PRIORITY 2

(NUDOCS OFFSITE FACILITY)

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9505190265 DOC.DATE: 94/12/23 NOTARIZED: NO DOCKET #
FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
AUTH.NAME AUTHOR AFFILIATION
GRABO,B.A. Arizona Public Service Co. (formerly Arizona Nuclear Power
LEVINE,J.M. Arizona Public Service Co. (formerly Arizona Nuclear Power
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 94-008-00:on 941126,controlled reactor shutdown commenced to isolate & repair leaking pressurizer vent valves,per TS limiting condition for operation 3.4.10,action (a).Valves reworked.W/941223 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 9
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:STANDARDIZED PLANT 05000528

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD4-2 PD	1	1	HOLIAN, B	1	1
	TRAN,L	1	1			
INTERNAL:	ACRS	1	1	AEOD/SPD/RAB	2	2
	AEOD/SPD/RRAB	1	1	FILE CENTER	1	1
	NRR/DE/ECGB	1	1	NRR/DE/EELB	1	1
	NRR/DE/EMEB	1	1	NRR/DISP/PIPB	1	1
	NRR/DOPS/OECB	1	1	NRR/DRCH/HHFB	1	1
	NRR/DRCH/HICB	1	1	NRR/DRCH/HOLB	1	1
	NRR/DSSA/SPLB	1	1	NRR/DSSA/SPSB/B	1	1
	NRR/DSSA/SRXB	1	1	RES/DSIR/EIB	1	1
	RGN4 FILE 01	1	1			
EXTERNAL:	L ST LOBBY WARD	1	1	LITCO BRYCE,J H	2	2
	NOAC MURPHY,G.A	1	1	NOAC POORE,W.	1	1
	NRC PDR	1	1	NUDOCS FULL TXT	1	1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 504-2083) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
TOTAL NUMBER OF COPIES REQUIRED: LTTR 28 ENCL 28

PRIORITY 2 DOCUMENT

FC

Arizona Public Service Company
PALO VERDE NUCLEAR GENERATING STATION
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

192-00917-JML/BAG/DLK
December 23, 1994

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
Washington, DC 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1
Docket No. STN 50-528 (License No. NPF-41)
License Event Report 94-008-00
File: 94-020-404

Attached please find License Event Report (LER) 94-008-00 prepared and submitted pursuant to 10 CFR 50.73. Unit 1 intentionally isolated a Reactor Coolant System (RCS) vent path and entered Technical Specification Limiting Condition for Operation (TS LCO) 3.4.10, ACTION (a) to repair seat leakage on the pressurizer solenoid operated vent valves (RCA-HV-103 and RCB-HV-105). Unit 1 shut down and cooled down to comply with Technical Specifications while repairing RCA-HV-103 and RCB-HV-105.

In accordance with 10 CFR 50.73(d), a copy of this LER is being forwarded to the Regional Administrator, NRC Region IV.

If you have any questions, please contact Burton A. Grabo, Section Leader, Nuclear Regulatory Affairs, at (602) 393-6492.

Sincerely,

Gregg N. Overbeck
for

JML/BAG/DLK/pv

Attachment

cc: L. J. Callan (all with attachment)
K. E. Perkins
K. E. Johnston
INPO Records Center

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Palo Verde Unit 1

DOCKET NUMBER (2): 0 5 0 0 0 5 2 8 | **PAGE (3):** 1 OF 0 8

TITLE (4): Technical Specification Required Plant Shutdown to Repair Leaking Pressurizer Vent Path Valves

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 NUMBERS
									NA	0 5 0 0 0
1 1	2 6	9 4	9 4	- 0 0 8	- 0 0	1 2	2 3	9 4	NA	0 5 0 0 0

OPERATING MODE (9): 1

POWER LEVEL (10): 0 9 8

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

[ ]	20.402(b)	[ ]	20.405(c)	[ ]	50.73(a)(2)(iv)	[ ]	73.71(b)
[ ]	20.405(a)(1)(i)	[ ]	50.36(c)(1)	[ ]	50.73(a)(2)(v)	[ ]	73.71(c)
[ ]	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)	[X]	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 (AREA CODE)
Burton A. Grabo, Section Leader, Nuclear Regulatory Affairs	6 0 2 3 9 3 - 6 . . 9 2

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)

[ ] YES (If yes, complete EXPECTED SUBMISSION DATE) [X] NO

EXPECTED SUBMISSION DATE (15): MONTH | DAY | YEAR

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

On November 25, 1994, at approximately 0220 MST, Unit 1 Control Room personnel elected to voluntarily enter Technical Specification Limiting Condition for Operation (TS LCO) 3.4.10, ACTION (a) to isolate and repair the pressurizer vent valves (RCA-HV-103 and RCB-HV-105) which were exhibiting symptoms of abnormal valve position indication and seat leakage.

On November 26, 1994, at approximately 0103 MST, Palo Verde Unit 1 was in Mode 1 (POWER OPERATION), operating at approximately 98 percent power when Control Room personnel commenced a controlled reactor shutdown to comply with TS LCO 3.4.10, ACTION (a). At 0440 MST, the reactor was manually tripped from 19 percent reactor power in accordance with approved procedures and the plant was stabilized in Mode 3 (HOT STANDBY) by approximately 0538 MST. Control Room personnel continued the Reactor Coolant System (RCS) cooldown and entered Mode 4 (HOT SHUTDOWN) at 1400 MST on November 26, 1994. The plant shutdown and cooldown to Mode 4 were uncomplicated.

There have been no previous similar events reported pursuant to 10 CFR 50.73 in the last three years.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4	- 0 0 8	- 0 0	0 2 0 0 8

TEXT

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On November 26, 1994, at 0103 MST, Palo Verde Unit 1 was in Mode 1 (POWER OPERATION) operating at approximately 98 percent power.

B. Reportable Event Description (Including Dates and Approximate Times of Major Occurrences):

Event Classification: Completion of a plant shutdown required by Technical Specifications (TS).

On November 26, 1994, at approximately 0103 MST, Palo Verde Unit 1 Control Room personnel (utility, licensed) commenced a controlled reactor (AC) shutdown to comply with TS Limiting Condition for Operation (LCO) 3.4.10, ACTION (a). At 0440 MST, the reactor was manually tripped from 19 percent reactor power in accordance with approved procedures, and the plant was stabilized in Mode 3 (HOT STANDBY) by approximately 0538 MST. Control Room personnel continued the Reactor Coolant System (RCS (AB) cooldown and entered Mode 4 (HOT SHUTDOWN) at 1400 MST on November 26, 1994. The plant shutdown and cooldown to Mode 4 were uncomplicated.

Prior to the event, Control Room personnel observed valv position indication (V)(ZI) for RCA-HV-103 and RCB-HV-10 functioning abnormally (e.g., periodic dual position indication, full open indication, and flickering closed indication) and momentary indication of increased pressure in the reactor drain tank (RCT)(DRN)(TK) along with a corresponding pressure drop in the RCS. Control Room personnel performed 40ST-9RC02, "Computer Calculation of RCS Water Inventory Balance 4.4.5.2.1.c," to verify total RCS leakage was within acceptable limits Total RCS leakage was calculated to be 0.14 gpm (within

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4	- 0 0 8	- 0 0	0 3 0 8

TEXT

the maximum allowable TS 3.4.5.2 limits of 1.0 gpm UNIDENTIFIED LEAKAGE or 10 gpm IDENTIFIED LEAKAGE). The safety function of RCA-HV-103 and RCB-HV-105 is to open and provide a vent path for the Reactor Coolant System via the pressurizer (AB). Minor valve seat leakage by itself will not prevent the valves from performing their safety function or cause the valves to be INOPERABLE.

Based on the abnormal valve position indication and the pressure fluctuations in the reactor drain tank and RCS, a containment (NH) entry was made at power on November 25, 1994 to isolate the pressurizer steam space vent (AB) path (close RCE-V090). The pressurizer steam space vent path was declared INOPERABLE at 0220 MST. On November 25, 1994, Unit 1 elected to voluntarily enter TS LCO 3.4.10, ACTION (a) to isolate and repair the pressurizer vent valves (RCA-HV-103 and RCB-HV-105) whic were exhibiting symptoms of abnormal valve position indication and seat leakage. TS LCO 3.4.10 ACTION (a) states:

"With only one of the above required reactor coolant system vent (AB) paths [reactor vessel head (AB) and pressurizer steam space] OPERABLE, from either location restore both paths at that location to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours."

On November 26, 1994, at 0103, Unit 1 commenced a controlled reactor shutdown and cooldown to Mode 4.

Following the reactor shutdown, Operations personnel (utility, non-licensed) isolated the remaining RCS vent path (reactor vessel vent path) to completely isolate RCA-HV-103 and RCB-HV-105 for maintenance. With both RC vent paths INOPERABLE, on November 26, 1994, at 1525 MST Control Room personnel exited TS LCO 3.4.10, ACTION (a) and entered TS LCO 3.4.10, ACTION (b), which states:

"With none of the above required reactor coolant system vent paths OPERABLE, from either location restore at

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISIO NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4	- 0 0 8	- 0 0	0 4 0 0 8

TEXT

least one path at that location to OPERABLE status withi the next 6 hours or be in at least HOT STANDBY within th next 6 hours and in HOT SHUTDOWN within the following 6 hours."

Unit 1 remained in Mode 4 until RCA-HV-103 and RCB-HV-10 were repaired, and both RCS vent paths were restored to OPERABLE status. Control Room personnel exited TS LCO 3.4.10, ACTION (b) on November 28, 1994, at 1804 MST, after satisfactory completion of post maintenance retesting and 73ST-1XI24, "Section XI Valve Stroke Timin and Position Indication Verification - Mode 5 and 6 Reactor and Pressurizer Vent Valves" on RCA-HV-103 and RCB-HV-105. Unit 1 entered Mode 3 at approximately 2122 MST on November 28, 1994.

C. Status of structures, systems, or components that were inoperable at the start of the event that contributed to the event:

Prior to the event, RCA-HV-103 and RCB-HV-105 were exhibiting symptoms of abnormal valve position indicatio and seat leakage. Even though RCA-HV-103 and RCB-HV-105 were able to perform their safety function, both valves were intentionally isolated to prevent abnormal operatio and repair the seat leakage. Isolating RCA-HV-103 and RCB-HV-105 rendered the pressurizer steam space vent pat INOPERABLE. Unit 1 shut down to Mode 4 to comply with TS LCO 3.4.10 ACTION (a).

D. Cause of each component or system failure, if known:

Because RCA-HV-103 and RCB-HV-105 were able to perform their intended safety function, prior to being isolated for maintenance, neither valve was considered to have failed. Both valves did require maintenance to stop valve seat leakage which prompted isolating the pressurizer steam space vent path and shutting down Unit 1 to comply with TS LCO 3.4.10, ACTION (a). An independent investigation of this event, including an Equipment Root Cause Failure Analysis (ERCFA) on

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4	- 0 0 8	- 0 0	0 5 0 0 8

TEXT

RCA-HV-103 and RCB-HV-105, was initiated in accordance with the APS Incident Investigation Program. The preliminary findings of the ERCFA determined that the cause of the leakage was due to corrosion/erosion of the primary and secondary pilot valve seating surfaces. The reason for the degraded seating surfaces on the primary and secondary pilots was attributed to the harsh environment (i.e., high temperature, high pressure saturated steam, with boric acid carryover) that the valves are exposed to.

RCA-HV-103 and RCB-HV-105 are Solenoid-Operated Valves (SOV) (PSV), designed with a seal welded bonnet. The condition of the seating surfaces on the primary and secondary pilots degraded to the point of unacceptable leakage, thereby prompting the unplanned reactor shutdown.

E. Failure Mode, mechanism, and effect of each failed component, if known:

Not applicable - no component failures were involved.

F. For failures of components with multiple functions, list of systems, or secondary functions that were also affected:

Not applicable - no failures of components with multiple functions were involved.

G. For a failure that rendered a train of a safety system inoperable, estimated time elapsed from the discovery of the failure until the train was returned to service:

No failures occurred that rendered a train of a safety system INOPERABLE; however, the pressurizer steam space vent path was intentionally rendered INOPERABLE when RCE-V090 was closed to isolate RCA-HV-103 and RCB-HV-105 for repairs. The pressurizer steam space vent path was INOPERABLE for approximately 88 hours.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4	- 0 0 8	- 0 0	0 6 0 8

TEXT

H. Method of discovery of each component or system failure or procedural error:

There were no component or system failures or procedural errors identified. Pressurizer vent valves RCA-HV-103 and RCB-HV-105 did require maintenance to stop valve sea leakage. Prior to the event, valve position indication for RCA-HV-103 and RCB-HV-105 was observed functioning abnormally (e.g., periodic dual position indication, ful open indication, and flickering closed indication) and the valves were exhibiting symptoms of seat leakage.

I. Cause of Event:

The cause of the event (completion of a plant shutdown required by TS) was attributed to the voluntary entry into TS LCO 3.4.10, ACTION (a) to repair RCA-HV-103 and RCB-HV-105. Unit 1 shut down to Mode 4 to comply with TS LCO 3.4.10, ACTION (a) (SALP Cause Code x: Other).

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event. There were no procedural errors or personnel errors which contributed to this event.

J. Safety System Response:

Not applicable - there were no safety system responses and none were necessary.

K. Failed Component Information:

Although no component failures were involved, the leakin pressurizer vent valves (RCA-HV-103 and RCB-HV-105) are SOVs, manufactured by Target Rock Corporation. The Mode number for both valves is 76HH-008.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4 -	0 0 8 -	0 0	0 7 0 8

TEXT

L. Assessment of the Safety Consequences and Implications c this Event:

The Unit 1 shutdown and cooldown to Mode 4 were controlled evolutions. The manual trip of the reactor from low power (19 percent) and the resulting transient had minimal impact on the plant. The plant shutdown and cooldown were uncomplicated. The event did not result i any challenges to the fission product barriers or result in any releases of radioactive materials. Therefore, there were no adverse safety consequences or implication as a result of this event. This event did not adversely affect the safe operation of the plant or the health and safety of the public.

III. CORRECTIVE ACTION:

A. Immediate:

Control Room Personnel voluntarily entered TS LCO 3.4.10 ACTION (a) to isolate the pressurizer steam space vent path and subsequently performed a controlled shutdown to Mode 4. An independent investigation of this event, including an ERCFA on RCA-HV-103 and RCB-HV-105, was initiated in accordance with the APS Incident Investigation Program. RCA-HV-103 and RCB-HV-105 were reworked in accordance with the APS Maintenance Program and returned to service.

As part of the ERCFA, the maintenance history for RCA-HV-103 and RCB-HV-105 and other SOVs of the same design in similar applications was reviewed to determine transportability. The review identified other SOVs in Unit 1 as well as Units 2 and 3 of the same design and i similar applications whose valve internals have not been inspected and refurbished. While some of the SOVs identified during the maintenance history review have some minor seat leakage, the analysis determined the valves are fully capable of performing their intended safety function and do not warrant further immediate corrective action.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PA
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 1	0 5 0 0 0 5 2 8	9 4	- 0 0 8	- 0 0	0 8 0 0 8

TEXT

B. Action to Prevent Recurrence:

Additional actions to prevent recurrence are being tracked under the commitment action tracking system. These actions include inspecting and refurbishing the SOVs identified in the maintenance history review (discussed above) over the next two refueling outages in each respective unit.

IV. PREVIOUS SIMILAR EVENTS:

There have been no previous similar events reported pursuant to 10 CFR 50.73 in the last three years.

V. ADDITIONAL INFORMATION:

Unit 1 entered Mode 2 (STARTUP) at approximately 1601 MST on November 29, 1994 and returned to Mode 1 at approximately 025[illegible] MST on November 30, 1994. Unit 1 was synchronized on the gri[illegible] at approximately 1159 MST on November 30, 1994.