- (8) RATE is the maximum rate of increase of the trip setpoint. (The rate at which the setpoint can decrease is no slower than five percent per second.)
CEILING is the maximum value of the trip setpoint.
BAND is the amount by which the trip setpoint is above the steady state input signal unless limited by the rate or the ceiling.
- (9) % of the distance between steam generator upper and lower level narrow range instrument nozzles.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure 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. 19, 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.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for *Ed Licitra*
George W. Knighton, Director
Project Directorate V
Division of Reactor Projects - III
IV, V and Special Projects

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: August 14, 1987

August 14, 1987

ENCLOSURE TO LICENSE AMENDMENT

AMENDMENT NO. 19 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. Also to be replaced are the following overleaf pages to the amended pages.

Amendment Pages

Overleaf Pages

2-6	• 2-5
3/4 0-1	3/4 0-2
3/4 4-9	3/4 4-10
3/4 6-37	3/4 6-38
B 3/4 0-1	B 3/4 0-2

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding specifications is required during the OPERATIONAL MODES or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a specification shall exist when the requirements of the Limiting Condition for Operation and/or associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within 1 hour, action shall be initiated to place the unit in a MODE in which the specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours, and
2. At least COLD SHUTDOWN within the following 30 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications.

This specification is not applicable in MODE 5 or 6.

3.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION statements. Exceptions to these requirements are stated in the individual specifications.

APPLICABILITY

SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements shall be applicable during the OPERATIONAL MODES or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillance Requirement.

4.0.2 Each Surveillance Requirement shall be performed within the specified time interval with:

- a. A maximum allowable extension not to exceed 25% of the surveillance interval, and
- b. The combined time interval for any three consecutive surveillance intervals not to exceed 3.25 times the specified surveillance interval.

4.0.3 Failure to perform a Surveillance Requirement within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications. Surveillance Requirements do not have to be performed on inoperable equipment.

4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the stated surveillance interval or as otherwise specified.

4.0.5 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2, and 3 components shall be applicable as follows:

- a. Inservice inspection of ASME Code Class 1, 2, and 3 components and inservice testing ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).
- b. Surveillance intervals specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for the inservice inspection and testing activities required by the ASME Boiler and Pressure Vessel Code and applicable Addenda shall be applicable as follows in these Technical Specifications:

REACTOR COOLANT SYSTEM

3/4.4.3 PRESSURIZER

PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3.1 The pressurizer shall be OPERABLE with a minimum steady-state water level of greater than or equal to 27% indicated level (425 cubic feet) and a maximum steady-state water level of less than or equal to 56% indicated level (948 cubic feet) and at least two groups of pressurizer heaters capable of being powered from Class 1E buses each having a minimum capacity of 125 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With only one group of the above required pressurizer heaters OPERABLE, restore at least two groups to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With the pressurizer otherwise inoperable, restore the pressurizer to OPERABLE status within 1 hour, or be in at least HOT STANDBY with the reactor trip breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1.1 The pressurizer water volume shall be determined to be within its limits at least once per 12 hours.

4.4.3.1.2 The capacity of the above required groups of pressurizer heaters shall be verified to be at least 125 kW at least once per 92 days.

4.4.3.1.3 The emergency power supply for the pressurizer heaters shall be demonstrated OPERABLE at least once per 18 months by verifying that on an Engineered Safety Features Actuation test signal concurrent with a loss-of-offsite power:

- a. The pressurizer heaters are automatically shed from the emergency power sources, and
- b. The pressurizer heaters can be reconnected to their respective buses manually from the control room.

REACTOR COOLANT SYSTEM

AUXILIARY SPRAY

LIMITING CONDITION FOR OPERATION

3.4.3.2 Both auxiliary spray valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With only one of the above required auxiliary spray valves OPERABLE, restore both valves to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With none of the above required auxiliary spray valves OPERABLE, restore at least one valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The auxiliary spray valves shall be verified to have power available to each valve every 24 hours.

4.4.3.2.2 The auxiliary spray valves shall be cycled at least once per 18 months.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.4.2 Two portable independent containment hydrogen recombiner systems shared among the three units shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION: *

With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or meet the requirements of Specification 3.6.4.3, or be in at least HOT STANDBY within the next 6 hours.*

SURVEILLANCE REQUIREMENTS

4.6.4.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:

- a. At least once per 6 months by:
 1. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure and control console.
 2. Operating the recombiner to include the air blast heat exchanger fan motor and enclosed blower motor continuously for at least 30 minutes at a temperature of approximately 800°F reaction chamber temperature.
- b. At least once per year by performing a CHANNEL CALIBRATION of recombiner instrumentation to include a functional test of the recombiner at 1200°F ($\pm 50^\circ\text{F}$) for at least four hours.

*Prior to March 30, 1986 or until the completion of the environmental qualification modifications to the hydrogen recombiner system, whichever occurs first, the provisions of Specification 3.0.4 are not applicable during implementation of the environmental qualification modifications to the hydrogen recombiner system when the containment hydrogen purge cleanup system described in Specification 3.6.4.3 is OPERABLE.

CONTAINMENT SYSTEMS

HYDROGEN PURGE CLEANUP SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.4.3 A containment hydrogen purge cleanup system, shared among the three units, shall be OPERABLE and capable of being powered from a minimum of one OPERABLE emergency bus.

APPLICABILITY: MODES 1* and 2.*

ACTION:

With the containment hydrogen purge cleanup system inoperable and one hydrogen recombiner OPERABLE as determined by Specification 4.6.4.2, restore the hydrogen purge cleanup system to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.3 The hydrogen purge cleanup system shall be demonstrated OPERABLE:

- a. At least once per 31 days by initiating flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes.
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 50 scfm $\pm 10\%$.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,** meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.**

*With less than two hydrogen recombiners OPERABLE.

**ANSI N509-1980 is applicable for this specification.

3/4.0 APPLICABILITY

BASES

The specifications of this section provide the general requirements applicable to each of the Limiting Conditions for Operation and Surveillance Requirements within Section 3/4.

3.0.1 This specification defines the applicability of each specification in terms of defined OPERATIONAL MODES or other specified conditions and is provided to delineate specifically when each specification is applicable.

3.0.2 This specification defines those conditions necessary to constitute compliance with the terms of an individual Limiting Condition for Operation and associated ACTION requirement.

3.0.3 This specification delineates the measures to be taken for circumstances not directly provided for in the ACTION statements and whose occurrence would violate the intent of a specification. For example, Specification 3.6.2.1 requires two containment spray systems to be OPERABLE and provides explicit ACTION requirements if one spray system is inoperable. Under the terms of Specification 3.0.3, if both of the required containment spray systems are inoperable, within 1 hour measures must be initiated to place the unit in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN in the following 30 hours.

3.0.4 This specification provides that entry into an OPERATIONAL MODE or other specified applicability condition must be made with (a) the full complement of required systems, equipment, or components OPERABLE and (b) all other parameters as specified in the Limiting Conditions for Operation being met without regard for allowable deviations and out of service provisions contained in the ACTION statements.

The intent of this provision is to ensure that facility operation is not initiated with either required equipment or systems inoperable or other specified limits being exceeded.

Exceptions to this specification have been provided for a limited number of specifications when startup with inoperable equipment would not affect plant safety. These exceptions are stated in the ACTION statements of the appropriate specifications.

BASES

4.0.1 This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operation are met and will be performed during the OPERATIONAL MODES or other conditions for which the Limiting Conditions for Operation are applicable. Provisions for additional surveillance activities to be performed without regard to the applicable OPERATIONAL MODES or other conditions are provided in the individual surveillance requirements. Surveillance requirements for Special Test Exceptions need only be performed when the Special Test Exception is being utilized as an exception to an individual specification.

4.0.2 The provisions of this specification provide allowable tolerances for performing surveillance activities beyond those specified in the nominal surveillance interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a surveillance frequency does not negate this allowable tolerance value and permits the performance of more frequent surveillance activities.

The tolerance values, taken either individually or consecutively over three test intervals, are sufficiently restrictive to ensure that the reliability associated with the surveillance activity is not significantly degraded beyond that obtained from the nominal specified interval.

4.0.3 The provisions of this specification set forth the criteria for determination of compliance with the OPERABILITY requirements of the Limiting Conditions for Operation. Under these criteria, equipment, systems, or components are assumed to be OPERABLE if the associated surveillance activities have been satisfactorily performed within the specified time interval. Nothing in this provision is to be construed as defining equipment, systems, or components OPERABLE, when such items are found or known to be inoperable although still meeting the surveillance requirements.



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

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. 10
License No. NPF-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The four applications for amendment, dated January 23, 1987 (as supplemented by letter dated May 15, 1987), April 6, May 4 and May 6, 1987, by the Arizona Public Service Company (APS) 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 (licensees), comply 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 applications, the provisions of the Act, and the 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 enclosure 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. 10, 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.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for *Ed Licitra*
George W. Knighton, Director
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: August 14, 1987

August 14, 1987

ENCLOSURE TO LICENSE AMENDMENT

AMENDMENT NO. 10 TO FACILITY OPERATING LICENSE NO. NPF-51

DOCKET NO. STN 50-529

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. Also to be replaced are the following overleaf pages to the amended pages.

Amendment Pages

Overleaf Pages

2-6	• 2-5
3/4 0-1	3/4 0-2
3/4 4-9	3/4 4-10
3/4 6-37	3/4 6-38
B 3/4 0-1	B 3/4 0-2

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS

- (1) Trip may be manually bypassed above 10⁻⁴% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is less than or equal to 10⁻⁴% of RATED THERMAL POWER.
- (2) In MODES 3-4, 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.
- (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.
- (5) As stored within the Core Protection Calculator (CPC). Calculation of the trip setpoint includes measurement, calculational and processor uncertainties, and dynamic allowances. Trip may be manually bypassed below 1% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is greater than or equal to 1% of RATED THERMAL POWER.

The approved DNBR limit is 1.231 which includes a partial rod bow penalty compensation. If the fuel burnup exceeds that for which an increased rod bow penalty is required, the DNBR limit shall be adjusted. In this case a DNBR trip setpoint of 1.231 is allowed provided that the difference is compensated by an increase in the CPC addressable constant BERR1 as follows:

$$BERR1_{new} = BERR1_{old} \left[1 + \frac{RB - RB_o}{100} \times \frac{d(\% POL)}{d(\% DNBR)} \right]$$

where BERR1_{old} is the uncompensated value of BERR1; RB is the fuel rod bow penalty in % DNBR; RB_o is the fuel rod bow penalty in % DNBR already accounted for in the DNBR limit; POL is the power operating limit; and d(% POL)/d(% DNBR) is the absolute value of the most adverse derivative of POL with respect to DNBR.

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS (Continued)

- (6) RATE is the maximum rate of decrease of the trip setpoint. There are no restrictions on the rate at which the setpoint can increase.
FLOOR is the minimum value of the trip setpoint.
BAND is the amount by which the trip setpoint is below the input signal unless limited by Rate or Floor.
Setpoints are based on steam generator differential pressure.
- (7) The setpoint may be altered to disable trip function during testing pursuant to Specification 3.10.3.
- (8) RATE is the maximum rate of increase of the trip setpoint. (The rate at which the setpoint can decrease is no slower than five percent per second.)
CEILING is the maximum value of the trip setpoint.
BAND is the amount by which the trip setpoint is above the steady state input signal unless limited by the rate or the ceiling.
- (9) % of the distance between steam generator upper and lower level narrow range instrument nozzles.

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding specifications is required during the OPERATIONAL MODES or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a specification shall exist when the requirements of the Limiting Condition for Operation and/or associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within 1 hour, action shall be initiated to place the unit in a MODE in which the specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours, and
2. At least COLD SHUTDOWN within the following 30 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications.

This specification is not applicable in MODE 5 or 6.

3.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION statements. Exceptions to these requirements are stated in the individual specifications.

APPLICABILITY

SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements shall be applicable during the OPERATIONAL MODES or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillance Requirement.

4.0.2 Each Surveillance Requirement shall be performed within the specified time interval with:

- a. A maximum allowable extension not to exceed 25% of the surveillance interval, and
- b. The combined time interval for any three consecutive surveillance intervals not to exceed 3.25 times the specified surveillance interval.

4.0.3 Failure to perform a Surveillance Requirement within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications. Surveillance Requirements do not have to be performed on inoperable equipment.

4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the stated surveillance interval or as otherwise specified.

4.0.5 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2, and 3 components shall be applicable as follows:

- a. Inservice inspection of ASME Code Class 1, 2, and 3 components and inservice testing ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).
- b. Surveillance intervals specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for the inservice inspection and testing activities required by the ASME Boiler and Pressure Vessel Code and applicable Addenda shall be applicable as follows in these Technical Specifications:

REACTOR COOLANT SYSTEM

3/4.4.3 PRESSURIZER

PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3.1 The pressurizer shall be OPERABLE with a minimum steady-state water level of greater than or equal to 27% indicated level (425 cubic feet) and a maximum steady-state water level of less than or equal to 56% indicated level (948 cubic feet) and at least two groups of pressurizer heaters capable of being powered from Class 1E buses each having a minimum capacity of 125 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With only one group of the above required pressurizer heaters OPERABLE, restore at least two groups to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With the pressurizer otherwise inoperable, restore the pressurizer to OPERABLE status within 1 hour, or be in at least HOT STANDBY with the reactor trip breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1.1 The pressurizer water volume shall be determined to be within its limits at least once per 12 hours.

4.4.3.1.2 The capacity of the above required groups of pressurizer heaters shall be verified to be at least 125 kW at least once per 92 days.

4.4.3.1.3 The emergency power supply for the pressurizer heaters shall be demonstrated OPERABLE at least once per 18 months by verifying that on an Engineered Safety Features Actuation test signal concurrent with a loss-of-offsite power:

- a. The pressurizer heaters are automatically shed from the emergency power sources, and
- b. The pressurizer heaters can be reconnected to their respective buses manually from the control room.

REACTOR COOLANT SYSTEM

AUXILIARY SPRAY

LIMITING CONDITION FOR OPERATION

3.4.3.2 Both auxiliary spray valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With only one of the above required auxiliary spray valves OPERABLE, restore both valves to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With none of the above required auxiliary spray valves OPERABLE, restore at least one valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The auxiliary spray valves shall be verified to have power available to each valve every 24 hours.

4.4.3.2.2 CH-HV-524 and CH-HV-532 shall be verified locked open at least once per 31 days.

4.4.3.2.3 The auxiliary spray valves shall be cycled at least once per 18 months.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.4.2 Two portable independent containment hydrogen recombiner systems shared among the three units shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or meet the requirements of Specification 3.6.4.3, or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:

- a. At least once per 6 months by:
 1. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure and control console.
 2. Operating the recombiner to include the air blast heat exchanger fan motor and enclosed blower motor continuously for at least 30 minutes at a temperature of approximately 800°F reaction chamber temperature.
- b. At least once per year by performing a CHANNEL CALIBRATION of recombiner instrumentation to include a functional test of the recombiner at 1200°F ($\pm 50^\circ\text{F}$) for at least four hours.

CONTAINMENT SYSTEMS

HYDROGEN PURGE CLEANUP SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.4.3 A containment hydrogen purge cleanup system, shared among the three units, shall be OPERABLE and capable of being powered from a minimum of one OPERABLE emergency bus.

APPLICABILITY: MODES 1* and 2*.

ACTION:

With the containment hydrogen purge cleanup system inoperable and one hydrogen recombiner OPERABLE as determined by Specification 4.6.4.2, restore the hydrogen purge cleanup system to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

- 4.6.4.3 The hydrogen purge cleanup system shall be demonstrated OPERABLE.
- a. At least once per 31 days by initiating flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes.
 - b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 50 scfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,** meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.**

*With less than two hydrogen recombiners OPERABLE.

**ANSI N509-1980 is applicable for this specification.

3/4.0 APPLICABILITY

BASES

The specifications of this section provide the general requirements applicable to each of the Limiting Conditions for Operation and Surveillance Requirements within Section 3/4.

3.0.1 This specification defines the applicability of each specification in terms of defined OPERATIONAL MODES or other specified conditions and is provided to delineate specifically when each specification is applicable.

3.0.2 This specification defines those conditions necessary to constitute compliance with the terms of an individual Limiting Condition for Operation and associated ACTION requirement.

3.0.3 This specification delineates the measures to be taken for circumstances not directly provided for in the ACTION statements and whose occurrence would violate the intent of a specification. For example, Specification 3.6.2.1 requires two containment spray systems to be OPERABLE and provides explicit ACTION requirements if one spray system is inoperable. Under the terms of Specification 3.0.3, if both of the required containment spray systems are inoperable, within 1 hour measures must be initiated to place the unit in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN in the following 30 hours.

3.0.4 This specification provides that entry into an OPERATIONAL MODE or other specified applicability condition must be made with (a) the full complement of required systems, equipment, or components OPERABLE and (b) all other parameters as specified in the Limiting Conditions for Operation being met without regard for allowable deviations and out of service provisions contained in the ACTION statements.

The intent of this provision is to ensure that facility operation is not initiated with either required equipment or systems inoperable or other specified limits being exceeded.

Exceptions to this specification have been provided for a limited number of specifications when startup with inoperable equipment would not affect plant safety. These exceptions are stated in the ACTION statements of the appropriate specifications.

BASES

4.0.1 This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operation are met and will be performed during the OPERATIONAL MODES or other conditions for which the Limiting Conditions for Operation are applicable. Provisions for additional surveillance activities to be performed without regard to the applicable OPERATIONAL MODES or other conditions are provided in the individual surveillance requirements. Surveillance requirements for Special Test Exceptions need only be performed when the Special Test Exception is being utilized as an exception to an individual specification.

4.0.2 The provisions of this specification provide allowable tolerances for performing surveillance activities beyond those specified in the nominal surveillance interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a surveillance frequency does not negate this allowable tolerance value and permits the performance of more frequent surveillance activities.

The tolerance values, taken either individually or consecutively over three test intervals, are sufficiently restrictive to ensure that the reliability associated with the surveillance activity is not significantly degraded beyond that obtained from the nominal specified interval.

4.0.3 The provisions of this specification set forth the criteria for determination of compliance with the OPERABILITY requirements of the Limiting Conditions for Operation. Under these criteria, equipment, systems, or components are assumed to be OPERABLE if the associated surveillance activities have been satisfactorily performed within the specified time interval. Nothing in this provision is to be construed as defining equipment, systems, or components OPERABLE, when such items are found or known to be inoperable, although still meeting the surveillance requirements.



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

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. 1
License No. NPF-65

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The four applications for amendment, dated January 23, 1987 (as supplemented by letter dated May 15, 1987), April 6, May 4 and May 6, 1987, by the Arizona Public Service Company (APS) 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 (licensees), comply 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 applications, the provisions of the Act, and the 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 enclosure to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-65 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. 1, 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.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for *Ed Knighton*
George W. Knighton, Director
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: August 14, 1987

August 14, 1987

ENCLOSURE TO LICENSE AMENDMENT

AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. NPF-65

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 vertical lines indicating the areas of change. Also to be replaced are the following overleaf pages to the amended pages.

Amendment Pages

Overleaf Pages

2-6	• 2-5
3/4 0-1	3/4 0-2
3/4 4-9	3/4 4-10
3/4 6-37	3/4 6-38
B 3/4 0-1	B 3/4 0-2

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS

- (1) Trip may be manually bypassed above 10⁻⁴% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is less than or equal to 10⁻⁴% of RATED THERMAL POWER.
- (2) In MODES 3-4, 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.
- (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.
- (5) As stored within the Core Protection Calculator (CPC). Calculation of the trip setpoint includes measurement, calculational and processor uncertainties, and dynamic allowances. Trip may be manually bypassed below 1% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is greater than or equal to 1% of RATED THERMAL POWER.

The approved DNBR limit is 1.231 which includes a partial rod bow penalty compensation. If the fuel burnup exceeds that for which an increased rod bow penalty is required, the DNBR limit shall be adjusted. In this case a DNBR trip setpoint of 1.231 is allowed provided that the difference is compensated by an increase in the CPC addressable constant BERR1 as follows:

$$BERR1_{new} = BERR1_{old} \left[1 + \frac{RB - RB_0}{100} \times \frac{d (\% POL)}{d (\% DNBR)} \right]$$

- where BERR1_{old} is the uncompensated value of BERR1; RB is the fuel rod bow penalty in % DNBR; RB₀ is the fuel rod bow penalty in % DNBR already accounted for in the DNBR limit; POL is the power operating limit; and d (% POL)/d (% DNBR) is the absolute value of the most adverse derivative of POL with respect to DNBR.

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS (Continued)

- (6) RATE is the maximum rate of decrease of the trip setpoint. There are no restrictions on the rate at which the setpoint can increase.
FLOOR is the minimum value of the trip setpoint.
BAND is the amount by which the trip setpoint is below the input signal unless limited by Rate or Floor.
Setpoints are based on steam generator differential pressure.
- (7) The setpoint may be altered to disable trip function during testing pursuant to Specification 3.10.3.
- (8) RATE is the maximum rate of increase of the trip setpoint. (The rate at which the setpoint can decrease is no slower than five percent per second.)
CEILING is the maximum value of the trip setpoint.
BAND is the amount by which the trip setpoint is above the steady state input signal unless limited by the rate or the ceiling.
- (9) % of the distance between steam generator upper and lower level narrow range instrument nozzles.

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding specifications is required during the OPERATIONAL MODES or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a specification shall exist when the requirements of the Limiting Condition for Operation and/or associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within 1 hour, action shall be initiated to place the unit in a MODE in which the specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours, and
2. At least COLD SHUTDOWN within the following 30 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications.

This specification is not applicable in MODE 5 or 6.

3.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION statements. Exceptions to these requirements are stated in the individual specifications.

APPLICABILITY

SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements shall be applicable during the OPERATIONAL MODES or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillance Requirement.

4.0.2 Each Surveillance Requirement shall be performed within the specified time interval with:

- a. A maximum allowable extension not to exceed 25% of the surveillance interval, and
- b. The combined time interval for any three consecutive surveillance intervals not to exceed 3.25 times the specified surveillance interval.

4.0.3 Failure to perform a Surveillance Requirement within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications. Surveillance Requirements do not have to be performed on inoperable equipment.

4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the stated surveillance interval or as otherwise specified.

4.0.5 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1, 2, and 3 components shall be applicable as follows:

- a. Inservice inspection of ASME Code Class 1, 2, and 3 components and inservice testing ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).
- b. Surveillance intervals specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for the inservice inspection and testing activities required by the ASME Boiler and Pressure Vessel Code and applicable Addenda shall be applicable as follows in these Technical Specifications:

REACTOR COOLANT SYSTEM

3/4.4.3 PRESSURIZER

PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3.1 The pressurizer shall be OPERABLE with a minimum steady-state water level of greater than or equal to 27% indicated level (425 cubic feet) and a maximum steady-state water level of less than or equal to 56% indicated level (948 cubic feet) and at least two groups of pressurizer heaters capable of being powered from Class 1E buses each having a minimum capacity of 125 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With only one group of the above required pressurizer heaters OPERABLE, restore at least two groups to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With the pressurizer otherwise inoperable, restore the pressurizer to OPERABLE status within 1 hour, or be in at least HOT STANDBY with the reactor trip breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1.1 The pressurizer water volume shall be determined to be within its limits at least once per 12 hours.

4.4.3.1.2 The capacity of the above required groups of pressurizer heaters shall be verified to be at least 125 kW at least once per 92 days.

4.4.3.1.3 The emergency power supply for the pressurizer heaters shall be demonstrated OPERABLE at least once per 18 months by verifying that on an Engineered Safety Features Actuation test signal concurrent with a loss-of-offsite power:

- a. The pressurizer heaters are automatically shed from the emergency power sources, and
- b. The pressurizer heaters can be reconnected to their respective buses manually from the control room.

REACTOR COOLANT SYSTEM

AUXILIARY SPRAY

LIMITING CONDITION FOR OPERATION

3.4.3.2 Both auxiliary spray valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With only one of the above required auxiliary spray valves OPERABLE, restore both valves to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With none of the above required auxiliary spray valves OPERABLE, restore at least one valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The auxiliary spray valves shall be verified to have power available to each valve every 24 hours.

4.4.3.2.2 CH-HV-524 and CH-HV-532 shall be verified locked open at least once per 31 days.

4.4.3.2.3 The auxiliary spray valves shall be cycled at least once per 18 months.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.4.2 Two portable independent containment hydrogen recombiner systems shared among the three units shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION: *

With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or meet the requirements of Specification 3.6.4.3, or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:

- a. At least once per 6 months by:
 1. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure and control console.
 2. Operating the recombiner to include the air blast heat exchanger fan motor and enclosed blower motor continuously for at least 30 minutes at a temperature of approximately 800°F reaction chamber temperature.
- b. At least once per year by performing a CHANNEL CALIBRATION of recombiner instrumentation to include a functional test of the recombiner at 1200°F ($\pm 50^\circ\text{F}$) for at least four hours.

CONTAINMENT SYSTEMS

HYDROGEN PURGE CLEANUP SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.4.3 A containment hydrogen purge cleanup system, shared among the three units, shall be OPERABLE and capable of being powered from a minimum of one OPERABLE emergency bus.

APPLICABILITY: MODES 1* and 2*.

ACTION:

With the containment hydrogen purge cleanup system inoperable and one hydrogen recombiner OPERABLE as determined by Specification 4.6.4.2, restore the hydrogen purge cleanup system to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.*

SURVEILLANCE REQUIREMENTS

4.6.4.3 The hydrogen purge cleanup system shall be demonstrated OPERABLE.

- a. At least once per 31 days by initiating flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes.
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:
 1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 50 scfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978**, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978**.

*With less than two hydrogen recombiners OPERABLE.

**ANSI N509-1980 is applicable for this specification.

3/4.0 APPLICABILITY

BASES

The specifications of this section provide the general requirements applicable to each of the Limiting Conditions for Operation and Surveillance Requirements within Section 3/4.

3.0.1 This specification defines the applicability of each specification in terms of defined OPERATIONAL MODES or other specified conditions and is provided to delineate specifically when each specification is applicable.

3.0.2 This specification defines those conditions necessary to constitute compliance with the terms of an individual Limiting Condition for Operation and associated ACTION requirement.

3.0.3 This specification delineates the measures to be taken for circumstances not directly provided for in the ACTION statements and whose occurrence would violate the intent of a specification. For example, Specification 3.6.2.1 requires two containment spray systems to be OPERABLE and provides explicit ACTION requirements if one spray system is inoperable. Under the terms of Specification 3.0.3, if both of the required containment spray systems are inoperable, within 1 hour measures must be initiated to place the unit in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN in the following 30 hours.

3.0.4 This specification provides that entry into an OPERATIONAL MODE or other specified applicability condition must be made with (a) the full complement of required systems, equipment, or components OPERABLE and (b) all other parameters as specified in the Limiting Conditions for Operation being met without regard for allowable deviations and out of service provisions contained in the ACTION statements.

The intent of this provision is to ensure that facility operation is not initiated with either required equipment or systems inoperable or other specified limits being exceeded.

Exceptions to this specification have been provided for a limited number of specifications when startup with inoperable equipment would not affect plant safety. These exceptions are stated in the ACTION statements of the appropriate specifications.

4.0.1 This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operation are met and will be performed during the OPERATIONAL MODES or other conditions for which the Limiting Conditions for Operation are applicable. Provisions for additional surveillance activities to be performed without regard to the applicable OPERATIONAL MODES or other conditions are provided in the individual surveillance requirements. Surveillance requirements for Special Test Exceptions need only be performed when the Special Test Exception is being utilized as an exception to an individual specification.

4.0.2 The provisions of this specification provide allowable tolerances for performing surveillance activities beyond those specified in the nominal surveillance interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a surveillance frequency does not negate this allowable tolerance value and permits the performance of more frequent surveillance activities.

The tolerance values, taken either individually or consecutively over three test intervals, are sufficiently restrictive to ensure that the reliability associated with the surveillance activity is not significantly degraded beyond that obtained from the nominal specified interval.

4.0.3 The provisions of this specification set forth the criteria for determination of compliance with the OPERABILITY requirements of the Limiting Conditions for Operation. Under these criteria, equipment, systems, or components are assumed to be OPERABLE if the associated surveillance activities have been satisfactorily performed within the specified time interval. Nothing in this provision is to be construed as defining equipment, systems, or components OPERABLE, when such items are found or known to be inoperable although still meeting the surveillance requirements.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NO. NPF-41,
AMENDMENT NO. 10 TO FACILITY OPERATING LICENSE NO. NPF-51
AND AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. NPF-65
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 letters dated January 23, April 6, May 4 and May 6, 1987, as supplemented by letter dated May 15, 1987, the Arizona Public Service Company (APS) 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 (licensees), requested changes to the Technical Specifications for Palo Verde Nuclear Generating Station, Units 1, 2 and 3 (Appendices A to Facility Operating License Nos. NPF-41, NPF-51 and NPF-65 respectively). The four applications requested changes to (1) the surveillance requirements in Specification 4.6.4.2 for the hydrogen recombiner system, (2) the pressurizer heater capacity in Specification 3/4.4.3, (3) the definition in Table 2.2-1 of the Rate and Band terms which provide input to the Variable Overpower Trip function, and (4) the number of steps in Specification 3.0.3 for achieving Cold Shutdown.

2.0 DISCUSSION

A discussion of each of the four applications is presented below:

(a) Hydrogen Recombiner

By letters dated January 23 and May 15, 1987, APS requested approval of a proposed change to Technical Specification (TS) 4.6.4.2, which specifies the surveillance requirements for the electric hydrogen recombiners. In March 1986, new power control cabinets for the hydrogen recombiners were installed at the Palo Verde plant. This modification necessitated certain changes in the testing procedure for recombiners to conform to the requirements specified by the vendor. As a result, the licensees have proposed modified surveillance requirements for TS 4.6.4.2, based on the vendor's operational manual.

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In order to demonstrate operability of the recombiners, the surveillance requirements currently in TS 4.6.4.2 specify a series of different tests which have to be performed at least once per 6 months, annually or at 5-year intervals. In the current TS, the 6-month tests do not require the recombiner heater to be powered; only the air blast heat exchanger fan motor and the enclosed blower motor had to operate continuously for 30 minutes. The proposed modified TS requires the recombiner to operate at a reactor chamber temperature of approximately 800°F. This additional requirement is in agreement with the vendor's specification for low level power testing. Performing this test once every 6 months meets the vendor's recommendations, is more conservative than the current TS, and is consistent with Standard Review Plan (SRP) Section 6.2.5.

The proposed surveillance requirements for the annual tests would be a considerable change to the current TS. Channel calibration of the recombiner instrumentation remains unchanged, but the tests at low level with heater power off and heater power on would be replaced by a functional test of the recombiner at $1200^{\circ}\text{F} \pm 50^{\circ}\text{F}$ maintained for at least 4 hours. This surveillance requirement is in agreement with the vendor's specification for high level hot testing. Performing this test annually provides a degree of conservatism by exceeding the vendor's recommendations which require this test every 18 months. This modification is more conservative than the current TS and is consistent with SRP Section 6.2.5.

The specification for performing high level hot tests once every 5 years would be deleted because this requirement becomes redundant when superseded by the previously specified annual high level hot surveillance testing.

(b) Pressurizer Heater

TS 3/4.4.3 for the pressurizer currently requires at least two groups of pressurizer heaters, capable of being powered from Class 1E buses, each having a nominal capacity of at least 150 kw. The purpose of having two groups of heaters is to enhance the capability to control Reactor Coolant System (RCS) pressure and to establish and maintain natural circulation, when required.

By a letter dated April 6, 1987, APS proposed a change to this TS for Palo Verde Units 1, 2 and 3. The request is to change the capacity for the pressurizer heaters from a nominal value of 150 kw to a minimum value of 125 kw.

In its submittal dated April 6, 1987, APS indicated that TS Section 4.4.3.1.2 states that the capacity of the required groups of pressurizer heaters shall be verified to be at least 150 kw at least once per 92 days. The required pressurizer heaters are powered from Class 1E buses and have a nominal rating of 150 kw. During surveillance testing, the pressurizer heaters may fail the surveillance criteria because of normal variations of the bus voltage. The proposed TS change would reduce the required measured capacity of the pressurizer heaters to 125 kw to allow for variation in the bus voltage. APS asserts that the measured value of the pressurizer heat loss is 118 kw, so that the proposed pressurizer heater capacity requirement of 125 kw is sufficient to offset pressurizer heat loss. Also, the pressurizer heaters are not classified as safety related at Palo Verde Units 1, 2 and 3 and no credit is taken for their capacity in any of the accidents previously evaluated.

(c) Variable Overpower Trip

By letter dated May 4, 1987, the licensees requested an amendment to change TS Table 2.2-1 to limit the Rate at which the Variable Overpower Trip (VOPT) setpoint decreases as reactor power is decreased; there are presently no limitations in the TS on the Rate at which the VOPT setpoint can decrease. Also, the definition of Band for the VOPT would be changed for clarity. The proposed changes to Table 2.2-1 involving the VOPT setpoint would help prevent unnecessary reactor trips during reactor power cutback events at Palo Verde.

The VOPT is provided for the Palo Verde reactors to protect the reactors during rapid positive reactivity excursion events. The events that take credit for the VOPT as the primary trip in safety analyses are the Control Element Assembly (CEA) ejection accident, and the CEA withdrawal from subcritical and low power events. The VOPT is also a backup trip for the feedwater line break event. These events are initiated from steady-state reactor conditions and involve an increase in reactor power from this steady-state condition.

There are three factors which affect the VOPT. These are (1) the Ceiling, (2) the Rate, and (3) the Band. The Ceiling refers to the maximum value of the VOPT setpoint, which is currently set at less than or equal to 110% of rated thermal power. The Rate is the maximum rate of increase of the VOPT setpoint when power is increasing, which is currently set at less than or equal to 10.6% of rated thermal power per minute. Although there is no current TS limitation on a decreasing Rate, the slowest Rate at which the VOPT setpoint can decrease when power is decreasing is currently set at 195% of rated thermal power per second. The Band is the amount by which the VOPT setpoint exceeds steady-state power (currently set

at 9.8% of rated thermal power) unless limited by either the Rate or the Ceiling. The proposed changes to the VOPT setpoint would add a limit to the Rate at which the setpoint can decrease when power is decreasing to 5% of rated thermal power per second, and add a clarification to the notation in TS Table 2.2-1 of the definition of Bank to state it is based on steady-state power.

The licensees have provided an analysis of the effect of the proposed change to the slowest Rate at which the VOPT setpoint can decrease with decreasing power. For those events for which the VOPT provides the primary or backup trip function (CEA ejection accident, CEA withdrawal when subcritical or at low power transient, and feedwater line break events), the change to the Rate at which the VOPT setpoint can decrease has no effect since these events are events which increase the reactor power, as long as the initial conditions for these events are not affected by the decreasing rate setting. In order to assure that the initial conditions for an increasing power event are not affected by the proposed decreasing rate setting, the licensee provided the following evaluation. The licensees established that the maximum rate of normal power reduction was 0.22% of rated thermal power per second at end-of-life core conditions. This power reduction rate is based on an assumed 120 gpm of charging flow at a boron concentration of 4000 ppm and a high rate CEA insertion. Since the maximum rate of normal power reduction (0.22% of rated thermal power per second) is less than the proposed allowable VOPT setpoint reduction rate of 5% of rated thermal power per second, the Band of 9.8% of rated thermal power will be maintained between the VOPT and reactor power during normal power decreases. Therefore, the initial conditions for the power increasing events previously discussed will be maintained prior to an event occurring.

The licensees also evaluated the effect of the proposed decreasing Rate setting on a Reactor Power Cutback System (RPCS) actuation. The RPCS functions to reduce the power mismatch caused by a large loss of load, or by the loss of one of the two main feedwater pumps, without causing a reactor trip. The RPCS accomplishes this function by dropping preselected CEA groups into the reactor. However, with the current VOPT Rate decrease setting of 195% of rated thermal power per second on power decreases, a reactor trip may occur at end-of-cycle (EOC) at Palo Verde because of the moderator temperature coefficient (MTC). Near EOC, after CEA groups are dropped on RPCS actuation and power decreases initially, the MTC then causes the reactor power to increase. This power increase may be sufficient to trip the reactor and thereby defeat the purpose of the RPCS by causing an unnecessary reactor trip. These unnecessary reactor trips also provide unnecessary challenges to various reactor protection and safety systems. The purpose of the proposed Rate decrease setting limitation of 5% of rated thermal power per second is to eliminate these unnecessary reactor trips.

A limiting power mismatch event was also analyzed for which CEA groups 4 and 5 help make this event limiting. This abnormal RPCS event does require a reactor trip. The results of the analysis indicate that a VOPT, with a Rate decrease of 5% per second on power decreases, occurs at about 13.8 seconds with the reactor power at about 92.6% of rated thermal power. In the analysis, the trip was delayed to 14.8 seconds and reactor power reached 93.8% of rated thermal power. The analysis indicates that the minimum DNBR reached is 1.34 and the maximum linear heat generation rate (LHGR) reached is 15.6 kW/ft. Both the minimum DNBR and maximum LHGR values for the limiting RPCS actuation event are within the Specified Acceptable Fuel Design Limits (SAFDLs) for DNBR and LHGR for Palo Verde. For those RPCS actuations for which the turbine runback occurs, the reactor power increase following the power drop caused by the drop of preselected CEA groups would be less and, thus, less limiting under similar conditions.

(d) Specification 3.0.3

By letter dated May 6, 1987, the licensees requested a change to Technical Specification Section 3.0.3. The proposed change would modify the existing Action Statement by deleting the requirement to be in Hot Shutdown within 6 hours after attaining Hot Standby. The modification does not change the total time allowed (30 hours) to be in a Cold Shutdown from a Hot Standby condition.

The request was predicated on an April 29, 1986 incident at Palo Verde, Unit 2. The unit was at a Hot Standby condition with normal operating temperature and pressure when it entered TS 3.0.3. Because of the plant design, it took approximately 11-1/2 hours to reach Hot Shutdown in a safe and orderly manner. The staff's position on shutdown time allowances when a Limiting Condition for Operation (LCO) is not met is as follows:

A stated allowable out-of-service time (frequently 72 hours or 7 days) should be applicable regardless of the operational mode in which the inoperability is discovered. However, the times provided for achieving a reduction in operational modes (e.g., generally 6 hours from Mode 1 or 2 to Mode 3, and 6 hours from Mode 3 to Mode 4) should not be applicable if the inoperability is discovered in a lower operation mode.

Since Palo Verde, Unit 2 was in the Hot Standby condition during the April 29, 1986 incident, it had seven hours to reach Hot Shutdown in accordance with TS 3.0.3 (the one hour action time plus the six hours from Hot Standby to Hot Shutdown). Thus, the licensees exceeded the requirements of TS 3.0.3 by 4-1/2 hours.

As a result of this incident, the licensees reevaluated the plant design and shutdown procedures. Based on the cooldown time calculations and a time analysis of shutdown procedures submitted with the May 6, 1987 letter, the licensees concluded that the time needed to go from Hot Standby to Hot Shutdown would be at least nine hours. Therefore, the licensees have proposed a change to TS 3.0.3 to be consistent with the Palo Verde plant design.

3.0 EVALUATION

The staff's evaluation of the proposed changes is presented below:

(a) Hydrogen Recombiner

The staff has evaluated the proposed changes to the surveillance testing requirements in TS 4.6.4.2 for the hydrogen recombinder and has determined the following:

- (1) The changes in the testing program are consistent with the vendor's recommendations.
- (2) The revision to the surveillance requirements are more conservative than the current TS requirements.
- (3) The revised testing program is consistent with Standard Review Plan (SRP) Section 6.2.5.

Based on the above, the staff concludes that the proposed changes to the surveillance requirements for TS 4.6.4.2 on hydrogen recombiners are acceptable.

(b) Pressurizer Heaters

The staff has evaluated the proposed changes to TS 3/4.4.3 and has determined the following:

- (1) The pressurizer heaters at Palo Verde Units 1, 2 and 3 are not designed to safety grade standards and no credit is taken for their function in any of the transient and accident analyses for the units.
- (2) No credit is given to the function of pressurizer heaters in the natural circulation and boron mixing test at the Palo Verde units for demonstrating compliance with Branch Technical Position RSB 5-1.
- (3) The proposed heater capacity of 125kw is sufficient to offset pressurizer heat loss and thus is capable of controlling RCS pressure.

Based on the above, the staff concludes that the proposed changes to the pressurizer heater capacity in TS Section 3/4.4.3 are acceptable.

(c) Variable Overpower Trip

The staff has evaluated the proposed changes to the Variable Overpower Trip setpoint in Table 2.2-1 and has determined the following:

- (1) The staff concurs with the licensees' assessment that the proposed addition of a Rate limitation of 5% of rated thermal power by which the VOPT setpoint can decrease with decreasing power has no effect on the previously analyzed accidents involving an increase in reactor power.
- (2) The results of the analyses of an abnormal RPCS actuation event provides an acceptable justification for setting the Rate of decrease of the VOPT setpoint to 5% of rated thermal power for power decreases since the setting generates a reactor trip in sufficient time before specified fuel limits are exceeded.
- (3) The proposed Rate of decrease of the VOPT setpoint for power decreases will eliminate unnecessary trips during a normal RPCS actuation event.
- (4) The change which adds the words steady-state to the notation on the Band in Table 2.2-1 provides clarification on when the concept of a Band is applicable in transient power conditions and does not change the intended meaning of Band.

Based on the above, the staff concludes that the proposed changes to the VOPT input definitions in Table 2.2-1 do not adversely affect the function of the VOPT and would help prevent unnecessary reactor trips during reactor power cut backs. We, therefore, find that the proposed changes are acceptable.

(d) Specification 3.0.3

The staff has evaluated the proposed change to Specification 3.0.3 and has determined the following:

- (1) The time allowances specified in Standard TS 3.0.3 were developed from a qualitative risk assessment of continued plant operation outside the design envelope (e.g. redundant trains of an Emergency Core Cooling (ECC) system inoperable) and from discussions with each of the NSSS vendors, several licensees, and resident inspectors on the length of time required to offload the generator and provide a safe and orderly shutdown of the reactor. The approach allows sufficient time for an orderly safe shutdown for the majority of the NSSS designs.

- (2) For some NSSS designs, the time limits may be inadequate to shutdown the plant in a safe and orderly manner. The staff concurs with the licensees' analysis which shows that under certain circumstances with the Palo Verde plant design, the time needed to provide a safe and orderly shutdown of the reactor from Hot Standby to Hot Shutdown will exceed 6 hours.
- (3) The requested change permits the Palo Verde design to achieve a safe and orderly cooldown and shutdown of the reactor without changing the total time allowed for achieving Cold Shutdown from a Hot Standby condition. Since the plant would be cooling down through the Hot Shutdown Mode in the process of reaching Cold Shutdown, achieving the intermediate step of Hot Shutdown within 6 hours is not essential to plant safety. In addition, the proposed change is patterned after similar LCOs/Action Statements included in the Palo Verde Technical Specifications (i.e., Hot Standby within 6 hours and Cold Shutdown within the following 30 hours).

Based on the above, the staff concludes that the proposed change to Specification 3.0.3 is acceptable.

4.0 CONTACT WITH STATE OFFICIAL

The Arizona Radiation Regulatory Agency has been advised of the proposed determination of no significant hazards consideration with regard to these changes. No comments were received.

5.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves changes in the installation or use of facility components located within the restricted area as defined in 10 CFR 20. The 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 proposed findings that the amendments involve no significant hazards consideration, and there has been no public comment on such findings. 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 to be prepared in connection with the issuance of these amendments.

6.0 CONCLUSION

The staff 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public. We, therefore, conclude that the proposed changes are acceptable.

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