



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

February 18, 2021

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

**SUBJECT: PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, AND 3 –
NOTIFICATION OF NUCLEAR REGULATORY COMMISSION DESIGN BASES
ASSURANCE INSPECTION (PROGRAMS) (05000528/2021014,
05000529/2021014, AND 05000530/2021014) AND INITIAL REQUEST FOR
INFORMATION**

Dear Mrs. Lacal:

On May 10, 2021, the U.S. Nuclear Regulatory Commission (NRC) will begin an onsite inspection at the Palo Verde Nuclear Generating Station Units 1, 2, and 3. A three-person team will perform this inspection using NRC Inspection Procedure 71111, Attachment 21N.02, "Design Bases Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements."

This inspection will evaluate the reliability, functional capability, and design basis of risk-important power-operated valves as required by 10 CFR 50.55a and applicable 10 CFR Part 50, Appendix A and Appendix B, requirements, and as required by the Palo Verde Nuclear Generating Station Units 1, 2, and 3 Operating Licenses. Additionally, the team will perform an inspection of the documentation files to verify that the plant activities associated with safety-related motor-operated valves meet your commitments to Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," and GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves." In conducting this inspection, the team will select power-operated valves used to prevent and mitigate the consequences of a design basis accident.

The inspection will include an information gathering site visit by the team leader and two weeks of onsite inspection by the team. The inspection will consist of three NRC inspectors. The current inspection schedule is as follows:

Onsite Information Gathering Visit: March 22-26, 2021
Preparation Weeks: May 3-7, 2021, and May 17-21, 2021
Onsite Weeks: May 10-14, 2021 and May 24-28, 2021

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The purpose of the information gathering visit is to meet with members of your staff to become familiar with the power-operated valve activities at the Palo Verde Nuclear Generating Station. The lead inspector will request a meeting with your personnel to discuss the site power-operated valve procedures. Additionally, the lead inspector will request a discussion with your staff to become familiar with the regulations and standards applicable to power-operated valves at the site. Additional information and documentation needed to support the inspection will be identified during the inspection, including interviews with engineering managers and engineers.

In order to minimize the inspection impact on the site and to ensure a productive inspection, we have enclosed a request for information needed for the inspection. This information should be made available to the lead inspector during the week of March 15-19, 2021. Since the inspection will be concentrated on safety-related and risk significant power-operated valves, a list of such power-operated valves should be available to review during and following the information gathering visit to assist in our selection of appropriate power-operated valves to review.

Additional requests by inspectors will be made during the onsite weeks for specific documents needed to complete the review of specific power-operated valves and associated activities. It is important that all these documents are up-to-date and complete in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection. To facilitate the inspection, we request that a contact individual be assigned to each inspector to ensure information requests, questions, and concerns are addressed in a timely manner.

The lead inspector for this inspection is Mr. Ronald A. Kopriva. We understand that our licensing engineer contact for this inspection is Mr. Mohamed Diane. If there are any questions about the inspection or the requested materials, please contact the lead inspector by telephone at 817-200-1104 or by email at Ron.Kopriva@nrc.gov.

This letter contains mandatory information collections that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). The Office of Management and Budget (OMB) approved these information collections (approval number 31500011). Send comments regarding this information collection to the Information Services Branch, Office of the Chief Information Officer, Mail Stop: T6 A10M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by email to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (31500011) Office of Management and Budget, Washington, DC 20503.

The NRC may not conduct nor sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

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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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding.

Sincerely,

Vincent G.
Gaddy

Digitally signed by
Vincent G. Gaddy
Date: 2021.02.18
05:04:12 -06'00'

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

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

Enclosure(s):
Design Bases Assurance Inspection
(Programs) Power-Operated Valve
Request for Information

Valves of Interest List

cc w/ encl: Distribution via LISTSERV®

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PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, AND 3 – NOTIFICATION OF NRC DESIGN BASES ASSURANCE INSPECTION (PROGRAMS) (05000528/2021014, 05000529/2021014, AND 05000530/2021014) AND INITIAL REQUEST FOR INFORMATION- FEBRUARY 18, 2021

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**Initial Request for Information
Design Bases Capability of Power-Operated Valves
PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, AND 3**

Inspection Report(s): 05000528/2021014, 05000529/2021014, and
05000530/2021014

Information Gathering Dates: March 22-26, 2021

Inspection Dates: May 10-14, 2021 and May 24-28, 2021

Inspection Procedure: IP 71111, Attachment 21N.02, "Design Bases Capability of
Power-Operated Valves Under 10 CFR 50.55a
Requirements"

Lead Inspector: Ronald A. Kopriva, Senior Reactor Inspector

I. Information Requested for Information Gathering Visit (March 22, 2021)

The following information should be provided to the lead inspector in hard copy or electronic format, to the attention of Ronald A. Kopriva by March 15, 2021 to facilitate the reduction in the items to be selected for a final list of components. The inspection team will finalize the selected list during the prep week using the documents requested in this enclosure. The specific items selected from the lists shall be available and ready for review on the day indicated in this request. *Please provide requested documentation electronically in "pdf" files, Excel, or other searchable formats, if possible. The information should contain descriptive names and be indexed and hyperlinked to facilitate ease of use. Information in "lists" should contain enough information to be easily understood by someone who has knowledge of pressurized water reactor technology. If requested documents are large and only hard copy formats are available, please inform the inspectors, and provide subject documentation during the first day of the onsite inspection.

1. Provide the valve characteristics for the valves listed in the attached list as described in Appendix C of NRC Inspection Procedure 71111, Attachment 21N.02, "Design Bases Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements."
2. List of power-operated valves (POVs) important to safety for the Palo Verde Nuclear Generating Station. The list should include (a) component identification number; (b) applicable plant system; (c) ASME *Boiler and Pressure Vessel Code* (BPV Code) Class; (d) safety-related or nonsafety-related classification; (e) valve type, size and manufacturer; and (f) actuator type, size, and manufacturer. If the NRC has granted a license amendment to categorize structures, systems, and component in accordance with 10 CFR 50.69, please provide the risk-informed safety category of the component.
3. Listing of POVs sorted by risk importance, including external risk considerations.

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4. Word searchable updated final safety analysis report (UFSAR), license conditions, technical specifications, and most recent in-service testing (IST) program plan (and bases document), including any standards that have been committed to with respect to POV capability and testing. Also, identify which UFSAR sections address environmental, seismic, and functional qualification of POVs.
5. Provide copies of the latest POV program level procedures or manuals.
6. NRC Safety Evaluation Report(s) associated with the Palo Verde Nuclear Generating Station IST program and relief and alternative requests submitted in accordance with 10 CFR 50.55a for POVs.
7. Provide the most recently completed audit, self-assessment, or benchmark of POV programs at Palo Verde Nuclear Generating Station.
8. List of systems, system numbers/designators and corresponding names.
9. List of site contacts that will be associated with the inspection.

II. Discussions Requested

1. Interview with a Palo Verde Nuclear Generating Station representative to discuss site POV capability analyses, including plant drawings and assumptions. This includes analysis for accident conditions.
2. Interview with a Palo Verde Nuclear Generating Station representative to discuss POV maintenance elements as integrated into plant programs and procedures.
3. Interview with a Palo Verde Nuclear Generating Station representative to discuss maintaining the design basis capability of POVs if they have entered a period of extended operation, if applicable.

III. Information Requested for Inspection Preparation (May 3, 2021)

1. Calculations and/or evaluations associated with the selected POVs, as applicable. For example, these may include those related to motor-operated valve (MOV) torque switch setpoint, MOV terminal (degraded) voltage, maximum expected differential and pressure, torque switch bypass settings, rate of loading, environmental and process conditions during normal/accident operation, seismic and weak-link analysis, and pressure locking and thermal binding, etc. (Eight to Twelve specific valves will be identified and communicated to you prior to April 19, 2021.)
2. Vendor manuals and technical sheets associated with the selected POVs.
3. Provide results (i.e., completed work orders) from the last three performances of diagnostic (static and/or dynamic) testing and in-service testing (stroke time, leak rate, etc.) of the selected POVs.
4. Provide performance (or failure) trending data for the selected POVs.
5. List of modifications related to the selected POVs.

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6. List of corrective action program documents, with a brief description, related to the selected POVs over the past five years.
7. List of preventive maintenance activities for the selected POVs (valve and actuator). Include the identification number, title and/or description, and frequency.
8. System training manuals and/or design basis documents associated with the selected POVs.
9. Piping and instrument diagrams for systems related to the selected POVs.
10. Tours of the rooms in which the selected POVs are installed. If the inspection will be performed remotely, multiple pictures of selected valve and valve location can be provided. The pictures must have an orientation reference, a size reference, pictures of the surrounding environment, and pictures of the nameplates of both valve and valve operator.

IV. Discussions Requested During the First Inspection Week (May 10, 2021)

1. Brief presentation of POV programs at Palo Verde Nuclear Generating Station.
2. Interviews with representatives to discuss the design basis capability of POVs based upon the team's review of gathered information.

**Please sort the Section III responses by each selected POV.*

Inspector Contact Information:

Ronald Kopriva
Senior Reactor Inspector
817-200-1104
Ron.Kopriva@nrc.gov

Jonathan Braisted
Reactor Inspector
817-200-1469
Jonathan.Braisted@nrc.gov

Wes Cullum
Reactor Inspector
817-200-1563
Wes.Cullum@nrc.gov

Mailing Address:

U.S. NRC, Region IV
Attn: Ronald Kopriva
1600 East Lamar Blvd.
Arlington, TX 76011-45

Palo Verde Nuclear Generating Station Valves of Interest

Number	PLANT	DKT	SYS	ID	POV	SAFETY	VLV Type	Size
1	Palo Verde 1	528	Auxiliary Feedwater - MOTOR-DRIVEN AFW PUMP TO SG #1 FLOW CONTROL VALVE	1JAFBHV0030	MOV	Open/Close	Globe	6
2	Palo Verde 1	528	Chemical Volume & Control System - NORMAL CHARGING FLOWPATH ISOLATION VALVE	1JCHEPVDV0240	AOV	Open/Close	Globe	2
3	Palo Verde 1	528	Nuclear Cooling Water - NUCLEAR COOLING WATER SUPPLY TO RCP COOLER OUTBOARD CIV (PEN. 34)	1JNCAUV0402	MOV	Close	Butterfly	10
4	Palo Verde 1	528	Main Steam - SG 1 STEAM SUPPLY TO AUX FEED PUMP TURBINE ISOLATION VALVE (PEN. 2)	1JSGAUV0134	MOV	Open/Close	Gate	6
5	Palo Verde 1	528	Main Steam - SG 1 DOWNCOMER FEEDWATER UPSTREAM ISOLATION VALVE	1JSGAUV0172	AOV	Close	Gate	8
6	Palo Verde 1	528	Main Steam - SG 2 DOWNCOMER FEEDWATER UPSTREAM ISOLATION VALVE	1JSGAUV0175	AOV	Close	Gate	8
7	Palo Verde 1	528	Main Steam - SG 2 ECONOMIZER FEEDWATER DOWNSTREAM ISOLATION VALVE (PEN. 10)	1JSGBUV0137	HOV	Close	Gate	24
8	Palo Verde 1	528	Safety Injection - SHUTDOWN COOLING SUCTION ISOLATION VALVE	1JSIAUV0651	MOV	Open/Close	Gate	16
9	Palo Verde 1	528	Safety Injection - CONTAINMENT SPRAY BYPASS VALVE	1JSIBHV0693	MOV	Open/Close	Gate	10
10	Palo Verde 1	528	Safety Injection - LPSI DISCHARGE HEADER OUTBOARD CIV (PEN. 18)	1JSIBUV0625	MOV	Open	Globe	12
11	Palo Verde 2	529	Auxiliary Feedwater - TURBINE-DRIVEN AFW PUMP TRIP/THROTTLE VALVE	2JAFAHV0054	MOV	Open	Globe	4
12	Palo Verde 2	529	Chemical Volume & Control System - AUXILIARY PRESSURIZER SPRAY VALVE	2JCHAHV0205	SOV	Open/Close	Globe	2
13	Palo Verde 2	529	Chemical Volume & Control System - REFUELING WATER TANK OUTLET ISOLATION VALVE	2JCHBHV0530	MOV	Open/Close	Gate	20

Number	PLANT	DKT	SYS	ID	POV	SAFETY	VLV Type	Size
14	Palo Verde 2	529	Chemical Volume & Control System - LETDOWN FROM REGENERATIVE HEAT EXCHANGER	2JCHBUBV0523	AOV	Close	Globe	2
15	Palo Verde 2	529	Nuclear Cooling Water - NUCLEAR COOLING WATER SUPPLY TO RCP COOLER INBOARD CIV (PEN. 34)	2JNCBUBV0403	MOV	Close	Butterfly	10
16	Palo Verde 2	529	Radioactive Drains - CONTAINMENT RADWASTE SUMP OUTLET OUTBOARD CIV (PEN. 9)	2JRDBUBV0024	AOV	Close	Gate	3
17	Palo Verde 2	529	Main Steam - STEAM GENERATOR ATMOSPHERIC DUMP VALVE (ADV) (PEN. 1)	2JSGAHV0184	AOV	Open/Close	Globe	12
18	Palo Verde 2	529	Auxiliary Feedwater - SG 2 STEAM SUPPLY TO AUX FEED PUMP TURBINE ISOLATION VALVE (PEN. 3)	2JSGAUV0138	MOV	Open/Close	Gate	6
19	Palo Verde 2	529	Safety Injection - CONTAINMENT SUMP TO SI PUMP SUCTION INBOARD CIV (PEN. 24)	2JSIBUBV0675	MOV	Open/Close	Butterfly	24
20	Palo Verde 2	529	Safety Injection - SHUTDOWN COOLING SUCTION INBOARD CIV (PEN. 27)	2JSICUV0653	MOV	Open/Close	Gate	16
21	Palo Verde 3	530	Auxiliary Feedwater - MOTOR-DRIVEN AFW PUMP TO SG #2 ISOLATION VALVE (PEN. 76)	3JAFBUBV0035	MOV	Open/Close	Gate	6
22	Palo Verde 3	530	Auxiliary Feedwater - TURBINE-DRIVEN AFW PUMP TO SG #1 ISOLATION VALVE (PEN. 75)	3JAFUCUV0036	MOV	Open/Close	Gate	6
23	Palo Verde 3	530	Condensate Transfer - AFN-P01 SUCTION ISOLATION VALVE FROM CONDENSATE STORAGE TANK	3JCTAHV0001	MOV	Close	Butterfly	10
24	Palo Verde 3	530	Reactor Coolant - REACTOR VESSEL HEAD VENT VALVE	3JRCAHV0101	SOV	Open/Close	Globe	1
25	Palo Verde 3	530	Radioactive Drains - CONTAINMENT RADWASTE SUMP OUTLET OUTBOARD CIV (PEN. 9)	3JRDBUBV0024	AOV	Close	Gate	3
26	Palo Verde 3	530	Main Steam - STEAM GENERATOR ATMOSPHERIC DUMP VALVE (ADV) (PEN. 2)	3JSGHBV0178	AOV	Open/Close	Globe	12
27	Palo Verde 3	530	Main Steam - MAIN STEAM ISOLATION VALVE	3JSGEUV0171	HOV	Close	Gate	28

Number	PLANT	DKT	SYS	ID	POV	SAFETY	VLV Type	Size
			(PEN. 3)					
28	Palo Verde 3	530	Safety Injection - SHUTDOWN COOLING HEAT EXCHANGER OUTLET THROTTLE VALVE	3JSIAHV0657	MOV	Open/Close	Butterfly	16
29	Palo Verde 3	530	Safety Injection - CONTAINMENT SPRAY CONTROL VALVE AND OUTBOARD CIV (PEN. 21)	3JSIAUV0672	MOV	Open/Close	Gate	8
30	Palo Verde 3	530	Safety Injection - SHUTDOWN COOLING SUCTION INBOARD CIV (PEN. 26)	3JSIDUV0654	MOV	Open/Close	Gate	16