

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8709300055 DOC. DATE: 87/09/18 NOTARIZED: NO DOCKET #
 FACIL: STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
 AUTH. NAME AUTHOR AFFILIATION
 BRADISH, T. R. Arizona Nuclear Power Project (formerly Arizona Public Serv
 HAYNES, J. G. Arizona Nuclear Power Project (formerly Arizona Public Serv
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-002-01: on 870615, control room essential filtration & containment purge isolation actuation signals received on both channels of balance of plant ESFAS. Caused by calibr of static transfer switch. Switch recalibr. W/870918 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.

05000530

	RECIPIENT		COPIES			RECIPIENT		COPIES	
	ID CODE/NAME		LTR	ENCL		ID CODE/NAME		LTR	ENCL
	PD5 LA		1	1	PD5 PD		1	1	
	LICITRA, E		1	1	DAVIS, M		1	1	
INTERNAL:	ACRS MICHELSON		1	1	ACRS MOELLER		2	2	
	AEOD/DOA		1	1	AEOD/DSP/NAS		1	1	
	AEOD/DSP/ROAB		2	2	AEOD/DSP/TPAB		1	1	
	DEDRO		1	1	NRR/DEST/ADS		1	0	
	NRR/DEST/CEB		1	1	NRR/DEST/ELB		1	1	
	NRR/DEST/ICSB		1	1	NRR/DEST/MEB		1	1	
	NRR/DEST/MTB		1	1	NRR/DEST/PSB		1	1	
	NRR/DEST/RSB		1	1	NRR/DEST/SGB		1	1	
	NRR/DLPQ/HFB		1	1	NRR/DLPQ/QAB		1	1	
	NRR/DOEA/EAB		1	1	NRR/DREP/RAB		1	1	
	NRR/DREP/RPB		2	2	NRR/DRIS/SIB		1	1	
	NRR/PMAS/ILRB		1	1	REG FILE 02		1	1	
	RES DEPY GI		1	1	RES TELFORD, J		1	1	
	RES/DE/EIB		1	1	RGN5 FILE 01		1	1	
EXTERNAL:	EG&G GROH, M		5	5	H ST LOBBY WARD		1	1	
	LPDR		1	1	NRC PDR		1	1	
	NSIC HARRIS, J.		1	1	NSIC MAYS, G		1	1	
NOTES:			1	1					

TOTAL NUMBER OF COPIES REQUIRED: LTR 46 ENCL 45



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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 5 3 0	PAGE (3) 1 OF 0 1 3
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TITLE (4)
Engineered Safety Feature Actuation

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)
06	15	87	87	002	01	09	18	87	N/A		0 5 0 0 0
06	15	87	87	002	01	09	18	87	N/A		0 5 0 0 0

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.405(a)(1)(i)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)					
	20.405(a)(1)(ii)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)					
	20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(vii)(A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)						
	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Thomas R. Bradish, Compliance Supervisor	6 0 2 3 9 3 1 3 5 3 1

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
B	E F	C N V	E 2 0 9	N					

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)

This is a supplement to LER 3-87-002.

At approximately 0611 MST on June 15, 1987, Palo Verde Unit 3 was in Mode 5 (COLD SHUTDOWN) when Control Room Essential Filtration Actuation Signals (CREFAS) and Containment Purge Isolation Actuation Signals (CPIAS) were received on both channels of the Balance of Plant Engineered Safety Features Actuation System (BOP ESFAS). These BOP ESFAS actuations were annunciated in the control room on the main control board. All associated equipment responded as designed. Control room personnel secured all actuated equipment in accordance with approved procedures by 0657 MST on June 15, 1987. The duration of this event was approximately 46 minutes.

At approximately 0611 MST, the distribution panel D26 momentarily lost power and a "120VAC INV B AC/DC STATUS" trouble alarm was received for inverter "B". As designed, the static transfer switch automatically transferred from the "B" inverter to the 120 V AC voltage regulator. Immediately following the static transfer switch operation, both channels of CREFAS and CPIAS were actuated on the BOP ESFAS system.

The root cause of this event was attributed to the static transfer switch calibration at an unnecessarily high value and a faulty DC to DC converter board. As a corrective action the static transfer switch was recalibrated and the DC to DC converter board replaced. A similar event was reported in LER 3-87-001.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR 8 7	SEQUENTIAL NUMBER - 0 0 2	REVISION NUMBER - 0 1	0 2 OF 0 3	

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

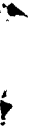
This is a supplement to LER 3-87-002.

At approximately 0611 MST on June 15, 1987, Palo Verde Unit 3 was in Mode 5 (COLD SHUTDOWN) with Fuel Building Essential Filtration Actuation Signal (FBEFAS)(JE) in bypass and "B" train Essential Chiller (KM) tagged out for maintenance, when Control Room Essential Filtration Actuation Signals (CREFAS)(JE) and Containment Purge Isolation Actuation Signals (CPIAS)(JE) were received on both channels of the Balance of Plant Engineered Safety Features Actuation System (BOP ESFAS)(JE). These BOP ESFAS actuations were annunciated in the control room on the main control board (MCBD). All associated equipment responded as designed. Control room personnel (utility-licensed) verified that all radiation parameters were in specification at the Radiation Monitoring System (RMS)(IL) display and secured all actuated equipment in accordance with approved procedures by 0657 MST on June 15, 1987. The duration of this event was approximately 46 minutes.

Prior to the event, Pre-Charge Circuitry Resistors (EF) in the "B" inverter (EF, INVT) had been installed under an approved work order. At 0525, "B" inverter was energized and placed in service powering distribution panel (EF) D26. All indications were normal at that time. At approximately 0611 MST, the "B" distribution panel (D26) momentarily lost power and "120VAC INV B AC/DC STATUS" trouble alarm (ALM) was received for inverter "B". As designed, the static transfer switch (ASU) automatically transferred to the 120 V AC voltage regulator (EF, RG). Inverter "B" normally supplies class 1E 120 V AC power to the Engineered Safety Features (JE, ESF), Plant Protection System (JC, PPS) and various instruments and controls. Class 1E power is distributed to these systems via distribution panel D26. Inverter "B" is backed up by 120 V AC regulated power. Immediately following the static transfer switch operation, both channels of CREFAS and CPIAS were actuated on the BOP ESFAS system.

Previous inverter problems had been corrected and a design change implemented to prevent a loss of power to the class instrument AC busses (BU). The design change consisted of a static transfer switch designed to fast transfer the load to the AC voltage regulator upon an inverter malfunction. However, the static transfer switch did not actuate within the design specification. As a result, a momentary loss of power occurred to the D26 distribution panel. This caused Radiation Monitoring Units (IL) RU-30 (Channel "B" Control Room Ventilation Intake Monitor), and RU-38 (Channel "B" Power-Access Purge Area Monitor) to sense a loss of power and thus initiate the CREFAS and CPIAS actuations.

Troubleshooting conducted under an authorized work document revealed a faulty DC-DC converter (CNV) board. The DC to DC converter board converts 125 V DC power to isolated, low voltage power, which is needed to power the logic and inverter drive circuitry. The DC to DC converter board power output was determined to be varying intermittently. A drop in the inverter logic 25 V DC



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Palo Verde Unit 3	0 5 0 0 0 5 3 0	8 7	- 0 0 2	- 0 1	0 3	OF	0 3

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

power supply will cause the inverter to shutdown. Therefore, the spurious inverter malfunctions which have been previously identified are attributable to the faulty DC to DC converter board. As immediate corrective action, the DC to DC converter board was replaced. The converter board is manufactured by Elgar with the part number of 628-135-40.

Troubleshooting revealed that the setpoints on the static transfer switch were calibrated at an unnecessarily high value. The setpoints were inadvertently calibrated at the high value during previous troubleshooting. This caused the slow static transfer switch transfer time and resulted in the momentary loss of power to distribution panel D26 and subsequent ESFAS actuations. As corrective action, the static transfer switch was recalibrated.

Also, during troubleshooting a 300 amp fuse (FU) was found blown. The inverter control logic and driver boards were replaced and a replacement troubleshooting fuse (water) was installed until the conclusion of testing at which time a regular fuse will be installed.

Additionally, subsequent to this event, at 0627 an operator (licensed-utility) noticed "B" train Shutdown Cooling System isolation valve (SIB-UV652)(JC) was closed. This valve is designed to fail "as is" on a loss of instrument power. The valve was immediately opened and an Engineering Evaluation Request (EER) was written to determine why this valve closed.

Since an actual emergency condition did not exist at the time of the event, there was no threat to the safe operation of the plant or the health and safety of the public. Had an emergency condition existed during the event, all safety equipment would have actuated as shown above.

There were no component, system, or safety train failures or malfunctions, other than listed above, that contributed to this event. There were no unusual work conditions that contributed to this event. There were no operator actions which contributed to this event.

A similar event was reported in Unit 3 LER 3-87-001.



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Arizona Nuclear Power Project

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192-00254-JGH/TRB/ESP
September 18, 1987

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

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530
Licensee Event Report 87-002-00
File: 87-020-404

Dear Sirs:

Attached please find Supplement No.1 to Licensee Event Report (LER) No. 87-002-00 prepared and submitted pursuant to the requirements of 10 CFR 50.73(d). We are herewith forwarding a copy of this report to the Regional Administrator of the Region V Office.

If you have any questions, please contact T. R. Bradish, Compliance Supervisor at (602) 393-3531.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

JGH/ESP/cld

Attachment

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