REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8711090151 DOC. DATE: 87/10/29 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 87-018-00: on 871004, essential filtration actuation signal initiated on Train "B" & cross-tripped Train "A" as designed. Caused by spurious signal believed to be voltage spike. Plant change package initiated. W/871029 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

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES 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
	ARM/DCTS/DAB	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: LTTR 47 ENCL 46

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 2	0 5 0 0 0 5 2 9	1 OF 0 3

TITLE (4)

ESF Actuation Caused by Spurious Signal From a Radiation Monitor

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
1 0	0 4	8 7	8 7	0 1 8	0 0	1 0	2 9	8 7	N/A	0 5 0 0 0

OPERATING MODE (9)	1
POWER LEVEL (10)	1 0 0

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)	X	50.73(a)(2)(iv)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)
	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)

	73.71(b)
	73.71(c)
	OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Thomas R. Bradish, Compliance Supervisor	6 0 2 3 9 3 - 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	C C	C H U	C 1 5 0	Y					

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 October 4, 1987 at 0750 MST, with Palo Verde Unit 2 in Mode 1 (POWER OPERATION) operating at approximately 100 percent power, a Control Room Essential Filtration Actuation Signal (CREFAS) was automatically initiated on Train "B" and cross-tripped Train "A"as designed. This Engineered Safety Feature actuation resulted from a spurious alarm/trip signal on the "B" Control Room Ventilation Intake Noble Gas Monitor (RU-30). All associated equipment actuated satisfactorily with the exception of the "B" Essential Chiller which tripped on high bearing temperature after starting.

The root cause of the spurious signal is believed to be a voltage spike which was caused by electronic circuit noise in RU-30. The root cause of the Essential Chiller trip was due to an excessive oil level in the sump.

Following the CREFAS, the "A" Control Room Ventilation Intake Noble Gas Monitor (RU-29) and the Plant Vent Low Range Monitor (RU-143) were verified to be reading normal, thus ensuring that there were no actual radiation level increases. The actuated equipment was subsequently reset and RU-30 and Essential Chiller "B" were declared inoperable pending investigation of the event.

To prevent recurrence, a plant change package (PCP) had previously been approved for Palo Verde Units 1, 2 and 3 to install an isolated grounding system for the Radiation Monitoring System.

IE22 1/1

NRC Form 366

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 2	0 5 0 0 0 5 2 9	8 7	— 0 1 8	— 0 0	0 2 OF 0 3

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

On October 4, 1987 at 0750 MST, with Palo Verde Unit 2 in Mode 1 (POWER OPERATION) operating at approximately 100 percent power, a Control Room Essential Filtration Actuation Signal (CREFAS)(JE) was automatically initiated on Train "B". The Train "B" CREFAS cross-tripped the Train "A" CREFAS as designed. This Engineered Safety Feature (ESF) actuation resulted from a spurious alarm/trip signal on the "B" Control Room ventilation Intake Noble Gas Monitor (RU-30)(IL)(RI). All associated equipment actuated satisfactorily with the exception of the "B" Essential Chiller (CC)(CHU) which tripped after starting. The actuations [Control Room Essential Filtration System (VI), Essential Chilled Water System (CC), Essential Cooling Water System (CC), and Spray Pond System (BI)] were identified by the control room operators (utility-licensed) as a result of main control board (MCBD) annunciations (ANN).

A control room operator (utility-licensed) was dispatched to the remote indication and control unit and identified that RU-30 had alarmed high but was reading normal. Operations personnel then verified that the "A" Control Room Ventilation Intake Noble Gas Monitor (RU-29)(IL)(RI) and the Plant Vent Low Range Monitor (RU-143)(IL)(RI) were both reading normal and Radiation Protection personnel verified that the setpoints for RU-30 were correct. Based on this information, the Shift Supervisor (utility-licensed) determined the alarm/trip to be spurious.

RU-30 was declared inoperable, CREFAS "B" was bypassed and the local alarm was reset at approximately 0809. Subsequently, at approximately 0822 the actuated components were restored to their correct positions. Essential Chiller "B" was also declared inoperable pending further investigation of the trip.

The root cause of the spurious signal which initiated the CREFAS is believed to be a voltage spike which was caused by electronic circuit noise. This phenomena has been previously identified/evaluated and a plant change package had been approved prior to this event to install an isolated grounding system for the Radiation Monitoring System (IL) in all three units. The modification has been completed for the Unit 1 Technical Specification required monitors, but has not been implemented in Units 2 and 3.

RU-30 was declared operable at 1038 on October 7, 1987 following approximately 72 hours of observation with no indication of voltage spikes or other problems. RU-30 was inoperable for approximately 75 hours. In addition, on October 16, 1987, a modification was completed which installed new software for RU-30. This software includes a time delay which should allow the monitor to disregard an alarm/trip signal of duration less than 5 seconds.

The root cause of the Essential Chiller "B" trip was due to an excessive oil level in the sump which caused a high bearing temperature trip signal. The excessive oil resulted from the compressor lubricating oil being entrained in the refrigerant during low loads. This causes a low oil level in the sump and oil was added occasionally to the chiller to maintain the appropriate oil level.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Unit 2	0 5 0 0 0 5 2 9	8 7	— 0 1 8	— 0 0	0 3 OF 0 3

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

During the higher load condition which was seen by the chiller when the CREFAS related equipment was actuated, the entrained lube oil was reclaimed in the sump resulting in the submersion of the gears in oil, the heating of the oil, and the resultant trip of the chiller. The chiller is manufactured by Carrier Corp. (Model No. 19FA467C-1816) and provides cooling flow to the Essential Air Handling Units (VI)(AHU) which are utilized to cool the air in the control room/control building (NA) during certain accident conditions.

Upon identification of the excessive oil level, the oil was drained to the appropriate level. The chiller was then started and run for approximately 1 hour prior to declaring the chiller operable at 1416. Therefore, the chiller was inoperable for approximately 6 and 1/2 hours. An evaluation is currently under way to determine the actions necessary to prevent recurrence.

Based on the determination that abnormal radiation levels did not exist and the CREFAS was due to a spurious voltage spike, this event did not effect the safe operation of the plant or the health and safety of the public. Although the "B" chiller tripped after starting, the redundant "A" chiller successfully started and would have provided the required safety function if the CREFAS had been initiated for an actual accident situation.

There were no structures, components, or systems that were inoperable at the start of the event, other than those previously described, that contributed to the event. There were no unusual characteristics of the work location which contributed to the event. There were no automatic or manually initiated safety system responses. Should other concerns or information pertinent to this event be discovered, a supplement to this report will be issued.

Previous similar events have been reported in Licensee Event Reports 85-005-01, 85-011-02, 85-031-01, 85-027-01, 85-064-00, 85-062-00, and 87-001-01 for Unit 1. As noted previously, the modification to the Radiation Monitoring System has not been implemented in Units 2 and 3. The modifications are expected to be implemented by the end of each unit's first refueling outage.

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

192-00296-JGH/TRB/TJB
October 29, 1987

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. 50-529
Licensee Event Report 2-87-018-00
File: 87-020-404

Attached please find Licensee Event Report (LER) No. 2-87-018-00 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. R. Bradish, Compliance Supervisor at (602) 393-3531.

Very truly yours,

JG Haynes

J. G. Haynes
Vice President
Nuclear Production

JGH/TJB/cld

Attachment

cc: O. M. DeMichele (all w/a)
E. E. Van Brunt, Jr.
J. B. Martin
J. R. Ball
R. C. Sorenson
E. A. Licitra
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INPO Records Center

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