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FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
AUTH.NAME AUTHOR AFFILIATION
MARKS,D.G. 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 96-003-00:on 960809,open auxiliary bldg door caused full bldg essential filtration inoperability.Cause by personnel error.C/As under consideration.W/960904 ltr.

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Palo Verde Nuclear Generating Station

James M. Levine
Vice President
Nuclear Production

TEL (602)393-5300
FAX (602)393-6077
http://www.apsc.com

Mail Station 7602
P.O. Box 52034
Phoenix, AZ 85072-2034

192-00980-JML/DGM/RAS
September 4, 1996

U. S. Nuclear Regulatory Commission
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Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)**
Unit 1
Docket No. STN 50-528
License No. NPF-41
Licensee Event Report 96-003-00

Attached please find Licensee Event Report (LER) 96-003-00 prepared and submitted pursuant to 10CFR50.73. This LER reports the August 9, 1996 discovery that Trains A and B Fuel Building Essential Filtration units were rendered inoperable when a control door in the Auxiliary Building was propped open. In accordance with 10CFR50.73(d), a copy of this LER is being forwarded to the Regional Administrator, NRC Region IV.

If you have any questions, please contact Daniel G. Marks, Section Leader, Nuclear Regulatory Affairs, at (602) 393-6492.

Sincerely,

James M. Levine

JML/DGM/RAS/pv

cc: L. J. Callan
K. E. Perkins
K. E. Johnston
INPO Records Center

IE22

LICENSEE EVENT REPORT (LER)

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

TITLE (4)

Open Auxiliary Building Door Causes Fuel Building Essential Filtration Inoperability

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
0 8	0 9	9 6	9 6	- 0 0 3	- 0 0	0 9	0 4	9 6	NA	0 5 0 0 0

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)	1 0 0		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
			20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)	X	50.73(a)(2)(vii)		OTHER (Specify in Abstract
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		below and in Text, NRC Form
			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		366A)
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Daniel G. Marks, Section Leader, Nuclear Regulatory Affairs	AREA CODE 6 0 2 3 9 3 - 6 4 9 2

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

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 August 9, 1996, at approximately 1220 MST, Unit 1 was in Mode 1 (POWER OPERATIONS), operating at 100 percent power when APS engineering personnel determined that a condition which existed on August 2, 1996, had rendered both trains of the Fuel Building Essential Filtration system inoperable. Specifically, it was determined that on August 2, 1996, at approximately 0830 MST, maintenance workers propped open a door on the 100' elevation of the auxiliary building which created a flow path which could not be compensated for by the Fuel Building Essential Filtration units. This condition was corrected at approximately 0930 MST, August 2, 1996, but while the door was open, the Fuel Building Essential Filtration units would not have been able to maintain a measurable negative pressure under loss of coolant accident conditions as specified in the Updated Final Safety Analysis Report.

Calculations have demonstrated the offsite dose consequences would have remained within 10CFR100 limits under postulated LOCA conditions while the door was open. The cause of the condition was attributed to personnel error, and various corrective actions are under consideration at this time.

There have been no previous similar events reported pursuant to 10CFR50.73 within the past three years. See section 7 for additional information.

TEXT

1. EVENT CLASSIFICATION:

This LER (528/96-003-00) is being submitted to report a condition in which both Trains A and B Fuel Building Essential Filtration units (VG) (AHU) would not have been able to maintain a measurable negative pressure under Loss of Coolant Accident (LOCA) conditions as specified in the Updated Final Safety Analysis Report (UFSAR).

This condition is reportable pursuant to 10CFR50.73(a)(2)(v)(C) (any event or condition that alone could have prevented the fulfillment of a safety function) and 10CFR50.73(a)(2)(vii)(C) (a single cause or condition which caused two independent trains or channels to become inoperable in a single system).

This condition was initially reported to the NRC via the Emergency Notification System as a 1-Hour Non-Emergency event (ENS ID 30860, August 9, 1996) pursuant to 10CFR50.72(b)(1)(ii)(B). Although subsequent evaluation revealed that the condition did not meet this reporting criteria, the ENS notification was not retracted because the condition was determined to be reportable under other 50.72 requirements.

2. EVENT DESCRIPTION

On August 9, 1996, at approximately 1220 MST, Unit 1 was in Mode 1 (POWER OPERATIONS), operating at 100 percent power when APS engineering personnel (other utility personnel) determined that a condition which existed on August 2, 1996, had rendered both trains of the Fuel Building Essential Filtration system inoperable.

On August 2, 1996, at approximately 0800 MST, maintenance technicians (contractor personnel) were preparing to begin work on the 100' elevation of the Auxiliary Building (NF). While setting up, the technicians noted that it would be necessary to prop open a door in order to route an electrical cable for their welder. One of the technicians returned to the foreman and requested an open door permit. The technicians' foreman (contractor personnel) instructed the technician to return to the work location and retrieve the door number. Arriving at the door, the technician noted a large black-on-yellow sign in the center of the door which stated that Shift Supervisor permission was required to prop open the door. Immediately below the sign was the number "A-131" and under the number was another label which said "Stair Down." The technician

telephoned the foreman and reported the door number as "A-131" and also informed the foreman of the other postings. The technician did not see the additional number at the top of the door.

The foreman reported to the Work Control Senior Reactor Operator (SRO) (utility, licensed) and requested an Open Door Permit. The SRO looked up "A-131" in the controlling procedure (40DP-9ZZ17, *Control of Doors, Hatches and Floor Plugs*) and found there was no Security, Fire, HVAC, or HELB applicability to door "A-131" and informed the foreman that an open door permit was not needed.

The technician, who by now had arrived at the Work Control SRO's office, was informed that an open door permit was not required. The technician reiterated that there was a large black-on-yellow sign in the center of the door which stated that the Shift Supervisor's permission was required in order to prop open the door. The Work Control SRO verified with the technician that the door number was A-131 and then rechecked the procedure. After checking the second time, the Work Control SRO assumed the door was incorrectly posted and did no further research. The maintenance technicians returned to work on the 100' elevation of the Auxiliary building.

At approximately 0930 MST, an Auxiliary Operator (AO) (utility, non-licensed) was performing routine rounds and noted door A-123 was propped open with an electrical cable routed through it. The AO immediately advised the Shift Supervisor (utility, licensed), who directed the AO to remove the cable and close the door.

3. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

Door A-123 opens to a stairway which opens into the pipe chase area of the 88' foot elevation of the Auxiliary Building. This opening then serves as a non-ducted flow path from the 100' elevation of the Auxiliary Building to the Fuel Building (ND). This non-ducted flow path could have circumvented the Fuel Building Air Filtration units' ability to maintain a measurable negative pressure in the 88' elevation of the Auxiliary Building during LOCA conditions.

While door A-123 was open (approximately 1.25 hours), the Fuel Building Essential Filtration units would not have been able to maintain a measurable negative pressure under LOCA conditions as required by the

UFSAR. Section 9.4.2.2 of the UFSAR states: "areas with safety injection piping [BP/BQ] and equipment shall be kept under measurable pressure in relation to ambient during emergency conditions by exhausting through Engineered Safety Features [ESF] [JE] filtration systems."

Calculations completed by Design Engineering personnel (other utility personnel) have demonstrated that had a negative pressure not been maintained in the Unit 1 Auxiliary Building under LOCA conditions, the limitations of 10CFR100 would not have been exceeded. The loss of the Fuel Building Essential Filtration system would result in minute increases in the calculated recirculation leakage as specified by the UFSAR but would not increase the calculated doses beyond 10CFR100 limits.

4. CAUSE OF THE EVENT

An investigation performed in accordance with the APS corrective action program revealed that the cause of the event was personnel error (SALP code A). Specifically, the responsible contractor maintenance technician provided an incorrect door number when requesting an open door permit. Also, Work Control personnel did not question or verify the door number when informed of the cautionary sign posted to it. These personnel errors were cognitive and not the result of a procedural error or deficiency.

The investigation also revealed that the manner in which doors are identified contributed to the event and door numbering system ergonomics could be improved. There were no unusual work location characteristics (e.g., heat, noise) which contributed to the personnel error.

5. STRUCTURES, SYSTEMS AND COMPONENTS

Door A-123, which was propped open and initiated the event, is a non-quality related, 3' by 7' by 1.75" hollow metal door with a pressed metal frame.

The Fuel Building Heating Ventilation and Air Conditioning (HVAC) System consists of normal and essential HVAC systems. The normal HVAC system is designed to maintain environmental conditions suitable for personnel comfort and safe operation of equipment during normal plant operation. The essential filtration system functions only in the event of a fuel handling accident, a LOCA or during required testing. The essential filtration system exhausts through the fuel building vent, minimizing the

TEXT

release of airborne radioactivity to the surrounding areas in case of a fuel handling accident. The essential exhaust system also creates a negative pressure in the areas below the 100' elevation of the auxiliary building in the case of a LOCA. The negative pressure ensures that air leakage is into this area of the auxiliary building and ensures leaks associated with Safety Injection system piping and components are filtered prior to release. A tunnel connects the 88' elevation of the auxiliary building with the fuel building essential filtration units.

The essential filtration units are actuated upon a Safety Injection Actuation Signal (SIAS).

There were no systems or components which were inoperable prior to the event which contributed to the event. Likewise, there were no automatic or manually initiated safety system responses and none were required as a result of the event.

6. CORRECTIVE ACTIONS TO PREVENT RECURRENCE

The open door was secured by Operations personnel and the contract maintenance technicians' foreman was notified of the event.

Controlled doors in Units 1, 2 and 3 will be reworked to remove room numbers and other non-essential labeling.

7. PREVIOUS SIMILAR EVENTS

There have been no previous similar events reported pursuant to 10CFR50.73 which have resulted in the inoperability of the Fuel Building Essential Filtration due to open doors. However, there have been previous occurrences where area numbers have been confused with door numbers. These other previous occurrences are being considered in the investigation of this event.