



A subsidiary of Pinnacle West Capital Corporation

10 CFR 50.73

Palo Verde Nuclear
Generating Station

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102-05932-DCM/REB/DCS
November 26, 2008

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
License No. NPF 74
Licensee Event Report 2008-002-00**

Enclosed, please find Licensee Event Report (LER) 50-530/2008-002-00 that has been prepared and submitted pursuant to 10 CFR 50.73. This LER reports a manual actuation of the reactor protection system (reactor trip) in response to high vibrations of the main turbine.

In accordance with 10 CFR 50.4, copies of this LER are being forwarded to the NRC Regional Office, NRC Region IV and the Senior Resident Inspector. If you have questions regarding this submittal, please contact Ray Buzard, Section Leader, Regulatory Affairs, at (623) 393-5317.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

DCM/REB/DCS/gat

Enclosure

cc: E. E. Collins Jr. NRC Region IV Regional Administrator
B. K. Singal NRC NRR Project Manager - (send electronic and paper)
R. I. Treadway NRC Senior Resident Inspector for PVNGS

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/PriVacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Palo Verde Nuclear Generating Station (PVNGS) Unit 3	2. DOCKET NUMBER 05000530	3. PAGE 1 OF 4
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4. TITLE
Manual Reactor Trip due to High Main Turbine Vibrations During Unit Shutdown

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	27	2008	2008	- 002 -	00	11	26	2008		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 34	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)							
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME Ray Buzard, Section Leader, Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) 623-393-5317
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On September 27, 2008, at approximately 21:51 hours, Mountain Standard Time, Unit 3 control room operators initiated a manual reactor trip from approximately 34% rated thermal power in response to high vibrations on the main turbine. The main turbine vibrations were experienced during a required power reduction resulting from a steam generator chemistry excursion. The event was considered an uncomplicated reactor trip. No automatic engineered safety feature (ESF) actuations occurred during the event and none were required. All safety related buses remained energized from normal offsite power during and following the reactor trip.

The cause of the reportable event was the decision by control room operators to initiate a manual reactor trip in response to the main turbine high vibrations. The operators chose to initiate the reactor trip earlier than intended in the planned shutdown in response to the high turbine vibrations. The reactor trip was not necessary to mitigate the consequences of the event.

There have been manual reactor trips in the past at Palo Verde Nuclear Generating Station but none with causes similar to this event. As such, the corrective actions for those events would not have prevented this event.

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CONTINUATION SHEET**

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

All times are Mountain Standard Time and approximate unless otherwise indicated.

1. REPORTING REQUIREMENT(S):

This LER is being submitted pursuant to 10 CFR 50.73 (a)(2)(iv)(A) to report a manual actuation of the reactor protection system (RPS). This event was reported to the NRC on the Emergency Notification System (ENS) on September 27, 2008, at 23:35. (ENS 44525)

2. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

The reactor protection system (RPS) (EIS: JC) consists of sensors, calculators, logic, and other equipment necessary to monitor selected nuclear steam supply system (NSSS) conditions and to effect reliable and rapid reactor shutdown (reactor trip), if monitored conditions approach specified limiting safety system settings. The system's functions are to protect the core specified acceptable fuel design limits and reactor coolant system (RCS) (EIS: AB) pressure boundary for incidents of moderate frequency, and also to provide assistance in limiting conditions for certain infrequent events and limiting faults. A manual reactor trip is also provided as part of the RPS to permit the operator to trip the reactor.

The General Electric main turbine (EIS: TA) operates at 1800 revolutions per minute and includes one double-flow, high-pressure turbine; three double-flow, low-pressure turbines; and four moisture separator reheaters with two stages of reheating. The rotors are of monoblock construction. The main turbine is equipped with various protective trip features, which, when initiated, cause isolation of all turbine stop and control valves. Included in these protective trips is a protective trip for excessive vibrations (experienced in this event).

3. INITIAL PLANT CONDITIONS:

On September 27, 2008, Palo Verde Unit 3 control room operators were performing a unit downpower in response to a steam generator (EIS: AB) chemistry sulfate excursion event. Reactor rated thermal power level was approximately 38% when main turbine vibrations were noted to be increasing.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

4. EVENT DESCRIPTION:

On September 27, 2008, at approximately 21:49, while performing a unit downpower in response to a chemistry excursion event (elevated sulfates in the steam generators), Palo Verde Unit 3 control room operators received main turbine high vibration alarms and noted that the vibrations appeared to be trending up. Licensed operators planned to perform a normal reactor shutdown by reducing reactor rated thermal power to approximately 20% and then initiating a manual reactor trip. Due to the increasing main turbine vibrations, a decision was made to manually trip the reactor sooner than planned, and then manually trip the main turbine. The manual reactor trip was initiated at 21:51 from approximately 34% rated thermal power. The plant was stabilized in Mode 3 with no observed abnormalities following the reactor trip.

A post-trip review of parameter records indicated that the main turbine vibrations had reached the automatic trip set point approximately 3.5 seconds before the manual reactor trip was initiated and as such, the main turbine had tripped automatically.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

The event did not result in a transient more severe than those previously analyzed in the PVNGS UFSAR, Chapter 15. The event was considered an uncomplicated reactor trip. The reactor trip was not automatically initiated as a result of any of the categories defined in UFSAR Section 15.0.1.2. The Specified Acceptable Fuel Design Limits and reactor coolant system pressure limit were not exceeded. Equipment and systems assumed in UFSAR Chapter 15 were functional and performed as required. No automatic engineered safety feature (ESF) actuations occurred during the event, and all safety related buses remained energized from normal offsite power during and following the reactor trip. The reactor trip was not necessary to mitigate the consequences of the event.

There are no actual safety consequences as a result of this condition; the condition would not have prevented the fulfillment of the safety function; and, the condition did not result in a safety system functional failure as defined by 10 CFR 50.73 (a)(2)(v).

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6. CAUSE OF THE EVENT:

The direct cause of the reportable event (RPS actuation) was the decision reached by control room operators to initiate a manual reactor trip in response to the high vibrations on the main turbine.

The Unit 3 turbine was replaced in the most recent refueling outage which was completed in December 2007. Since the low pressure rotors and shaft packing are new, the vibrations are an indication that the clearances are fairly tight (and efficient). The main turbine vibrations may have also been exacerbated by erratic operation of a moisture separator reheater (MSR) (EIS: SB) 2nd stage air operated control valve. Vibration of GE monoblock rotors is not uncommon in response to temperature excursions.

7. CORRECTIVE ACTIONS:

There are no prescribed corrective actions for the operators' decision to trip the reactor at a power level above that originally planned based on chemistry considerations alone. This decision was within the discretion of the operators in response to the changing conditions associated with the turbine vibrations.

8. PREVIOUS SIMILAR EVENTS:

There have been manual reactor trips in the past three years at Palo Verde Nuclear Generating Station but none with causes similar to this event. As such, the corrective actions for those events would not have prevented this event.