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ACCESSION NBR: 8803180172 DOC. DATE: 88/03/11 NOTARIZED: NO DOCKET #
 FACIL: STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-004-00: on 880210, inoperable auxiliary feedwater pump due to personnel error.

W/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Standardized plant.

05000529

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Arizona Nuclear Power Project

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192-00353-JGH/TDS/JEM
March 11, 1988

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529 (License No. NPF-51)
Licensee Event Report 88-004-00
File: 88-020-404

Attached please find Licensee Event Report (LER) No. 88-004-00 prepared and submitted pursuant to 10CFR 50.73. In accordance with 10CFR 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. D. Shriver, Compliance Manager at (602) 393-2521.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

JGH/TDS/JEM/kj

Attachment

cc: O. M. DeMichele (all w/a)
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INPO Records Center

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 2	DOCKET NUMBER (2) 050000529	PAGE (3) 1 OF 03
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TITLE (4)
Inoperable Auxiliary Feedwater Pump Due to Personnel Error

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)
0	2	10	8	8	004	0	3	11	N/A		05000
0	2	10	8	8	004	0	3	11	N/A		05000

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 100	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.406(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.406(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)							
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)							
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Timothy D. Shriver, Compliance Manager	TELEPHONE NUMBER 602 393-2521
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

At 1145 MST on February 20, 1988, Palo Verde Unit 2 was in Mode 3 (HOT STANDBY) at 563°F and 2227 PSIA when it was identified that the discharge valve (V) of auxiliary feedwater (BA) pump (P) AFN-P01 was mispositioned in the closed position.

While attempting to use AFN-P01 to feed the steam generators (SG) during a plant cooldown it was identified that the steam generator water level was not increasing as expected. It was found by an operator (utility, non-licensed) that the discharge valve AFN-V013 was shut. Subsequent investigation found that the valve was shut on February 10, 1988 to complete a required surveillance test (ST) prior to declaring the pump operable. The valve had been verified open on February 10, 1988 following completion of the ST prior to the pump being returned to an operable status. It is assumed that the valve had not been properly aligned at that time.

The root cause has been determined to be personnel error in that the operators who were assigned to open the valve February 10, 1988, did not properly verify the valve alignment.

As corrective action the event will be reviewed by the operating crews in all 3 units. Auxiliary Operator training will reemphasize proper verification of valve position and appropriate disciplinary action will be administered.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	0 0 4	0 0	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

At 1145 MST on February 20, 1988, Palo Verde Unit 2 was in Mode 3 (HOT STANDBY) at 563°F and 2227 PSIA when it was identified that the discharge valve (V) of auxiliary feedwater (BA) pump (P) AFN-P01 was mispositioned in the closed position.

The control room operators (utility, licensed) were operating AFN-P01 to feed steam generator (SG) 1 and 2 during a Reactor Coolant System (RCS)(AB) cooldown. The operators noticed that the level in the steam generators was not increasing as expected even though the feedwater control valves (FCV) were open. The pump and valve lineup were checked and the discharge valve AFN-V013 was found shut. The Assistant Shift Supervisor (utility, licensed) was informed of the shut valve and had the locking device removed, the valve opened, and feedwater flow was established.

Valve AFN-V013 is administratively controlled by procedure 40AC-OZZ06 (Locked Valve and Breaker Control). The valve is locked in position with a cable and a locking device. There is also a plastic tag attached stating that the valve is controlled by 40AC-OZZ06. In accordance with this procedure there is a second independent verification performed when the valve is positioned and locked. Therefore as long as the cable and locking device are intact, there would be no reason to believe that the valve was out of position.

Subsequent investigation revealed that the auxiliary feedwater pump was declared inoperable and removed from service on February 8, 1988 for maintenance. On February 10, 1988 the auxiliary feedwater pump was returned to operable status following completion of the maintenance activity and performance of surveillance test procedure (ST) 42ST-2AF01 (Auxiliary Feedwater Pump AFN-P01 Operability 4.7.1.2.a). AFN-V013 was required to be shut to perform this test. Following the completion of the test a valve alignment was performed. Documentation indicates that valve AFN-V013 was reopened and locked. This was checked by one operator (utility non-licensed) and verified by a second operator (utility non-licensed). Based on these facts it is assumed that pump AFN-P01 was inoperable since 0515 MST on February 8, 1988. The pump was returned to operable status at approximately 1145 MST on February 20, 1988. The pump was inoperable for approximately 12 days 6 hours and 30 minutes. This was contrary to Technical Specification 3.7.1.2.

The root cause of this event was determined to be cognitive personnel errors on the part of the operators who did not properly perform and verify the valve lineup contrary to approved procedures.

The individuals involved were interviewed to determine why the lineup and verification were not properly performed. During this process two contributing factors were identified. The first was the method the individual used to verify the valve position. He attempted to open the valve and was unable to move the handwheel. He then incorrectly assumed that the valve was fully opened. Through discussions with other operators it was verified that this valve's operation is difficult. The second was the configuration of the valve position indicating rod. The rod is attached to the valve stem in such

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Palo Verde Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 5 2 9	LER NUMBER (8)			PAGE (3)		
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		8 8	- 0 0 4	- 0 0	0 3	OF	0 3

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

a manner that when the valve is fully open it will extend beyond the housing approximately 12 to 15 inches. When the valve is fully closed it will remain extended approximately 6 to 8 inches. Therefore when visually verified the extended rod (6 to 8 inches) could provide an incorrect confirmation that the valve was open.

The immediate corrective actions as discussed above were to properly align the system and restore feedwater flow. To address the identified root cause the Unit 2 Operations Manager (utility, licensed) conducted a meeting with the unit Shift Supervisors to discuss the event and necessary corrective actions. The Shift Supervisors were directed to discuss the details of the event with their individual crews. Additionally appropriate disciplinary actions were taken. Actions taken to address the identified contributory causes included the initiation of an Engineering Evaluation Request (EER) to modify the valve position indicator and to conduct an evaluation to determine if other installed indicators could provide incorrect confirmation of a valve's position. These actions are applicable to all three units. Additionally, the methodology of proper valve position verification will be reemphasized in auxiliary operator training and the event will be reviewed by the operators in each unit.

There were no other structures, components or systems inoperable at the start of the event that contributed to the event. There were no unusual characteristics of the work location that contributed to the event. There were no manually or automatically initiated safety system responses.

The auxiliary feedwater pump AFN-P01 is not designed to automatically respond to postulated accident conditions requiring a manually initiated start signal to be inputted. There is a motor driven emergency auxiliary feedwater pump and a turbine driven emergency auxiliary feedwater pump which were operable and are designed to automatically respond and provide feedwater to the steam generators in the event of a postulated accident. Therefore there was no threat to the health and safety of the public.

Although there have been other events in which equipment was inoperable due to misaligned valves, there have been no similar events in which the root causes (contributory causes) were similar.