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

August 11, 2022

Mr. Adam C. Heflin
Executive Vice President/
Chief Nuclear Officer
Mail Station 7605
Arizona Public Service Company
P.O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 - ISSUANCE OF AMENDMENT NOS. 219, 219, AND 219, TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-567, "ADD CONTAINMENT SUMP TS TO ADDRESS GSI-191 ISSUES" (EPID L-2022-LLA-0032)

Dear Mr. Heflin:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 219 to Renewed Facility Operating License No. NPF-41, Amendment No. 219 to Renewed Facility Operating License No. NPF-51, and Amendment No. 219 to Renewed Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station (Palo Verde), Units 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in the above-referenced licenses and are issued in response to your application dated February 22, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22053A233).

The amendments revise the TSs to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-567, "Add Containment Sump TS to Address GSI [Generic Safety Issue]-191 Issues" (ML17214A813), which is an approved change to the Standard Technical Specifications, into the Palo Verde TSs.

The amendments add a new TS 3.6.7, "Containment Sump," and add an Action to address the condition of the containment sump made inoperable due to containment accident generated and transported debris exceeding the analyzed limits. The Action provides time to correct or evaluate the condition in lieu of an immediate plant shutdown.

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

Sincerely,

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Enclosures:
1. Amendment No. 219 to NPF-41
2. Amendment No. 219 to NPF-51
3. Amendment No. 219 to NPF-74
4. Safety Evaluation

cc: Listserv

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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-528

PALO VERDE NUCLEAR GENERATING STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 219
License No. NPF-41

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the Arizona Public Service Company (APS) 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 February 22, 2022, 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 Renewed Facility Operating License No. NPF-41 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 219, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 120 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jennifer L. Dixon-Herrity

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Jennifer L. Dixon-Herrity, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: August 11, 2022

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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-529

PALO VERDE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 219
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) 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 February 22, 2022, 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 Renewed Facility Operating License No. NPF-51 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 219, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 120 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jennifer L. Dixon-Herrity

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Jennifer L. Dixon-Herrity, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: August 11, 2022

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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-530

PALO VERDE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 219
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) 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 February 22, 2022, 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 Renewed Facility Operating License No. NPF-74 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 219, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 120 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jennifer L. Dixon-Herrity

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Jennifer L. Dixon-Herrity, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: August 11, 2022

ATTACHMENT TO LICENSE AMENDMENT NOS. 219, 219, AND 219 TO

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

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

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

Replace the following pages of Renewed Facility Operating License Nos. NPF-41, NPF-51, and NPF-74, and the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License No. NPF-41

REMOVE	INSERT
5	5

Renewed Facility Operating License No. NPF-51

REMOVE	INSERT
6	6

Renewed Facility Operating License No. NPF-74

REMOVE	INSERT
4	4

Technical Specifications

REMOVE	INSERT
iii	iii
3.5.3-3	3.5.3-3
3.5.4-1	3.5.4-1
---------	3.6.7-1
---------	3.6.7-2
---------	3.6.7-3

(1) Maximum Power Level

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

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 219, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(3) Antitrust Conditions

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

(4) Operating Staff Experience Requirements

Deleted

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

Deleted

(6) Environmental Qualification

Deleted

(7) Fire Protection Program

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

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

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

(1) Maximum Power Level

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

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 219, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(3) Antitrust Conditions

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

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

Deleted

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

Deleted

(6) Fire Protection Program

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

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

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

Deleted

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

(4) Pursuant to the Act and 10 CFR Part 30, 40, and 70, APS to receive, possess, and use in amounts required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, APS to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

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

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 219, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed operating license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(3) Antitrust Conditions

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

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

Deleted

(5) Additional Conditions

The Additional Conditions contained in Appendix D, as revised through Amendment No. 212, are hereby incorporated into this renewed operating license. The licensee shall operate the facility in accordance with the Additional Conditions.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.7	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. LPSI System Valve Number: SIB-UV 615, SIB-UV 625, SIA-UV 635, SIA-UV 645, SIA-HV 306, SIB-HV 307 Hot Leg Injection Valve Numbers: SIC-HV 321, SID-HV 331	In accordance with the Surveillance Frequency Control Program

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 ECCS - Shutdown

LCO 3.5.4 One High Pressure Safety Injection (HPSI) train shall be OPERABLE.

APPLICABILITY: MODE 3 with pressurizer pressure < 1837 psia and with RCS T_c < 485°F.
MODE 4.

ACTIONS

----------NOTE----------
LCO 3.0.4.b is not applicable to ECCS High Pressure Safety Injection subsystem when entering MODE 4.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required HPSI train inoperable.	A.1 Restore required HPSI train to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	The following SRs are applicable: SR 3.5.3.1 SR 3.5.3.2 SR 3.5.3.3 SR 3.5.3.4 SR 3.5.3.5 SR 3.5.3.7	In accordance with applicable SRs

3.6 CONTAINMENT SYSTEMS

3.6.7 Containment Sump

LCO 3.6.7 Two containment sumps shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment sumps inoperable due to containment accident generated and transported debris exceeding the analyzed limits.	A.1 Initiate action to mitigate containment accident generated and transported debris. AND	Immediately
	A.2 Perform SR 3.4.14.1. AND	Once per 24 hours
	A.3 Restore the containment sumps to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more containment sumps inoperable for reasons other than Condition A.	B.1 ----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.5.3, "ECCS – Operating," and LCO 3.5.4, "ECCS – Shutdown," for emergency core cooling trains made inoperable by the containment sumps. 2. Enter applicable Conditions and Required Actions of LCO 3.6.6, "Containment Spray System," for containment spray trains made inoperable by the containment sumps. ---------- Restore the containment sumps to OPERABLE status.	72 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify, by visual inspection, the containment sumps do not show structural damage, abnormal corrosion, or debris blockage.	In accordance with the Surveillance Frequency Control Program

UNITED STATES
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 219, 219, AND 219 TO RENEWED

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

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

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

1.0 INTRODUCTION

By application dated February 22, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22053A233), Arizona Public Service Company (the licensee) submitted a license amendment request (LAR) to revise the Technical Specifications (TSs) for Palo Verde Nuclear Generating Station, Units 1, 2, and 3 (Palo Verde).

The amendments would revise Palo Verde TS 3.5.3, "ECCS [Emergency Core Cooling System] –Operating," and TS 3.5.4, "ECCS – Shutdown." The proposed changes would also add a new TS, "Containment Sump," to section 3.6, "Containment Systems." The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-567, Revision 1, "Add Containment Sump TS to Address GSI [Generic Safety Issue]-191 Issues," dated August 2, 2017 (ML17214A813), which is an approved change to the Standard Technical Specifications (STS), into the Palo Verde TSs, and the associated U.S. Nuclear Regulatory Commission (NRC, the Commission) final safety evaluation (SE) approving TSTF-567, Revision 1, dated July 3, 2018 (ML18116A606).

The licensee has proposed variations from the TS changes described in TSTF-567, Revision 1. The variations are described and evaluated in Sections 2.2.4 and 3.4 of this SE, respectively.

2.0 REGULATORY EVALUATION

2.1 System Description and TS Changes

The TSs include limiting conditions for operation (LCOs), which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Specified with each stated condition of the LCO are required action(s) and completion time(s) (CTs) to meet TS requirements.

2.1.1 TS 3.5.3, “ECCS – Operating”

The function of the ECCS is to provide core cooling and negative reactivity to ensure the reactor core is protected after any of the following accidents:

a. loss-of-coolant accident (LOCA), coolant leakage greater than the capability of the normal charging system;

b. rod ejection accident;

c. loss of secondary coolant accident, including uncontrolled steam release or loss of feedwater; and

d. steam generator tube rupture.

Palo Verde TS 3.5.3 is applicable in Modes 1, 2, and 3 and requires that two independent ECCS trains be operable to ensure that sufficient ECCS flow is available, assuming a single failure affecting either train.

TS 3.5.3 helps ensure the following acceptance criteria for ECCS, established by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.46, “Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors,” will be met following a LOCA:

a. Maximum fuel element cladding temperature is less than or equal to (≤) 2200 degrees Fahrenheit (° F).

b. Maximum cladding oxidation is ≤ 0.17 times the total cladding thickness before oxidation.

c. Maximum hydrogen generation from a zirconium water reaction is ≤ 0.01 times the hypothetical amount generated if all of the metal in the cladding cylinders surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react.

d. Core is maintained in a coolable geometry.

e. Adequate long-term core cooling capability is maintained.

TS 3.5.3 also limits the potential for a post-trip return to power following a main steam line break event and ensures that containment temperature limits are met.

2.1.2 TS 3.5.4, “ECCS - Shutdown”

Palo Verde TS 3.5.4 is applicable in Mode 4 and requires one of the two independent (and redundant) ECCS trains to be operable to ensure that sufficient ECCS flow is available to the core following a design-basis accident.

2.2 Proposed Changes to the TSs

The proposed changes would revise Palo Verde TSs 3.5.3 and 3.5.4. The proposed changes would also add a new TS to section 3.6. The proposed changes are described below.

2.2.1 Proposed Changes to TS 3.5.3, “ECCS - Operating”

Palo Verde TS 3.5.3 currently contains Surveillance Requirement (SR) 3.5.3.8, which requires the following at a frequency in accordance with the Surveillance Frequency Control Program (SFCP).

> Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet strainers show no evidence of structural distress or abnormal corrosion.

The licensee proposed to modify and move SR 3.5.3.8 from TS 3.5.3 and include it in the new containment sump TS. Conforming changes were made to the TS Bases.

This change is evaluated in section 3.1 of this SE.

2.2.2 Proposed Changes to TS 3.5.4, “ECCS - Shutdown”

Palo Verde TS 3.5.4 currently contains SR 3.5.4.1, which refers to applicable SRs under TS 3.5.3. One of those referenced SRs is SR 3.5.3.8, as described in section 2.2.1 of this SE.

Because the licensee proposed to modify and move SR 3.5.3.8 from TS 3.5.3 and include it in the new containment sump TS, the licensee also proposed to delete the reference to SR 3.5.3.8 in SR 3.5.4.1. Conforming changes were made to the TS Bases.

This change is evaluated in section 3.2 of this SE.

2.2.3 Proposed Addition of a New Containment Sump TS

The licensee proposed to add new TS 3.6.7 requiring the containment sumps to be operable during Modes 1, 2, 3, and 4. Condition A specifies that if the containment sump is inoperable due to containment accident generated and transported debris exceeding the analyzed limits, then the licensee is required to: (1) initiate action to mitigate the containment accident generated and transported debris immediately, (2) perform SR 3.4.14.1 once per 24 hours, and (3) restore the containment sumps to OPERABLE status within 90 days (Required Actions A.1, A.2, and A.3, respectively). SR 3.4.14.1 requires verification that the reactor coolant system (RCS) operational leakage is within limits by performance of an RCS water inventory balance.

TS 3.6.7, Condition B, specifies that if the containment sumps are inoperable for reasons other than Condition A, then the licensee is required to restore the containment sumps to operable status within 72 hours (Required Action B.1). Required Action B.1 is modified by two notes, which direct entering the applicable conditions and required actions of LCOs 3.5.3 and 3.5.4, for ECCS trains made inoperable by the containment sumps and entering the applicable conditions and required actions of LCO 3.6.6, “Containment Spray System [CSS],” for CSS trains made inoperable by the containment sumps.

TS 3.6.7, Condition C, specifies that if required actions and associated CTs under Condition A and B are not met, then the licensee is required to be in Mode 3 in 6 hours and Mode 5 in 36 hours (Required Actions C.1 and C.2, respectively).

The licensee proposed to modify and move SR 3.5.3.8 currently located in TS 3.5.3. The new SR 3.6.7.1 requires the licensee to "verify, by visual inspection, the containment sumps do not show structural damage, abnormal corrosion, or debris blockage," in accordance with the SFCP.

Palo Verde's containment sump design includes more than one containment sump. Palo Verde has two containment sumps, one per train of ECCS/CSS. The two containment sumps are required to ensure a source of borated water to support ECCS and CSS Operability. Palo Verde's containment sumps consist of the containment drainage flow paths, the containment sump strainers, the pump suction vortex breaker, and the inlet to the ECCS and CSS piping. The sumps are considered part of a single support system because containment accident generated and transported debris issues that would render one sump inoperable would render both of the sumps inoperable. The new containment sump TS proposed is applicable to plants that have more than one containment sump.

The licensee also proposed a conforming change to the TS Table of Contents to reflect the addition of the new containment sump TS.

This change is evaluated in section 3.3 of this SE.

2.2.4 Variations from TSTF-567, Revision 1

Palo Verde TSs utilize different numbering and titles than the STS on which TSTF-567 was based. Specifically, the plant-specific TS for ECCS – Operating, is TS 3.5.3, whereas in TSTF-567, ECCS – Operating, is TS 3.5.2. This affects the numbering of the related sump inspection SR, which in Palo Verde's TSs is 3.5.3.8, and in TSTF-567 is 3.5.2.10. In addition, Palo Verde's numbering for ECCS - Shutdown, is TS 3.5.4, while in TSTF-567 it is TS 3.5.3. The TS numbering for the new TS added by TSTF-567, "Containment Sump," is TS 3.6.13. For Palo Verde the new TS is numbered 3.6.7. Lastly, the SR numbering for the RCS water inventory balance surveillance is different. For Palo Verde, the SR is 3.4.14.1, while TSTF-567 uses the numbering 3.4.13.1. In addition, the Palo Verde TS 3.6.6 is named "Containment Spray System," whereas in TSTF-567 TS 3.6.6 is named "Containment Spray and Cooling Systems." These differences are editorial and do not affect the applicability of TSTF-567 to the proposed LAR.

Palo Verde's TSs contain an SFCP. Therefore, the frequency for SR 3.6.7.1 is "In accordance with the Surveillance Frequency Control Program."

2.3 Applicable Regulatory Requirements and Guidance

2.3.1 Regulatory Requirements

The regulation at 10 CFR 50.36(a)(1) requires each applicant for a license authorizing operation of a utilization facility to include proposed TSs in the application. That regulation also states, in part, that "[a] summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications."

The regulation at 10 CFR 50.36(b) requires:

> Each license authorizing operation of a … utilization facility … will include technical specifications. The technical specifications will be derived from the

> analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to [10 CFR] 50.34 [“Contents of applications; technical information”]. The Commission may include such additional technical specifications as the Commission finds appropriate.

The categories of items required to be in the TSs are provided in 10 CFR 50.36(c). As required by 10 CFR 50.36(c)(2)(i), the TSs will include LCOs, which are “the lowest functional capability or performance levels of equipment required for safe operation of the facility.” The regulation at 10 CFR 50.36(c)(2)(i) requires that “[w]hen a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.”

The regulation at 10 CFR 50.36(c)(3) requires TSs to include SRs, which are “requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.”

The regulation at 10 CFR 50.36(c)(5) requires TSs to include administrative controls, which “are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner.”

2.3.2 Guidance

The guidance that the NRC staff considered in its review of this LAR included the following:

- NUREG-0800, Revision 3, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition,” Chapter 16.0, “Technical Specifications,” dated March 2010 (ML100351425), provides guidance on review of TSs.

- NUREG-1432, Revision 5.0, “Standard Technical Specifications, Combustion Engineering Plants,” Volume 1, “Specifications,” and Volume 2, “Bases,” dated September 2021 (ML21258A421 and ML21258A424, respectively).

3.0 TECHNICAL EVALUATION

3.1 Proposed Changes to TS 3.5.3, “ECCS - Operating”

The licensee proposed to modify and move SR 3.5.3.8 from TS 3.5.3 to the new containment sump TS. Therefore, the licensee proposed deletion of SR 3.5.3.8.

The new SR 3.6.7.1 does not limit the visual inspection to the suction inlet, vortex breaker, and screens as currently required by the TSs, but instead requires inspection of the entire containment sump system. The containment sump system consists of the containment drainage flow paths, any design features upstream of the containment sump that are credited in the containment debris analysis, the containment sump strainers (or screens), the pump suction vortex breaker, and the inlet to the ECCS and CSS piping.

The NRC staff concludes that the proposed change is acceptable since the existing requirements are either unchanged or expanded and continue to ensure the containment sump is unrestricted (i.e., unobstructed) and stays in proper operating condition. The proposed

change meets the requirements of 10 CFR 50.36(c)(3) because it provides an SR to assure the necessary quality of systems and components are maintained, that facility operation will be within safety limits, and that the LCOs will be met.

3.2 Proposed Changes to TS 3.5.4, "ECCS - Shutdown"

The licensee proposed to delete the reference to SR 3.5.3.8 in SR 3.5.4.1.

The NRC staff concludes the proposed change is acceptable since SR 3.5.3.8 was modified and moved to the new containment sump TS. The existing SR on the containment sump is augmented (by requiring inspection of additional sump components) and moved to the new specification, and a duplicative requirement to perform the SR in TS 3.5.4 is removed. The new specification retains or expands the existing requirements on the containment sump and the actions to be taken when the containment sump is inoperable with the exception of adding new actions to be taken when the containment sump is inoperable due to containment accident generated and transported debris exceeding the analyzed limits. The new action provides time to evaluate and correct the condition instead of requiring an immediate plant shutdown. The proposed change meets the requirements of 10 CFR 50.36(c)(3) because it provides SRs to assure the necessary quality of systems and components are maintained, that facility operation will be within safety limits, and that the LCOs will be met.

3.3 Proposed Addition of Containment Sump TS

3.3.1 Evaluation of the New TS

The licensee proposed to add a new TS to address operability requirements of the containment sump. The numbering for this new TS is TS 3.6.7.

The containment sump supports the post-accident operation of the ECCS and CSS. However, only the current ECCS TSs contain SRs related to the containment sump and the TSs do not specify required actions that specifically address an inoperable containment sump. If the containment sump were found to be inoperable, as an ECCS and CSS support system, those respective LCOs would not be met. In order to address concerns related to containment sump operability due to debris accumulation described in GSI-191, "Assessment of Debris Accumulation on Pressurized-Water Reactor Sump Performance," the licensee proposed to add a new specification to address containment sump inoperability and create a condition for when the sump is inoperable due to analyzed containment accident generated and transported debris.

Based on the below evaluation, the NRC staff determined that the proposed TS 3.6.7 satisfies the requirements of 10 CFR 50.36(c)(2)(i) because the LCO specifies the lowest functional capability or performance levels of equipment required for safe operation of the facility. There is reasonable assurance that the required actions to be taken when the LCO is not met can be conducted without endangering the health and safety of the public.

3.3.2 Evaluation of the Applicability

The new Palo Verde TS 3.6.7 requires the containment sump to be operable during Modes 1, 2, 3, and 4. The ECCS and CSS TSs currently in the Palo Verde TSs are applicable during Modes 1, 2, 3, and 4.

The NRC staff finds the proposed applicability is acceptable because the applicability is consistent with the applicability of the ECCS and CSS TS, the containment sump supported systems.

3.3.3 Evaluation of Condition A

The licensee has analyzed the susceptibility of the ECCS and CSS to the adverse effects of post-accident debris blockage and operation with debris-laden fluids. The licensee has established limits on the allowable quantities of containment accident generated debris that could be transported to the containment sump based on its current plant configuration. In the current TSs, if unanalyzed debris sources are discovered inside containment, if errors are discovered in debris-related analyses, or if a previously unevaluated phenomenon that can affect containment sump performance is discovered, the containment sump, and the supported ECCS and CSS, may be inoperable, and the TSs would require a plant shutdown with no time provided to evaluate the condition.

In order to address this situation and to provide sufficient time to evaluate the condition, the licensee proposed Condition A, which is applicable when the containment sump is inoperable due to containment accident generated and transported debris exceeding the analyzed limits. Under Condition A, the operability of the containment sump with respect to debris is based on a quantity of debris evaluated and determined to be acceptable by the licensee. Conditions not evaluated under Condition A (containment accident generated and transported debris) and that affect the quantity of analyzed debris will be evaluated using a deterministic process.

Under Condition A, Required Action A.1 mandates immediate action to be initiated to mitigate the condition. The licensee's proposed TS Bases for Required Action A.1 provides the following examples of mitigating actions:

- Removing the debris source from containment or preventing the debris from being transported to the containment sump;
- Evaluating the debris source against the assumptions in the analysis;
- Deferring maintenance that would affect availability of the affected systems and other LOCA mitigating equipment;
- Deferring maintenance that would affect availability of primary defense-in-depth systems, such as containment coolers;
- Briefing operators on LOCA debris management actions; or
- Applying an alternative method to establish new limits.

The NRC staff finds the proposed Required Action A.1 and its CT are acceptable because they place urgency on the initiation of the appropriate actions that could mitigate or reduce the impact of the identified conditions.

Concurrently, Required Action A.2 mandates SR 3.4.14.1, the RCS water inventory balance, to be performed at an increased frequency of once per 24 hours. An unexpected increase in RCS

leakage could be indicative of an increased potential for an RCS pipe break, which could result in debris being generated and transported to the containment sumps.

The NRC staff finds the proposed Required Action A.2 and its CT are acceptable because the more frequent monitoring allows operators to act in a timely fashion to minimize the potential for an RCS pipe break while the containment sump is inoperable.

In addition, Required Action A.3 requires the inoperable containment sumps to be restored to operable status in 90 days.

The NRC staff finds the proposed Required Action A.3 and its CT are acceptable because they provide a reasonable amount of time to diagnose, plan and possibly reduce the severity of, or mitigate the unanalyzed debris condition and prevent a loss of ECCS and CSS safety function. In addition, 90 days is adequate given the conservatisms in the containment debris analysis and the proposed compensatory actions required to be implemented immediately by Required Action A.1. Also, as discussed later in this SE section, the new SR will require visual inspection of the containment sump system (including the containment drainage flow paths, any design features upstream of the containment sump that are credited in the containment debris analysis, the containment sump strainers, the pump suction vortex breaker, and the inlet to the ECCS and CSS piping for evidence of structural degradation, potential for debris bypass, and presence of corrosion or debris blockage) to ensure no loose debris is present and there is no evidence of structural distress or abnormal corrosion.

For Condition A, a plant with multiple sumps is treated equivalently to a plant with a single sump, because multiple sumps are considered to be part of a single support system.

3.3.4 Evaluation of Condition B

Condition B specifies the required actions for when the containment sump is inoperable for reasons other than containment accident generated and transported debris exceeding the analyzed limits.

Required Action B.1 requires restoring the containment sump to operable status and is modified by two notes. These two notes direct entry into the conditions and required actions for the supported systems (ECCS and CSS) upon entering Required Action B.1. Since Required Action B.1 directs entry to the corresponding ECCS and CSS TSs, these notes retain the existing TS actions for ECCS or CSS trains made inoperable by an inoperable containment sump for reasons other than containment accident generated and transported debris exceeding the analyzed limits.

The proposed CT for Required Action B.1 is 72 hours. This CT is consistent with the CT for a single inoperable ECCS train or CSS train so that the ECCS and CSS TS Actions control the licensee's response.

The NRC staff finds the proposed change is acceptable since it continues to provide remedial actions for when the containment sump is inoperable for reasons other than Condition A and ensures safe operation of the plant. In addition, the proposed CT is acceptable since it provides a reasonable time for repairs, and there is a low probability of an accident occurring during this period that would require the use of the containment sump.

3.3.5 Evaluation of Condition C

If operators are unable to restore the affected containment sump to operable status under Condition A or B, Required Action C.1 requires the unit to be in Mode 3 in 6 hours followed by Mode 5 in 36 hours, as required by Required Action C.2.

The NRC staff finds that this proposed condition and its required actions are acceptable because the condition is consistent with the STS and the required action requires the operators to place the unit in a condition in which the LCO no longer applies. In addition, the proposed CTs allow a reasonable amount of time to decrease from full power conditions to the required plant conditions in an orderly manner and without challenging plant systems.

3.3.6 Evaluation of the New SR 3.6.7.1

The licensee proposed a new SR in the new containment sump TS. This SR was originally located in TS 3.5.3 and referred to in TS 3.5.4. The numbering for this new SR is SR 3.6.7.1. The frequency of the new SR is in accordance with the SFCP.

The proposed SR requires verification, by visual inspection, that the containment sump does not show structural damage, abnormal corrosion, or debris blockage.

The new SR is stated in generic terms and expands the scope of the required visual inspection to include the entire containment sump system. The entire containment sump system consists of the containment drainage flow paths, the containment sump strainers (or screens), the pump suction vortex breaker, and the inlet to the ECCS and CSS piping.

The NRC staff finds the proposed new SR is acceptable because it expands the scope of inspection of the original SR. In addition, the proposed frequency is acceptable since it is the same as that currently required by the TSs. Therefore, the NRC staff finds that, as required by 10 CFR 50.36(c)(3), the necessary quality of systems will be maintained in accordance with the associated LCOs.

3.3.7 Evaluation of Changes to Table of Contents

The licensee also proposed a conforming change to the Table of Contents to include the new containment sump TS. This conforming change is acceptable since it is an editorial change to support the inclusion of the new containment sump TS.

3.3.8 Conclusion Regarding Proposed Containment Sump TS

The new containment sump TS retains and expands the existing TS requirements with the exception of the addition of Condition A. Condition A provides a condition for an inoperable containment sump due to containment accident generated and transported debris exceeding the analyzed limits.

The NRC staff reviewed the proposed changes against the regulations and concludes that the changes continue to meet the requirements of 10 CFR 50.36(c)(2)(i) and 50.36(c)(3) for the reasons discussed above, and thus provide reasonable assurance that adoption of these TSs will have the requisite requirements and controls to operate safely. Therefore, the NRC staff concludes that the proposed TS changes are acceptable.

3.4 Variations

All variations are editorial and do not affect the applicability of TSTF-567 to the proposed LAR.

3.5 Technical Evaluation Conclusion

The NRC staff determined that the proposed TS changes meet the standards for TSs in 10 CFR 50.36 and are acceptable. As required by 10 CFR 50.36(c)(2), the LCOs specify the lowest functional capability or performance levels of equipment required for safe operation of the facility. The proposed changes to the SRs assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met, and satisfy 10 CFR 50.36(c)(3).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arizona State official was notified of the proposed issuance of the amendments on June 23, 2022. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change SRs. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, published in the *Federal Register* on April 19, 2022 (87 FR 23273), and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission’s regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: August 11, 2022

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 - ISSUANCE OF AMENDMENT NOS. 219, 219, AND 219, TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TSTF-567, "ADD CONTAINMENT SUMP TS TO ADDRESS GSI-191 ISSUES" (EPID L-2022-LLA-0032) DATED AUGUST 11, 2022

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