



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

MARCH 04, 2024

Adam Heflin, Executive Vice President
and Chief Nuclear Officer
Arizona Public Service
P.O. Box 52034, MS 7602
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION – AGE-RELATED
DEGRADATION INSPECTION REPORT 05000528/2024012 AND
05000529/2024012 AND 05000530/2024012

Dear Adam Heflin:

On February 16, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Palo Verde Nuclear Generating Station and discussed the results of this inspection with Todd Horton, Senior Vice President, Nuclear Regulatory and Oversight and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

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,

A handwritten signature in black ink that reads "Vincent Gaddy".

Signed by Gaddy, Vincent
on 03/04/24

Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Operating Reactor Safety

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

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

PALO VERDE NUCLEAR GENERATING STATION – AGE-RELATED DEGRADATION
 INSPECTION REPORT 05000528/2024012 AND 05000529/2024012 AND 05000530/2024012
 DATED – MARCH 04, 2024

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DOCUMENT NAME: PALO VERDE NUCLEAR GENERATING STATION – AGE-RELATED
 DEGRADATION INSPECTION REPORT 05000528/2024012 AND 05000529/2024012 AND
 05000530/2024012

Non-Public Designation Category: MD 3.4 Non-Public _____ (A.3 - A.7 or B.1)

ADAMS ACCESSION NUMBER: ML24061A112

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	DORS:EB1	DORS:EB1	DORS:EB1	DORS:C	
NAME	DReinert	JBraisted	FThomas	VGaddy	
DATE	03/01/24	03/01/24	03/04/24	03/04/24	

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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: 05000528/2024012, 05000529/2024012 and 05000530/2024012

Enterprise Identifier: I-2024-012-0006

Licensee: Arizona Public Service

Facility: Palo Verde Nuclear Generating Station

Location: Wintersburg, AZ

Inspection Dates: January 29, 2024, to February 16, 2024

Inspectors: J. Braisted, Senior Reactor Inspector
D. Reinert, Senior Reactor Inspector
F. Thomas, Reactor Inspector

Approved By: Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an age-related degradation 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

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

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.

REACTOR SAFETY

71111.21N.04 - Age-Related Degradation

Age-Related Degradation (14 Samples)

- (1) Unit 1 Safety Injection Combined Recirculation to Refueling Water Tank Isolation Valve 1JSIAUV0660
- (2) Unit 1 Essential Spray Pond Pump Motor 1MSPAP01
- (3) Unit 2 Containment Building Radiation Monitor 2JSQBRU0001
- (4) Unit 2 Fire Protection Panel Batteries 2JFPNF49
- (5) Unit 2 Main Steam Isolation Valve 2JSGEUV0180
- (6) Unit 1 EDG Generator 1EPEAG01
- (7) Unit 1 Molded Case Circuit Breaker 1EPHAM3118
- (8) Unit 3 Channel B Balance of Plant (BOP) - Engineered Safety Feature Actuation System (ESFAS) Cabinet
- (9) Unit 3 4kV Circuit Breaker 3PBBS04C
- (10) Unit 3 480V Inverter 3PKCN43
- (11) Unit 1 Charging Pump Pulsation Dampener 1CHAX07
- (12) Unit 1 Hydrogen Analyzer Temperature Switch 1JHPBTSHL0014
- (13) Unit 1 Atmospheric Dump Valve Position Controller 1JSGAHY0179C
- (14) All Units Auxiliary Building Seismic Gap Seals

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On February 16, 2024, the inspectors presented the Age-Related Degradation inspection results to Todd Horton, Senior Vice President, Nuclear Regulatory and Oversight and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.04	Corrective Action Documents	Condition Report (CR)	19-05711, 21-01066, 21-01744, 21-02229, 21-10668, 22-02105, 22-02196, 22-02224, 22-02642, 22-07032, 22-07259, 22-10093, 22-12526, 23-02133, 23-07532, 23-07532, 19-09602, 23-04824, 23-12950, 22-07188, 23-06393, 23-08657, 23-09459, 23-10160, 23-10502, 23-11634, 20-09602, 21-01548, 22-06475, 23-09451	
		Condition Report Action Item (CRAI)	3206566, 3556860, 4574922	
		Condition Report Disposition Request (CRDR)	3193437, 3481107, 4636321	
	Corrective Action Documents Resulting from Inspection	Condition Report (CR)	23-12931, 23-12932, 23-12933, 24-00905, 24-00911, 24-00912, 24-00913, 24-00978, 24-01000, 24-01245, 24-01381, 24-01393, 24-01401, 24-01409, 24-01468	
	Drawings	01-E-PBA-002	SINGLE LINE DIAGRAM, 4.16 KV CLASS 1E POWER SYSTEM SWITCHGEAR 1E-PBB-S04	16
		01-E-PHA-001	SINGLE LINE DIAGRAM, 480V CLASS 1E POWER SYSTEM, MOTOR CONTROL CENTER 1E-PHA-M31	21
		01-E-PKA-004	SINGLE LINE DIAGRAM, 125V DC CLASS 1E POWER SYSTEM DC CONTROL CENTER 1E-PKC-M43 & 1E-PKC-D23	16
		01-E-SPB-012, Sheet 1 of 2	Elementary Diagram, Essential Spray Pond System, Margin Recovery Bypass Valves 1J-SPA-HV-075 & 1J-SPB-HV-076	2
		01-E-SPB-012, Sheet 2 of 2	Elementary Diagram, Essential Spray Pond System, Margin Recovery Bypass Valves 1J-SPA-HV-075 & 1J-SPB-HV-076	2
		01-E-SPF-012, Sheet 1 of 2	Control Wiring Diagram, Essential Spray Pond System Margin Recovery Bypass Valves 1J-SPA-HV-075 & 1J-SPB-HV-076	1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		JN603-A00025	TARGET ROCK SOV MODEL NO. 77L-002BB PROJECT CONTROL DRAWING	0
	Engineering Changes	DEC-0747	Replacement of ADV Masoneilan Model 8005N I/P Transducers	3
	Engineering Evaluations	19-01360-065	Equipment Reliability Engineering Template (ERET) 2952421	09/24/2020
	Miscellaneous	EEQ-S124-001	Skinner Valve Division, Honeywell, Inc, V5H Series, Solenoid Valves	14
		EEQ-T020-004	Target Rock, Solenoid Operated Valve (SOV), 77L-002, 77L-002BB and 98F-001 (Modified 80B-001)	13
		ERET 2827017	Work Scope Basis Atmospheric Dump Valve Position and Control Loops	01/11/2024
		ERET 2827053	OPERATOR HYDRALIC SG 1 ECONOMIZER FEEDWATER UPSTREAM ISOL VALVE	16
		FP DBM	FIRE PROTECTION SYSTEM	15
		HP DBM	Containment Hydrogen Control System	14
		J104-00252	Palo Verde Generating Station (PVGS) Balance of Plant (BOP) Engineered Safety Features Actuation System (ESFAS) Project Plan	004
		JN603-A00026	TARGET ROCK SOV MODEL NO. 77L-002BB PROJECT TECHNICAL MANUAL	0
		ODCR 93J-AS-01	VTM/VTO Figures 3-1, 7-2, 8-3, 9-2 and 10-2 do not depict the current plant design. Change these figures to represent the nominal system voltage level of 28 VDC, as opposed to the 24 VDC indicated.	12/23/1993
		PMB 248279	Preventative Maintenance Basis 1JHPBTC0014	03/03/2022
		SG DBM	MAIN STEAM	34
		SI DBM	SAFETY INJECTION SYSTEM	41
		SP DBM	Essential Spray Pond System	23
		SQ DBM	Radiation Monitoring System	16
		VTD-A391-00010	ANCHOR/DARLING INSTRUCTION MANUAL FOR MAIN STEAM ISOLATION VALVES (MSIV) AND FEEDWATER ISOLATION VALVES (FWIV) [PUB.# E9023-9]	14
		VTD-G063-0002-	GENERAL ATOMIC (SORRENTO DIVISION)	04/08/98

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		5	INSTRUCTION MANUAL FOR BALANCE OF PLANT ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (BOP ESFAS) [PUB. #E-115-760].	
		VTD-G080-00115	GENERAL ELECTRIC TESTING & MAINTENANCE OF MOLDED CASE CIRCUIT BREAKERS (GET-2963B).	02
		VTD-G080-00202	General Electric Maintenance and Lubrication for GE Type AK and AKR Circuit Breakers Information Letters (Pub. #SIL 448 and PB 300.1)	2
		VTD-G080-0394	GENERAL ELECTRIC INSTRUCTIONS FOR METAL-CLAD SWITCHGEAR TYPES M26 AND M36 [PUB. # GEH-1802X]	1
		VTD-G080-0409	GENERAL ELECTRIC INSTRUCTIONS AND RECOMMENDED PARTS FOR MAINTENANCE FOR MAGNE-BLAST CIRCUIT BREAKER TYPE: AM-4.16-250-9 1200 & 2000 AMPERES WITH ML-13 MECHANISM	2
		VTD-G080-0643	BINGHAM WILLAMETTE CO. INSTRUCTIONS FOR GENERAL ELECTRIC PUMP MOTOR [PUB. # GEK72703]	1
		VTD-G250-00002	Greer Hydraulics Operation and Maintenance Instructions for 5 Gallon Pulse-Tone	4
		VTD-G985-0002	GATES ENERGY PRODUCTS SEALED-LEAD BATTERY SELECTION GUIDE [PUB. # GEP-0061]	0
		VTD-K020-00003	KAMAN EASY-REFERENCE GUIDE TO EQUIPMENT DESCRIPTION AND TEST PROCEDURES	2
		VTD-K020-00004	KAMAN INTRODUCTION AND OVERVIEW OF RADIATION MONITORING SYSTEM	2
		VTD-K020-00005	KAMAN MAINTENANCE INSTRUCTIONS FOR FIELD UNIT MONITORS	1
		VTD-K020-0032	KAMAN INSTRUCTIONS FOR SAFETY-RELATED MONITORING SYSTEM MODULE (SRMS)	1
		VTD-P292-0007	PORTECINC. FIELD REPAIR PROCEDURE FOR BROKEN POLE WASHERS [PUB. # ER6.1].	0
		VTD-P292-0009	PORTEC Inc. Master File Concerning Slip Ring Surface Film [Pub. #SM-1390]	0
		VTD-R369-0016	ROSEMOUNT MODEL 1152 ALPHALINE PRESSURE	9

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			TRANSMITTERS FOR NUCLEAR SERVICE (PUB #4235)	
		VTD-T020-00011	TARGET ROCK TECHNICAL MANUAL FOR SOLENOID OPERATED GLOBE VALVES [PUB. #TM100-591]	0
		VTD-T020-00016	TARGET ROCK TECHNICAL MANUAL FOR SOLENOID OPERATED VALVES [PUB. # 1571]	5
		VTD-W290-00021	WOODWARD MAGNETIC PICKUPS AND PROXIMITY SWITCHES FOR ELECTRONIC CONTROLS	04
		VTD-W290-00046	Woodward Installation and Operation Manual of Digital Reference Unit with High, Low, and Intermediate Setpoints (Manual 82006A)	000
		VTM-B265-0001	BINGHAM WILLAMETTE ESSENTIAL SPRAY PONDS PUMPS	3
	Procedures	30DP-9MP08	Preventive Maintenance Program	30
		32MT-9PE01	Cleaning, Inspection, and Testing of the Class 1E Diesel Generator	50
		32MT-9ZZ21	4.16 kV Motor Operational Testing	7
		32MT-9ZZ34	Maintenance of AM-16-250-9H GE Magne-Blast Circuit Breakers	43
		32MT-9ZZ58	Preventive Maintenance of Elgar Inverters	42
		32MT-9ZZ74	Molded Case Circuit Breaker Test	53
		36MT-9SA01	Balance of Plant Engineered Safety Features Actuation System Functional Test	13
		40OP-9CH13	Charging Pump Suction Stabilizer and Discharge Pulsation Dampener Operation	32
		40ST-9ZZ25	Remote Shutdown Disconnect Switch and Control Circuit Operability - All Modes	13
		70DP-0MR02	Maintenance Rule Monitoring Process	0
		73DP-0EE05	Engineering Preventive Maintenance Program	19
		81DP-0ZZ01	Civil System, Structure, and Component Monitoring Program	27
		Work Orders	Work Order (WO)	4639813, 4316955, 4317317, 4441180, 4909539, 4909539, 4918343, 5035501, 5074203, 5086829, 5136824, 5177336, 5174927, 5178832, 5256401, 5268656, 5280710, 5289756,

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			5297453, 5297583, 5316296, 5316668, 5330264, 5330242, 5341265, 5350334, 5357323, 5361396, 5376904, 5385635, 5387507, 5405208, 5423351, 5432442, 5456441, 5456889, 5460997, 5477186, 5480011, 5480032, 5480079, 5488694, 5516678, 5262915, 5532150, 5551685, 5532343, 5133794, 5295926, 5446679, 4950704, 4750426, 5308041, 546622, 546623	