



*A subsidiary of Pinnacle West Capital Corporation*

Palo Verde Nuclear  
Generating Station

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192-01136- DMS/SAB/DGM/DFH  
April 2, 2004

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS) Unit 1  
Docket No. STN 50-528  
License No. NPF-41  
Licensee Event Report 2004-002-00**

Attached, please find Licensee Event Report (LER) 50-528/2004-002-00 that has been prepared and submitted pursuant to 10CFR50.73. The LER reports a Technical Specification violation where power was raised above 20 percent rated thermal power without meeting the Limiting Condition for Operation (LCO) for Axial Shape Index (ASI).

In accordance with 10CFR50.4, a copy of this LER is being forwarded to the NRC Regional Office, NRC Region IV and the Resident Inspector. If you have questions regarding this submittal, please contact Daniel G. Marks, Section Leader, Regulatory Affairs, at (623) 393-6492.

Arizona Public Service Company makes no commitments in this letter. The corrective actions described in this LER are not necessary to maintain compliance with regulations.

Sincerely,

DMS/SAB/DGM/DFH/kg

Attachment

cc: B. S. Mallett  
N. L. Salgado  
M. B. Fields

NRC Region IV Administrator  
NRC Senior Resident Inspector for PVNGS  
NRC NRR Project Manager

JE22

**LICENSEE EVENT REPORT (LER)**

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

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to bjs1@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 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.

<b>1. FACILITY NAME</b> Palo Verde Nuclear Generating Station Unit 1	<b>2. DOCKET NUMBER</b> 05000528	<b>3. PAGE</b> 1 OF 5
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**4. TITLE**  
TECHNICAL SPECIFICATION VIOLATION – EXCEEDED 20% RTP WITH LCO NOT MET

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
02	08	2004	2004	002	00	04	02	2004		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b> 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>									
<b>10. POWER LEVEL</b> 20	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)			
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)			
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)			
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)			
	20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER - Specify in Abstract below or in NRC Form 366A			
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)					
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)					
	20.2203(a)(2)(v)		xx 50.73(a)(2)(i)(B)		50.73(a)(2)(vii)					
20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)						
20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)						

**12. LICENSEE CONTACT FOR THIS LER**

<b>NAME</b> Daniel G. Marks, Section Leader, Regulatory Affairs	<b>TELEPHONE NUMBER (Include Area Code)</b> 623-393-6492
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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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>				<b>15. EXPECTED SUBMISSION DATE</b>				
YES (If yes, complete EXPECTED SUBMISSION DATE)				X	NO	MONTH	DAY	YEAR

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

On February 8, 2004, during power ascension in Unit 1, power was raised above 20 percent rated thermal power without meeting the Limiting Condition for Operation (LCO) for Axial Shape Index (ASI) which is a violation of Technical Specification (TS) 3.0.4. TS 3.0.4 does not allow entry into the specified condition when LCO 3.2.5 is not met. Control Room Operators had incorrectly interpreted a provisional note in procedures 40OP-9ZZ11 Rev. 56, "Mode Change Checklist", 40ST-9ZZM1 Rev.26, "Operations Mode 1 Surveillance Log" step 8.1.17, and Surveillance Requirement (SR) 3.2.5.1, and believed they had up to two hours to restore ASI within limits after exceeding 20 percent power.

LER 2001-002-00 reported a similar condition in the past three years when Unit 3 entered Mode 3 with one Auxiliary Feedwater pump inoperable; a condition prohibited by TS 3.0.4.

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

1. REPORTING REQUIREMENT(S):

APS is reporting this condition pursuant to 10 CFR 50.73(a)(2)(i)(B) as a violation of Technical Specification 3.0.4.

Technical Specification 3.0.4 states:

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

The "Applicability" for the LCO 3.2.5 is Mode 1 with thermal power >20 percent rated thermal power. The associated actions to be entered if the LCO is not met do not permit continued operation in the specified condition for an unlimited period of time. Contrary to the requirements of TS 3.0.4, rated thermal power was raised above 20 percent without meeting the LCO 3.2.5 for Axial Shape Index (ASI).

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

The core operating limit supervisory system (COLSS) (EIS Code: JC, ID) is a digital computer based on-line monitoring program used to provide information to aid the operator in complying with the technical specification operating limits on rated thermal power (total core power), linear heat rate, departure from nucleate boiling ratio (DNBR), axial shape index (ASI), and azimuthal power tilt. To do so, COLSS uses measurements of incore detector signals, control element assembly positions and plant thermal/hydraulic properties to determine the core power distribution and thermal performance. The COLSS program runs independently in the plant monitoring and core monitoring computers.

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Axial Shape Index LCO

The LCO on ASI ensures that the actual value of core average axial shape index is maintained within the range of values used in the safety analyses. The core average ASI is maintained within the limits listed below.

COLSS Operable:

$-0.18 \leq ASI \leq 0.18$  for power  $\geq 50\%$

$-0.28 \leq ASI \leq 0.18$  for power  $< 50\%$

3. INITIAL PLANT CONDITIONS:

On February 08, 2004, at approximately 11:45 Mountain Standard Time (MST), Palo Verde Unit 1 was in Mode 1 at 20 percent power.

There were no other major structures, systems, or components that were inoperable at the start of the event that contributed to the event. There were no failures that rendered a train of a safety system inoperable and no failures of components with multiple functions were involved.

4. EVENT DESCRIPTION:

On February 7, 2004, at approximately 15:03 (MST), while returning to service following a forced outage, Unit 1 entered Mode 1 (>5 percent rated thermal power). Surveillance Test (ST) 40ST-9ZZM1 was in progress and in accordance with procedure 40OP-9ZZ11, Appendix H, a Technical Specification Component Condition Record (TSCCR) #2681943 was opened to track surveillance requirements required by the ST that were not yet accomplished, including SR 3.2.5.1 for the ASI requirement.

At approximately 02:01 (MST), on February 8, 2004, Unit 1 synchronized its main generator to the grid and continued to increase power. By 05:15 (MST), Unit 1 had reached 18 percent power and completed feedwater control system swap over successfully. While at 18 percent power, ASI was outside the limits ( $-0.28 \leq ASI \leq 0.18$  for power  $< 50\%$ ) required by the Core Operating Limit Report (COLR); however, Unit 1 Operators did not take action to return ASI within limits prior to exceeding 20 percent. Control Room staff based their decision on a note in 40ST-9ZZM1, step 8.1.17, that

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states the surveillance requirement is only applicable when power is > 20 percent and the surveillance should be performed within 2 hours thereafter and SR 3.2.5.1 which states in part "...that the SR is not required to be performed until 2 hours after Mode 1 with THERMAL POWER > 20%...". This was incorrectly taken to mean that compliance with the LCO was not required for up to 2 hours.

At approximately 11:38 (MST), Unit 1 raised power to > 20 percent, with ASI still outside the requirements of the COLR. Exceeding 20 percent power when the LCO is not met is a TS 3.0.4 violation. TS 3.0.4 does not allow entry into the specified condition when the LCO is not met. ASI was brought within limits at 12:21 (MST).

This condition has been documented in the corrective action program. There were no other major structures, systems, or components that were inoperable at the start of the event that contributed to the event. There was no actual loss of safety function that rendered a train of a safety system inoperable, and no failures of components with multiple functions were involved. The event did not result in the release of radioactivity to the environment and did not adversely affect the safe operation of the plant or health and safety of the public.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

An ASI value of -0.338 with power level greater than 20 percent, exceeded the Core Operating Limits Report (COLR) limit of -0.28 and, therefore, the LCO. TS 3.2.5 actions require the ASI be restored within COLR limits in 2 hours. The ASI was returned within COLR limits in 43 minutes after exceeding 20 percent power. While the TS limit for ASI was exceeded, the Analysis of Record (AOR) bounded the event in that enough conservatism exists in the AOR to bound the ASI for the duration it was outside the TS limits. The safety function to protect fuel design limits remained fulfilled.

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 CFR50.73 (a) (2) (v).

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**6. CAUSE OF THE EVENT:**

Notes in procedures 40OP-9ZZ11, Appendix H, and 40ST-9ZZM1, step 8.1.17, misled the Control Room staff to believe the applicability of LCO 3.2.5 was only required within 2 hours after the plant was  $\geq$  20 percent power. This led the Control Room staff to incorrectly interpret a provisional note in SR 3.2.5.1 which states in part "...that the SR is not required to be performed until 2 hours after Mode 1 with THERMAL POWER > 20% RTP." The basis for this note is to allow the plant to maneuver through feedwater swap over (usually occurring between 15% – 18% power) which may result in the plant going temporarily above 20 percent power. In that situation, ASI does not need to be surveilled for up to 2 hours. However, Feedwater swap over did not result in plant power exceeding 20 percent. TS 3.0.4 does not allow entry into the specified condition in the Applicability when LCO 3.2.5 is not met. Therefore, exceeding 20 percent power when ASI was still outside the COLR limits was a TS 3.0.4 violation.

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event.

**7. CORRECTIVE ACTIONS:**

An independent investigation of this event is being conducted in accordance with Palo Verde's corrective action program. Based on the preliminary results from the investigation the following corrective actions have been taken or are planned to prevent recurrence:

- A Temporarily Approved Procedure Action was written to remove the option to take up to two hours after 20 percent power to complete SR 3.2.5.1 from the applicable procedures.
- The applicable procedures will be updated and revised as necessary.
- Operations Support and Training will perform a needs analysis and implement training as appropriate.
- A self-assessment for Technical Specification usage, adherence and training will be conducted.

Any additional corrective actions taken as a result of the investigation of this event will be implemented in accordance with the APS corrective action program. If information is

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subsequently developed that would significantly affect a reader's understanding or perception of this event, a supplement to this LER will be submitted.

8. PREVIOUS SIMILAR EVENTS:

In the past three years, a similar condition prohibited by TS 3.0.4 was reported in LER 2001-002-00 when Unit 3 entered Mode 3 with one Auxiliary Feedwater pump inoperable.

9. ADDITIONAL INFORMATION:

None.