

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9004260325 DOC. DATE: 90/04/20 NOTARIZED: NO DOCKET #
 FACIL: STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Public 05000528
 AUTH. NAME AUTHOR AFFILIATION
 BRADISH, T.R. 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 90-003-00: on 900320, inoperability of all log power
 channels places plant in condition not defined by TS.

W/9 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 7
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

05000528

	RECIPIENT		COPIES			RECIPIENT		COPIES	
	ID CODE/NAME		LTTR	ENCL		ID CODE/NAME		LTTR	ENCL
	PD5 LA		1	1		PD5 PD		1	1
	PETERSON, S.		1	1		CHAN, T		1	1
INTERNAL:	ACNW		2	2		ACRS		2	2
	AEOD/DOA		1	1		AEOD/DSP/TPAB		1	1
	AEOD/ROAB/DSP		2	2		DEDRO		1	1
	NRR/DET/ECMB 9H		1	1		NRR/DET/EMEB9H3		1	1
	NRR/DET/ESGB 8D		1	1		NRR/DLPQ/LHFB11		1	1
	NRR/DLPQ/LPEB10		1	1		NRR/DOEA/OEAB11		1	1
	NRR/DREP/PRPB11		2	2		NRR/DST/SELB 8D		1	1
	NRR/DST/SICB 7E		1	1		NRR/DST/SPLB8D1		1	1
	NRR/DST/SRXB 8E		1	1		REG FILE 02		1	1
	RES/DSIR/EIB		1	1		RGN5 FILE 01		1	1
EXTERNAL:	EG&G STUART, V.A		4	4		L ST LOBBY WARD		1	1
	LPDR		1	1		NRC PDR		1	1
	NSIC MAYS, G		1	1		NSIC MURPHY, G.A		1	1
	NUDOCS FULL TXT		1	1					
NOTES:			1	1					

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,
 ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION
 LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 39 ENCL 39

A04

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

192-00649-JML/TRB/SBJ
April 20, 1990

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

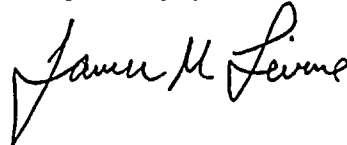
Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Licensee Event Report 90-003-00
File: 90-020-404

Attached please find Licensee Event Report (LER) No. 90-003-00 prepared and submitted pursuant to 10CFR50.73. In accordance with 10CFR50.73(d), we are herewith forwarding a copy of this LER to the Regional Administrator of the Region V office.

If you have any questions, please contact T. R. Bradish, Compliance Manager at (602) 393-2521.

Very truly yours,



JML/TRB/SBJ/tlg

Attachment

cc: W. F. Conway (all with attachment)
E. E. Van Brunt
J. B. Martin
D. H. Coe
T. L. Chan
A. C. Gehr
J. R. Newman
INPO Records Center

9004260325 900420
PDR ADOCK 05000528
S PDC

TE22
11

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Palo Verde Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 5 2 8				PAGE (3) 1 OF 06		
TITLE (4) Inoperability Of All Log Power Channels Places Plant In Condition Not Defined By Technical Specifications																
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	3	2	1	9	0	9	0	0	0	3	0	0	0	0	0	
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																
OPERATING MODE (9)		5														
POWER LEVEL (10)		0 0 0														
		20.402(b)				20.405(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)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 368A)		
		20.406(a)(1)(iii)				X 50.73(a)(2)(ii)				50.73(a)(2)(vii)(A)						
		20.406(a)(1)(iv)				50.73(a)(2)(iii)				50.73(a)(2)(vii)(B)						
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME Thomas R. Bradish, Compliance Manager										TELEPHONE NUMBER						
										AREA CODE						
										6 0 2 3 9 3 - 2 5 2 1						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC						
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)																
<p>On March 21, 1990 Palo Verde Unit 1 was in a refueling outage in Mode 5 (Cold Shutdown) with the Reactor Coolant System at approximately 160 pounds per square inch absolute and 95 degrees Fahrenheit. The reactor trip breakers were open and the boron concentration was approximately 2450 parts per million.</p> <p>At approximately 1254 MST all log power channels were declared inoperable when all four Plant Protection System cabinets were deenergized for scheduled maintenance. Limiting Condition for Operation 3.3.1 states that two of the four log power channels are to be operable in Mode 5. Technical Specification 3.3.1 ACTION 4 provides guidance in the event only one log power channel is operable; however, the removal of all four log power channels from service is not addressed by the Technical Specifications.</p> <p>The event was reviewed by the Plant Review Board on March 23, 1990 and was determined to have no safety significance. All log power channels were declared operable by 2132 MST on March 26, 1990.</p> <p>The event was caused by personnel error in that Technical Specifications were misinterpreted by the unit management. APS's position on voluntarily entering a condition not defined by Technical Specifications has been promulgated.</p>																

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Palo Verde Unit 1	0 5 0 0 0 5 2 8	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 0	— 0 0 3	— 0 0	0 2	OF	0 6

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

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On March 21, 1990 Palo Verde Unit 1 was in a refueling outage in Mode 5 (Cold Shutdown) with the reactor coolant system (RCS)(AB) at approximately 160 pounds per square inch absolute pressure and approximately 95 degrees Fahrenheit. The reactor trip breakers (BKR) were open and boron concentration was approximately 2450 parts per million (ppm).

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

Event Classification: Condition not defined by the Technical Specifications.

On March 21, 1990 at approximately 1254 MST, all four Plant Protection System (PPS)(JC) cabinets were deenergized in order to perform corrective maintenance. This condition caused all log power channels to be inoperable. The minimum operability requirement for Limiting Condition of Operation 3.3.1 states that two of the four log power channels are to be operable when shutdown in Modes 3 (Hot Standby), 4 (Hot Shutdown), and 5. Technical Specification 3.3.1 ACTION 4 states, "with the number of channels operable one less than required by the minimum channels operable requirement, suspend all operations involving positive reactivity changes." Therefore, with no operable log power channels, the plant was placed in a condition not defined by Technical Specification requirements.

The PPS cabinets were originally scheduled to be taken out of service individually in order for a vendor to perform corrective maintenance on the cabinet drawers. During the pre-job walkdown, nicked wires were discovered in PPS channels A, B, and D. The wire discrepancies were documented on a Material Non Conformance Report (MNCR) which was dispositioned on March 15, 1990, to have the wires reworked.

The vendor performing the work on the PPS cabinets required the circuits to be deenergized. Because of the interconnections between the cabinets, outage management requested authorization to deenergize all four PPS cabinets (which included the log power instrumentation) simultaneously.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Palo Verde Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 5 2 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 0	- 0 0 3	- 0 0	0 3	OF	0 6

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

Unit 1 Management (utility, non-licensed) reviewed Technical Specifications 3.3.1, 3.3.1 ACTION 4, and 3.0.3 (which describes actions to be taken if a limiting condition of operation is not met). Technical Specification 3.0.3 states that it is not applicable in Modes 5 and 6. Based on the Technical Specification review, and the fact that the action statement for being down to one channel was being met, unit management concluded that removal of the log channels from service could be done while meeting the intent of Technical Specifications. The STA and operations personnel then evaluated the plant conditions in order to assess the safety significance. With the reactor trip breakers open, the log power channels provide only alarm and indication. The startup channels are the primary means of monitoring reactor power when shutdown for refueling. The startup channels were operable and reading approximately 1.5 counts per second (CPS). The log power channels do not come on scale until approximately 20 CPS. Two independent Boron Dilution Alarm Systems (BDAS)(IG) were operable. The BDAS channels monitor the startup channel neutron flux and alarm in the control room if neutron flux indication reaches the alarm setpoint. Therefore, the operator would be alerted to a dilution event with available instrumentation. Based on the availability of instrumentation to monitor the reactor power and the limited capability of log power channels in these conditions, it was determined that the simultaneous removal of all log power channels would not adversely affect plant safety.

Based upon the evaluation results, on March 21, 1990 at approximately 1254 MST the log channels were declared inoperable and the PPS cabinets were deenergized. The clearance on the log channels required the reactor trip switchgear to be open.

Log channel D was declared operable at approximately 0938 MST on March 26, 1990. This placed the unit in a condition defined by Technical Specifications. On March 26, 1990 at approximately 1554 MST, log channel A was declared operable. Log channel B was declared operable at approximately 1955 MST on March 26, 1990. At approximately 2132 MST on March 26, 1990, Log channel C was declared operable.

Subsequent review of the event by site management determined that the condition was not defined by the Technical Specifications. Technical Specifications only provide guidance on having one log power channel less than required by the minimum operable requirement. By having all four log power channels inoperable, the plant was in a condition not defined by Technical

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Palo Verde Unit 1

0 5 0 0 0 5 2 8

YEAR SEQUENTIAL NUMBER REVISION NUMBER

9 0 - 0 0 3 - 0 0 0 4 OF 0 6

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

Specifications.

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

Other than the log power channels, no structures, systems or components were inoperable at the time of the event which contributed to this event. The log power channels were inoperable for approximately 5 days and described in Section I.B.

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

Not applicable - there were no component or system failures.

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

Not applicable - there were no component failures.

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

Not applicable - there were no component failures with multiple functions.

- G. For failures 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:

Not applicable - there were no failures that rendered a safety system inoperable.

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

Not applicable - there were no component or equipment failures.

- I. Cause of Event:

The event was caused by personnel error (SALP Code A) in that Technical Specifications were misinterpreted. Unit 1 management believed that removal of all four log power channels would be consistent with the intent of Technical Specification. However, Technical Specifications do not provide guidance on having more

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Palo Verde Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 5 2 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 0	- 0 0 3	- 0 0	0 5	OF	0 6

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

than one log power channel less than required by the minimum operable requirement. Therefore, the plant was in a condition not defined by Technical Specifications when the log power channels were out of service. There were no procedure violations, procedural errors, or unusual working conditions that contributed to the event.

J. Safety System Response:

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

K. Failed Component Information:

Not applicable - there were no component failures.

II. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:

With the unit in Mode 5 and the reactor trip switchgear open, the log power channels provide only indication and alarm functions. The accident of concern during Mode 5 is an inadvertent dilution event which is described in Updated Final Safety Analysis Report (UFSAR) Section 15.4.6.

The UFSAR safety analysis states that the startup channels, not the log power channels, are used to alert the operator of the dilution event in Mode 5. The UFSAR does not take credit for the log channels with the reactor switchgear open and the unit in Mode 5. During the time period the log channels were out of service, the two BDAS channels and startup channels were operable. In order to close the reactor trip switchgear a mode change checklist must be completed. The mode change checklist requires the log power channels to be operable. Therefore the plant was being maintained within the bounded conditions assumed in Chapter 15 of the UFSAR.

The UFSAR minimum time to criticality in a Mode 5 dilution event is approximately 96 minutes based on an assumed initial boron concentration of 1162 ppm. During the time period the log channels were inoperable, the RCS boron concentration was approximately 2450 ppm. As a result, the minimum time to criticality because of a deboration event would have been longer than the time assumed in the UFSAR. Therefore, in the plant conditions which existed at the time, the operator would have had sufficient time to initiate action to terminate a dilution event prior to criticality.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Palo Verde Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 5 2 8 9 0 - 0 0 3 - 0 0 0 6 OF 0 6	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 386A's) (17)

The fact that no log power indication was available did not effect the probability of initiating a dilution event or increasing the probability of a malfunction of safety equipment. The PPS cabinets do not provide logic or power to equipment that could initiate a deboration event or are they used to mitigate a deboration event in Mode 5.

Based upon the above, there were no safety consequences or implications of having the log power indication not available. There was no impact on the health and safety of the public.

III. CORRECTIVE ACTIONS:

A. Immediate:

The wiring in the PPS cabinets and the cabinet drawers were reworked in accordance with approved work authorization documents. The PPS cabinets were then returned to service and the log channels declared operable as described in Section I.B.

On March 23, 1990, the Plant Review Board reviewed the event and determined that there was no safety significance in having all log power channels inoperable during the plant conditions which existed at the time of the event.

B. Action to Prevent Recurrence:

A plant guideline applicable to Units 1, 2, and 3 has been promulgated defining APS's position on voluntarily entering a condition not defined by the Technical Specifications. The plant guideline clearly communicates APS's position that it is not acceptable to voluntarily enter a condition not defined by the Technical Specifications. If such a condition is experienced because of equipment failure, immediate action must be taken to return to a condition described by the Technical Specifications.

IV. PREVIOUS SIMILAR EVENTS:

There have been no previous events reported pursuant to 10CFR 50.73.

