



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511

November 12, 2021

Mrs. Maria Lacal, Executive Vice President  
and Chief Nuclear Officer  
Arizona Public Service Company  
P.O. Box 52034, MS 7602  
Phoenix, AZ 85072-2034

**SUBJECT: PALO VERDE NUCLEAR GENERATING STATION – INTEGRATED  
INSPECTION REPORT 05000528/2021003, 05000529/2021003, AND  
05000530/2021003**

Dear Mrs. Lacal:

On September 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Palo Verde Nuclear Generating Station. On October 6, 2021, the NRC inspectors discussed the results of this inspection with Mr. T. Horton, Senior Vice President, Site Operations and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC Resident Inspector at Palo Verde Nuclear Generating Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Ami Agrawal, Acting Chief  
Reactor Projects Branch D  
Division of Reactor Projects

Docket Nos. 05000528, 05000529  
and 05000530  
License Nos. NPF-41, NPF-51, and NPF-74

Enclosure:  
As stated

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PALO VERDE NUCLEAR GENERATING STATION – INTEGRATED INSPECTION REPORT  
 05000528/2021003, 05000529/2021003, AND 05000530/2021003 – DATED NOVEMBER 12,  
 2021

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KEYWORD:NRC-002

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Numbers: 05000528, 05000529 and 05000530

License Numbers: NPF-41, NPF-51 and NPF-74

Report Numbers: 05000528/2021003, 05000529/2021003 and 05000530/2021003

Enterprise Identifier: I-2021-003-0111

Licensee: Arizona Public Service Company

Facility: Palo Verde Nuclear Generating Station

Location: Tonopah, AZ

Inspection Dates: July 1, 2021 to September 30, 2021

Inspectors: L. Merker, Senior Resident Inspector  
E. Lantz, Resident Inspector  
N. Cuevas, Resident Inspector

Approved By: Ami Agrawal, Acting Chief  
Reactor Projects Branch D  
Division of Reactor Projects

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Palo Verde Nuclear Generating Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### List of Findings and Violations

Failure to Scope a Matrix Test Module in the Maintenance Rule Program			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000528,05000529,05000530/2021003-01 Open/Closed	None (NPP)	71153
<p>The inspectors reviewed a self-revealed, Green non-cited violation of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” for the licensee’s failure to include a nonsafety related component in the scope of their maintenance rule monitoring program. Specifically, the licensee failed to include the matrix test module of the engineered safety features actuation system, a nonsafety related component whose failure could cause a reactor scram or actuation of a safety-related system. This resulted in a reactor scram concurrent with actuations of both trains of the containment isolation actuation signal, safety injection actuation signal, main steam isolation signal, and a loss of the main feedwater system.</p>			

### Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000529/2021-002-00	LER 2021-002-00 for Palo Verde Nuclear Generating Station, Unit 2, Reactor Trip during Plant Protection System Surveillance Testing	71153	Closed

## PLANT STATUS

Unit 1 entered the inspection period at full power. On July 19, 2021, the unit experienced a reactor cutback to 53 percent power due to a trip of main feedwater pump B. On July 20, 2021, the licensee further lowered power to 19 percent due to a fault in the control element drive mechanism control system. On July 24, 2021, the licensee returned Unit 1 to 100 percent power and remained at or near full power for the remainder of the inspection period.

Unit 2 entered the inspection period at full power. On September 18, 2021, the unit began a coastdown for Refueling Outage 23 and ended the inspection period at approximately 89 percent power.

Unit 3 operated at or near full power for the duration of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed on site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated readiness for impending adverse weather conditions for monsoon thunderstorms, on August 18, 2021.

### 71111.04 - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 2, essential cooling water system A, on July 16, 2021
- (2) Unit 1, essential chilled water system A, on August 10, 2021
- (3) Unit 2, essential spray pond system B, on September 23, 2021

#### 71111.05 - Fire Protection

##### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Unit 2, Zone 17, main control room, on September 21, 2021
- (2) Unit 2, Zone 5B, class switchgear room B, on September 22, 2021
- (3) Unit 2, Zone 10B, remote shutdown room B, on September 22, 2021
- (4) Unit 3, Zones 18, 19, and 20, upper cable spreading room, on September 29, 2021

#### 71111.06 - Flood Protection Measures

##### Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) Unit 2, water intrusion into the class switchgear room A, on August 14, 2021

#### 71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

##### Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the main control room during Unit 1 power ascension following the trip of main feedwater pump B, on July 24, 2021.

##### Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator requalification simulator training activities, on July 28, 2021.

#### 71111.12 - Maintenance Effectiveness

##### Maintenance Effectiveness (IP Section 03.01) (1 Sample)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Units 1, 2, and 3, review of the 10 CFR 50.65(a)(3) Periodic Evaluation, on September 30, 2021

#### Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

- (1) Unit 2, emergency diesel generator A maintenance outage, on September 30, 2021

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

##### Risk Assessment and Management Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Unit 1, emergent main feedwater pump B and control element drive mechanism control system troubleshooting and repairs, post main feedwater pump B trip, on July 22, 2021
- (2) Unit 2, emergent module replacements due to failure of the balance of plant engineered safety features actuation system B during testing, on July 23, 2021
- (3) Unit 1, emergent seismic monitoring system and emergency diesel generator A troubleshooting and repairs, on September 4, 2021
- (4) Unit 3, high risk for emergent main turbine control valve 3 maintenance, on September 24, 2021
- (5) Unit 2, planned emergency diesel generator A maintenance outage, on September 30, 2021

#### 71111.15 - Operability Determinations and Functionality Assessments

##### Operability Determination or Functionality Assessment (IP Section 03.01) (4 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Unit 1, emergency diesel generator A operability determination following a crankcase high pressure trip valve failure, on July 9, 2021
- (2) Unit 3, letdown containment isolation valve CH-523 operability determination due to leaking air regulator, on July 18, 2021
- (3) Unit 1, reactor coolant system operability determination due to reactor coolant pump 1A seal 2 degradation, on August 15, 2021
- (4) Unit 1, emergency diesel generator A operability determination following diesel trip during startup, on August 31, 2021

#### 71111.18 - Plant Modifications

##### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)



The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 3, temporary modification 21-05679-002 to disable failed heated junction thermal couples 6B and 7B, on August 27, 2021

#### 71111.19 - Post-Maintenance Testing

##### Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Unit 1, emergency diesel generator A crankcase high pressure trip valve following replacement, on July 10, 2021
- (2) Unit 2, balance of plant engineered safety features actuation system B following emergent module replacements, on July 23, 2021
- (3) Unit 1, main feedwater pump B following troubleshooting and repairs, on July 24, 2021
- (4) Unit 3, letdown containment isolation valve following air regulator leakage repairs, on July 28, 2021
- (5) Units 1, 2, and 3, seismic monitoring system following system becoming unresponsive, on September 10, 2021

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Unit 2, emergency diesel fuel oil transfer pump A, on July 14, 2021

##### RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

- (1) Unit 2, 40ST-9RC02, emergency response facilities data acquisition and display system (preferred) calculation of reactor coolant system water inventory, on September 24, 2021

##### FLEX Testing (IP Section 03.02) (1 Sample)

- (1) Units 1, 2, and 3, 14MT-9BD85, FLEX 2X2 portable refueling pump inspections and tests, on September 28, 2021

#### 71114.06 - Drill Evaluation

##### Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated an emergency preparedness training evolution, on August 17, 2021.

## **OTHER ACTIVITIES – BASELINE**

### 71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

#### MS06: Emergency AC Power Systems (IP Section 02.05) (3 Samples)

- (1) Unit 1 (April 1, 2020 through June 30, 2021)
- (2) Unit 2 (April 1, 2020 through June 30, 2021)
- (3) Unit 3 (April 1, 2020 through June 30, 2021)

#### MS07: High Pressure Injection Systems (IP Section 02.06) (3 Samples)

- (1) Unit 1 (April 1, 2020 through June 30, 2021)
- (2) Unit 2 (April 1, 2020 through June 30, 2021)
- (3) Unit 3 (April 1, 2020 through June 30, 2021)

#### MS08: Heat Removal Systems (IP Section 02.07) (3 Samples)

- (1) Unit 1 (April 1, 2020 through June 30, 2021)
- (2) Unit 2 (April 1, 2020 through June 30, 2021)
- (3) Unit 3 (April 1, 2020 through June 30, 2021)

#### MS09: Residual Heat Removal Systems (IP Section 02.08) (3 Samples)

- (1) Unit 1 (April 1, 2020 through June 30, 2021)
- (2) Unit 2 (April 1, 2020 through June 30, 2021)
- (3) Unit 3 (April 1, 2020 through June 30, 2021)

#### MS10: Cooling Water Support Systems (IP Section 02.09) (3 Samples)

- (1) Unit 1 (April 1, 2020 through June 30, 2021)
- (2) Unit 2 (April 1, 2020 through June 30, 2021)
- (3) Unit 3 (April 1, 2020 through June 30, 2021)

### 71152 - Problem Identification and Resolution

#### Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Unit 1, fault in the control element drive mechanism control system preventing multiple control rods from moving in manual individual mode, on September 17, 2021

### 71153 - Follow Up of Events and Notices of Enforcement Discretion

#### Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event reports (LERs):

- (1) LER 05000529/2021-002-00, Unit 2 Reactor Trip During Plant Protection System Surveillance Testing (ADAMS accession: ML21197A196). The inspectors reviewed the LER submittal. The inspectors determined that the cause of the condition described in the LER was reasonably within the licensee’s ability to foresee and correct. A violation of NRC requirements was identified and documented in this report under Inspection Results.

Personnel Performance (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the Unit 1 reactor cutback to 53 percent power due to a trip of main feedwater pump B, the downpower to 19 percent power due to a fault in the control element drive mechanism control system, and the licensee’s response, on July 23, 2021.

**INSPECTION RESULTS**

Failure to Scope a Matrix Test Module in the Maintenance Rule Program			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000528,05000529,05000530/20210 03-01 Open/Closed	None (NPP)	71153
<p>The inspectors reviewed a self-revealed, Green non-cited violation of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” for the licensee’s failure to include a nonsafety related component in the scope of their maintenance rule monitoring program. Specifically, the licensee failed to include the matrix test module of the engineered safety features actuation system, a nonsafety related component whose failure could cause a reactor scram or actuation of a safety-related system. This resulted in a reactor scram concurrent with actuations of both trains of the containment isolation actuation signal, safety injection actuation signal, main steam isolation signal, and a loss of the main feedwater system.</p>			
<p><u>Description:</u> The plant protection system consists of the reactor protection system and the engineered safety features actuation system. The reactor protection system consists of sensors, calculators, logic, and other equipment necessary to monitor selected nuclear steam supply system conditions and automatically initiates a reactor trip if the reactor approaches prescribed safety limits. The engineered safety features actuation system monitors selected plant parameters and provides the following actuation signals to each individual actuated component in the engineered safety features system if the plant parameters reach preselected setpoints: containment isolation actuation signal, containment spray actuation signal, main steam isolation signal, safety injection actuation signal, recirculation actuation signal, and auxiliary feedwater actuation signal. The reactor protection system and the engineered safety features actuation system functions are performed across four redundant protection trains: A, B, C, and D; actuation of the same signal from any two trains would result in the associated reactor scram or actuation of that engineered safety features actuation system signal (e.g., AB, AC, AD, BC, BD, or CD). Each of these six possible actuation combinations is independently actuated through a logic matrix.</p>			

The licensee conducts plant protection system functional testing of the reactor protection system logic and engineered safety features actuation system logic using matrix test modules. The logic test allows testing of each paralleled pair of coincidence logic relay contacts in every matrix. Each matrix test module tests one set of reactor protection system and engineered safety features actuation system function coincidence logic relay matrices (e.g., AB, AC, AD, BC, BD, or CD). Thus, the six matrices check all possible combinations. Testing is confined to a single reactor protection system parameter or engineered safety features actuation system function by the matrix test module switching arrangement. The system channel trip rotary switch is selected to the single reactor protection system parameter or engineered safety features actuation system function to be tested. The relay hold switch is placed to the "hold" position to apply a holding voltage to the test coil for all other relays that are not selected by the relay trip switch. This "hold" voltage on the energized test coils of the matrix relays prevents initiation of the selected reactor protection system parameter or engineered safety features actuation system function being tested.

On May 19, 2021, the licensee performed a planned functional test of the plant protection system in Unit 2. While testing the containment isolation actuation signal, safety injection actuation signal, and main steam isolation signal functions of matrix test module AC, an inadvertent actuation of both trains of the containment isolation actuation signal, safety injection actuation signal, and main steam isolation signal occurred. The reactor scrambled because of the high pressurizer pressure due to the isolation of the main steam lines.

The licensee completed a cause evaluation and concluded the direct cause of the event was a momentary loss of hold power circuit continuity for critical engineered safety features trip paths through the relay hold switch and terminal block in the test circuitry. This power interruption momentarily removed the "hold" voltage to the matrix relay test coils that prevent transfer of the matrix relay contacts in the containment isolation actuation signal, safety injection actuation signal, and main steam isolation signal initiation logic circuits. The loss of the "hold" voltage allowed the trip signals to initiate the applicable plant response.

During their review, the inspectors noted the matrix test module was not scoped into the maintenance rule. After further discussions with the licensee, the inspectors determined the matrix test module was inappropriately excluded from the licensee's maintenance rule program. The licensee reviewed the matrix test module scoping and concluded the matrix test module should be scoped into the maintenance rule program. On August 31, 2021, the licensee scoped the matrix test module into the maintenance rule program.

Corrective Actions: The licensee's corrective actions included replacing the plant protection system components involved in the scram, completing an event investigation, and scoping the matrix test module into the maintenance rule program.

Corrective Action References: Condition Reports 21-06337, 21-06347, 21-08268, and 21-11094

Performance Assessment:

Performance Deficiency: The failure to include a nonsafety related component in the scope of the maintenance rule monitoring program whose failure could cause a reactor scram or actuation of a safety-related system was a performance deficiency.

**Screening:** The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the licensee failed to include the matrix test module of the engineered safety features actuation system, a nonsafety related component whose failure could cause a reactor scram or actuation of a safety-related system. This resulted in a reactor scram concurrent with actuations of both trains of the containment isolation actuation signal, safety injection actuation signal, main steam isolation signal, and a loss of the main feedwater system.

**Significance:** The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 1, "Initiating Events Screening Questions," the inspectors determined that the finding required a detailed risk evaluation because the finding caused a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g., loss of condenser, loss of feedwater).

The senior risk analyst noted that the Unit 2 reactor trip event on May 19, 2021, resulted in the same plant conditions analyzed for a Green finding for a previous reactor trip event on Palo Verde, Unit 2, on March 3, 2020, which was documented in Palo Verde Nuclear Generating Station Units 1, 2, and 3 – Integrated Inspection Report 05000528/2020002, 05000529/2020002, and 05000530/2020002 (ADAMS accession number ML20212M129). The analyst re-verified the quantitative and qualitative assumptions of the prior analysis and used Palo Verde SPAR model version PVNG-EQK-HWD-FLEX-LOMFWD-DEESE, which contains modifications described in the previous 2020 inspection report to SPAR model version 8.61, run on SAPHIRE, software version 8.2.4, for the evaluation. The external events and large early release frequency analyses were also re-verified to be consistent by the analyst. Dominant core damage sequences were losses of main feedwater and losses of condenser heat sink sequences which were mitigated by the diverse steam generating feeding strategies available for operators. The analyst estimated the increase in core damage frequency of the finding to be 9.9E-7/year and of very low safety significance (Green).

**Cross-Cutting Aspect:** Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

**Enforcement:**

**Violation:** Title 10 CFR 50.65(b)(2) requires, in part, that the scope of the monitoring program specified in paragraph (a)(1) shall include nonsafety related components whose failure could cause a reactor scram or actuation of a safety-related system.

Contrary to the above, prior to August 31, 2021, the scope of the licensee's monitoring program specified in paragraph (a)(1) did not include the matrix test module of the emergency safety features actuation system, a nonsafety related component whose failure could cause a reactor scram or actuation of a safety-related system.

**Enforcement Action:** This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On October 6, 2021, the inspectors presented the integrated inspection results to Mr. T. Horton, Senior Vice President, Site Operations, and other members of the licensee staff.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Corrective Action Documents		21-09769	
	Procedures	40-OP-9CP01	Containment Purge System	28
		40-OP-9CP01	Containment Purge System	28a
		40AO-9ZZ21	Acts of Nature	39
71111.04	Corrective Action Documents		21-00867, 18-13478, 18-15389	
	Drawings	01-M-ECP-001	P & I Diagram Essential Chilled Water System	36
		01-M-EWP-001	P & I Diagram Essential Cooling Water System	33
	Procedures	40OP-9EW01	Essential Cooling Water System (EW) Train A	34
		40OP-9SP02	Essential Spray Pond (SP) B	57
		41ST-1EC01	Essential Chilled Water Valve Verification	20
71111.05	Corrective Action Documents		5373822	
	Drawings	02-M-HJP-001	P & I Diagram Control Building HVAC	21
		13-A-ZYD-029	Fire Protection Control Building floor plan at elevation 140'-0"	23
		13-A-ZYD-029	Fire Protection Control Building floor plan at elevation 100'-0"	23
	Miscellaneous		UFSAR, section 9.5.1, Fire Protection System	20C
			Design Basis Manual, Fire Protection System, Section 5.1.2.4	15
			Design Basis Manual, Fire Protection System, Section 5.1.2.4	15
			UFSAR, Appendix 9B, Fire Protection Evaluation Report	20C
	Procedures		Unit 2 Firewatch Tour Log	09/21/2021
			Pre-fire Strategies Manual	29
			Pre-fire Strategies Manual	29
		14DP-0FP02	Fire System Impairments and Notifications	27
		1910.39	PVNGS Fire Prevention Plan	0
	40AO-9ZZ19	Control Room Fire	42	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.06	Corrective Action Documents		21-09657	
	Miscellaneous		Updated Final Safety Analysis Report	20C
		13-MC-ZJ-0200	As Built Control Building Flooding Calculation	8
71111.11Q	Miscellaneous		Unit 1 Operator logs	07/24/2021
		NLR21S040202	Licensed Operator Continuing Training Simulator Scenario: Station Blackout	07/07/2021
		NLR21S040302	Licensed Operator Continuing Training Simulator Scenario: LMFRP / Place SDC in Service / RCS Draindown	07/08/2021
	Procedures	40DP-9OP02	Conduct of Operations	75
		40OP-9ZZ05	Power Operations	151
		40OP-9ZZ14	Feedwater and Condensate	81
		40ST-9ZZ23	CEA Position Data Log	36
	71111.12	Corrective Action Documents		19-02987, 20-07809, 20-07862, 21-02198, 21-10839, 21-11040, 21-11058, 21-11226
Miscellaneous			Maintenance Rule (a)(3) Periodic Assessment for the Period January 1, 2019, - June 30, 2020	1
Procedures		30DP-9MP23	Foreign Materials Exclusion Controls	9
		31MT-9DG05	Installation and Removal of DG A Temporary Piping Supports	6
		65DP-0QQ01	Industry Operating Experience Review	43
		70DP-0MR01	Maintenance Rule	44
		70DP-0MR01	Maintenance Rule	45
70DP-0MR01		Maintenance Rule	46	
Work Orders		5224848, 5254449, 5136175, 5254542, 5254569, 5254567		
71111.13	Corrective Action Documents		21-08296, 21-08326, 21-08344, 21-08355, 21-08382, 21-08427, 21-08478, 21-08604, 21-08605, 21-08712, 21-08666, 21-10343, 21-10262, 21-10219, 21-10665, 21-10954, 21-11082, 21-11087, 21-11088, 21-11089, 21-11090, 21-11205	
	Miscellaneous		Work Week 2129 Schedule Risk Evaluation	07/20/2021
			Unit 1 Protected Equipment Scheme for Main Feedwater Pump A	07/21/2021
			Unit 1 Protected Equipment Scheme for Class 1E 'AC'	08/31/2021



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			battery charger out of service	
			Unit 1 Protected Equipment Scheme for A diesel generator out of service	08/31/2021
			Work Week 2135 Schedule Risk Evaluation	08/30/2021
			Risk Profile Unit 1 DG A	08/31/2021
			Unit 1 control room operator logs	08/31/2021
			Unit 1 control room operator logs	09/01/2021
			Night Order: Unit 3 MT Control Valve #3 Issue	1
			Phoenix Risk Monitor – PVGS Unit 3 Current Risk Summary Report as of 9/23/2021	09/23/2021
			Unit 3 Main Control Valve Jumper WO 5372130 Risk Management and Readiness Plan	0
			Ops Downpower Unit 3 CV-3 Risk Management and Readiness Plan	0
			Protected Equipment Scheme for DG 'A' Being INOPERABLE (DG B Protected)	09/26/2021
			Phoenix Risk Monitor – PVGS Unit 2 Current Risk Summary Report As of 9/27/2021 00:00	09/27/2021
			Phoenix Risk Monitor – PVGS Unit 2 Current Risk Summary Report As of 9/28/2021 02:20	09/27/2021
			Phoenix Risk Monitor – PVGS Unit 2 Current Risk Summary Report As of 9/28/2021 14:00	09/27/2021
		02DP-0RS01-01	Risk Challenge Meetings	0
		RICT-U2-2021-01	U2 PHOENIX RICT July 12, 2021 What If? Risk at 1544	07/12/2021
		RICT-U2-2021-01	U2 PHOENIX RICT July 12, 2021 Operator Screen Risk at 1743	07/12/2021
		RICT-U2-2021-01	U2 PHOENIX RICT July 13, 2021 Operator Screen Risk at 0634	07/13/2021
	Procedures	02DP-0RS01	Online Integrated Risk	9
		02DP-9RS01	Configuration Risk Management and Risk-Informed Completion Time Programs	4
		31MT-9DG05	Installation and Removal of DG A Temporary Piping Supports	6
		40DP-9AP21	Protected Equipment	7

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		40DP-9AP21	Protected Equipment	7
		40DP-9RS01	Operations Department Online Nuclear Risk Determination Modes 1 and 2	7
		40DP-9RS03	Risk Management Actions	1
		40DP-9RS04	RICT PRA Functionality Determination	1
		40DP-9RS05	Calculation of RMAT and RICT	0
		40DP-9SR03	Risk Management Actions	1
		40OP-9SA02	De-Energization of BOP ESFAS	25
	77OP-9RJ07	Plant Computer User's Manual	2	
	Work Orders		5357846, 5357847, 5359440, 5359445, 5360225, 5372130	
71111.15	Corrective Action Documents		21-08106, 21-08566, 21-09152, 21-10219, 17-00032, 16-15628, 21-09687, 21-06194	
	Miscellaneous		PVNGS Design Basis Manual, Chemical And Volume Control System	26
			Technical Specification Bases	72
			Updated Final Safety Analysis Report	20C
			Unit 1 Control Room Logs	08/31/2021
			DBM, RC System	32
		21-08106-001	Evaluation	
	PVNGS DBM	Diesel Generator, Class 1E Standby Generation, Fuel Oil Storage and Transfer System	28	
	Procedures		Design Basis Manual, Diesel Generator, Class 1E Standby generation, Fuel Oil Storage and Transfer System (DF/DG/PE)	26
		40AO-9ZZ04	Reactor Coolant Pump Emergencies	33
		40ST-9DG01	Diesel Generator A Test	51
	Work Orders		5362834	
71111.18	Corrective Action Documents		21-05679, 21-05937	
	Miscellaneous	S-08-0355	10 CFR 50.59 Screening	1
	Procedures	93DP-0LC07-01	10 CFR 50.59 and 72.48 Administrative Guideline	6
		IP-ENG-001	Standard Design Process	2
	Work Orders		5340360	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.19	Corrective Action Documents		21-08296, 21-08326, 21-08344, 21-08355, 21-08382, 21-08427, 21-08478, 21-08664, 21-08715, 21-08566, 21-08973, 21-08978, 21-10262	
	Drawings	03-M-DGP-001	P & I Diagram starting air diesel generator system	63
	Procedures	32MT-9FT01	Adjustment of Feedwater Pump Turbine (FWPT) MDT-20 Governor Settings	16
		36ST-1SM01	Seismic Monitoring System Functional Test Procedure	21
		40OP-9FT02	Feedwater Pump Turbine B	56
		40OP-9FT04	Feedwater Pump Turbine B Over-Speed Testing	14
		40OP-9SA01	BOP ESFAS Module Operation	33
		40OP-9SA02	De-Energization of BOP ESFAS	25
		40ST-9DG01	Diesel Generator A Test	51
		41ST-1SM01	Seismic Instrumentation Channel Checks	14
		73DP-9ZZ20	Air Operated Valve Program	14
	73ST-9XI22	CH Valves – Inservice Test	23	
Work Orders		5357846, 5357847, 5355141, 5359445, 5360225, 5359249, 5368765, 5249757		
71111.22	Calculations	13-JC-SB-200	PPS Bistable Drift Analysis	1
	Corrective Action Documents		21-09651, 21-11152, 21-11153, 21-10660, 21-10710, 21-10803	
	Miscellaneous		Unit 2 West Containment Sump and RCS Unidentified Leakage Trends	09/08/2021
			Unit 2 West Containment Sump and RCS Unidentified Leakage Trends	09/23/2021
			Multi-Unit RDT In Leakage Trends	09/07/2021
			Unit 2 Containment Sump In Leakage MRM Slide	07/27/2021
			Unit 2 Containment Sump In-Leakage 6/02/2021 – 9/07/2021 Data	0
	Procedures	14DP-0BD02	PVNGS FLEX Equipment Status Control	4
		14MT-9BD85	FLEX 2X2 Portable Refueling Pump Inspections and Tests	2
		36ST-9RC02	Containment Building Sump Instrumentation Calibration	29
40OP-9RC03		RCS Leakage Source Determination	6	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		40ST-9RC02	ERFDADS (Preferred) Calculation of RCS Water Inventory	54
		73ST-9DF01	Diesel Fuel Oil Transfer Pumps – Inservice Test	37
	Work Orders		5234129, 5255961, 5252607	
71114.06	Miscellaneous		LOCT Emergency Plan Data Form for SES-0-03-Q-11	08/17/2021
			DEP Classification Form for SES-0-03-Q-11	08/27/2021
			DEP Notification Form for SES-0-03-Q-11	08/27/2021
		EP-0902	Notifications	17
	SES-0-03-Q-11	SGN-FT-1011 F.L./RCS Leak/MFP Trip/LOCA/HPSI and CSAS Fail	11	
Procedures	40AO-9ZZ02	Excessive RCS Leakrate	21	
71151	Corrective Action Documents		20-08932, 20-14947, 21-00314, 21-00506, 21-06710, 21-06844, 21-10660, 21-10710, 21-10803	
	Miscellaneous		Units 1, 2, and 3 MSPI Run Demands Failures Report 4/1/2020 – 6/30/2021	07/08/2021
			Units 1, 2, and 3 MSPI Component Failures Report 4/1/2020 – 6/30/2021	07/08/2021
			Units 1, 2, and 3, MSPI Unavailability Report 4/1/2020 – 6/30/2021	07/08/2021
			Units 1, 2, and 3, MSPI EDG System July 2021 UAI Derivation Reports	09/01/2021
			Units 1, 2, and 3, MSPI EDG System July 2021 URI Derivation Reports	09/01/2021
			Units 1, 2, and 3, MSPI EDG System July 2021 PLE Derivation Reports	09/01/2021
			Units 1, 2, and 3, MSPI RHR CS Systems July 2021 UAI Derivation Reports	09/02/2021
			Units 1, 2, and 3, MSPI RHR CS Systems July 2021 URI Derivation Reports	09/02/2021
			Units 1, 2, and 3, MSPI RHR CS Systems July 2021 PLE Derivation Reports	09/02/2021
			Units 1, 2, and 3, MSPI EW SP Systems July 2021 UAI Derivation Reports	09/02/2021
			Units 1, 2, and 3, MSPI EW SP Systems July 2021 URI Derivation Reports	09/02/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
			Units 1, 2, and 3, MSPI EW SP Systems July 2021 PLE Derivation Reports	09/02/2021	
			Units 1, 2, and 3, MSPI HPSI System July 2021 UAI Derivation Reports	09/02/2021	
			Units 1, 2, and 3, MSPI HPSI System July 2021 URI Derivation Reports	09/02/2021	
			Units 1, 2, and 3, MSPI HPSI System July 2021 PLE Derivation Reports	09/02/2021	
			Units 1, 2, and 3, MSPI AFW System July 2021 UAI Derivation Reports	09/02/2021	
			Units 1, 2, and 3, MSPI AFW System July 2021 URI Derivation Reports	09/02/2021	
			Units 1, 2, and 3, MSPI AFW System July 2021 PLE Derivation Reports	09/02/2021	
			Units 1, 2, and 3, All Systems July 2021 MSPI Margin Reports	09/01/2021	
			Units 1, 2, and 3, Control Room Operator Logs 4/1/2020 – 6/30/2021	09/25/2021	
			13-NS-C075	MSPI Bases Document	9
			13-NS-C075	MSPI Bases Document	10
			13-NS-C075	MSPI Bases Document	11
			13-NS-C075	MSPI Bases Document	12
			Procedures	70DP-0MR01	Maintenance Rule
70DP-0PI01	Performance Index Data Mitigating Systems Cornerstone			9	
93DP-0LC09	NRC ROP PI Data Collection, Verification and Submittal			12	
71152	Corrective Action Documents		21-08605, 21-08666, 21-08979, 21-08980, 21-08981, 21-09934		
	Miscellaneous		NRC Update – CEDMCS Reliability Presentation	08/19/2021	
			Operational Decision-Making Instruction: Unit 1 Select Control Element Assemblies Will Not Move in Manual Individual (MI)	0	
			Night Order: Unit 1 CEDMC Differences	1	
	Procedures	40AO-9ZZ11	CEA Malfunctions	28	
		77OP-9RJ07	Plant Computer User's Manual	2	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Work Orders		5359440	
71153	Corrective Action Documents		21-06337, 21-06347, 21-08029, 21-08041, 21-08268, 21-11094	
			21-08604, 21-08605	
	Miscellaneous		Unit 1 Operator logs: July 19 – 20, 2021	07/20/2021
			MREP Approval Form – SB Scoping MTM Component Addition	09/02/2021
			Palo Verde Simulator Observation – Main Feed Restoration Timeline	08/26/2021
	Operability Evaluations	40AO-9ZZ09	Reactor Power Cutback (Loss of Feedpump)	31
	Procedures	32MT-9FT01	Adjustment of Feedwater Pump Turbine (FWPT) MDT-20 Governor Settings	16
		40DP-9OP02	Conduct of Operations	75
		40OP-9FT02	Feedwater Pump Turbine B	56
		40OP-9FT04	Feedwater Pump Turbine B Over-Speed Testing	14
		40OP-9ZZ05	Power Operations	151
70DP-0MR01		Maintenance Rule	46	
77OP-9RJ07		Plant Computer User's Manual		
Work Orders		5359440, 5359445, 5360225		