NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8-31-88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Unit 1	0 5 0 0 0 5 2 8	1 OF 0 3

TITLE (4)

Low DNBR Reactor Trip Due to CEA Misalignment

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
									N/A	0 5 0 0 0
0 6	1 7	8 6	8 6	0 4 2	0 0	0 7	0 8	8 6	N/A	0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
1 0 0		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Thomas R. Bradish, Compliance Supervisor (Ext. 6936)	AREA CODE 6 0 2 9 3 2 - 5 3 0 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On June 17, 1986, at 1549, with Unit 1 in Mode 1 (POWER OPERATION), an automatic reactor trip was actuated due to low departure from nucleate boiling ratio (DNBR) trips generated by the core protection calculators. All components operated as designed and plant parameters were stabilized at 1554.

The root cause of this event was personnel error due to an inadequate procedure. Performance of this procedure resulted in sufficient misalignment between Shutdown Group A control element assemblies to produce computer generated penalty factors. These penalty factors resulted in the designed low DNBR reactor trip due to a projected low DNBR condition. At no time during this event did an actual low DNBR condition exist.

As corrective action to prevent recurrence, a procedural revision will be implemented to correct the inadequacies. This revision will also be implemented for Unit 2 (Docket No. 50-529).

There have been no similar events.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

On June 17, 1986, at 1549, with Unit 1 in Mode 1 (POWER OPERATION) at 100 percent power, an automatic reactor (RCT) trip was actuated by the reactor protection system (RPS)(JC) due to low departure from nucleate boiling ratio (DNBR) trips generated by the core protection calculators (CPCs)(CPU). The reactor trip was annunciated and responded to by operators (utility-licensed) in the control room. The RPS actuation represents an actuation of an Engineered Safety Feature (ESF)(JE). All components operated as designed. There were no other automatic or manually initiated safety system responses. There were no inoperable structures, components or systems at the start of this event that contributed to the event. Plant parameters were stabilized at 1554, for a total event duration of approximately 5 minutes.

Prior to the reactor trip, performance of the control element assembly (CEA) (ROD) operability check surveillance test (ST) procedure was in progress. This ST was being performed to satisfy Technical Specification (T.S.) surveillance requirement 4.1.3.1.2, and requires each appropriate CEA to be moved 5 inches in any one direction. After verifying all Shutdown Group A CEAs at their upper electrical limit, the operator commenced inserting CEA 6. This insertion resulted in a misalignment between CEA 6 and CEA 12 (also in Shutdown Group A) of greater than 6.6 inches, contrary to T.S. 3.1.3.1. This misalignment resulted in a CEA calculator (CEAC)(CPU) generated penalty factor, and the subsequent low DNBR reactor trip due to a projected low DNBR condition. At no time during this event did an actual low DNBR condition exist.

The root cause of this event was personnel error by a utility-licensed operator due to an inadequate procedure. The procedure did not provide sufficiently detailed guidance for performing this evolution at high power levels when penalty factors are most severe. The procedure was in error in that it recommended that non-controlling CEAs be exercised in a manual-individual mode, when a combination of manual-group and manual-individual modes is a preferred method. This was the first performance of this ST at greater than 80 percent power with a CEAC in service, which explains why previous performances had not identified these procedural inadequacies (penalty factors are not generated if both CEACs are out of service). There were no unusual characteristics of the work location that directly contributed to this event.

As corrective action to prevent recurrence, Unit 1 and Unit 2 (Docket No. 50-529) procedural revisions will be implemented to address the preferred method of performance of this ST. This method will initially insert the entire group 3.75 inches using the manual-group mode. Each CEA in the group will then be inserted as necessary, using the manual-individual mode, to achieve the required 5 inches of travel. This method of performance will minimize the potential for CEA misalignment penalty factors. These revisions are expected to be completed by July 17, 1986.

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Palo Verde Unit 1	0 5 0 0 0 5 2 8	8 6	— 0 4 2	— 0 0	0 3 OF 0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

There were no safety consequences or implications associated with this event. The RPS functioned as designed and tripped the reactor. The maximum misalignment which occurred in this event was 8.1 inches, and is considered a small misalignment since it was less than 19 inches. For small misalignments of CEAs, there is a small effect on the time-dependent long-term power distributions relative to those used in generating Limiting Conditions for Operations and Limiting Safety System Setpoints, a small effect on the available SHUTDOWN MARGIN, and a small effect on the ejected CEA worth used in the safety analysis. At no time during this event was CEA 6 immovable, or did an actual low DNBR condition exist.

There have been no similar events.

Arizona Nuclear Power Project
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

July 8, 1986
ANPP-00012-JGH/TDS/DWW/96.03

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528
Licensee Event Report-86-042-00
File: 86-006-216

Dear Sirs:

Attached please find Licensee Event Report (LER) No.86-042-00 prepared and submitted pursuant to 10 CFR 50.73. In accordance with 10 CFR 50.73(d), we are herewith forwarding a copy of the LER to the Regional Administrator of the Region V Office.

If you have any questions, please contact T. R. Bradish, Compliance Supervisor at (602)932-5300 Ext.6936.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

JGH/DWW/dh

Attachment

cc: J. B. Martin (all w/a)
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