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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-010-00:on 901012,ESF actuation caused by calibr step omission in work document.W/901108 ltr.

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RIDS/ADDS

Arizona Public Service Company
PALO VERDE NUCLEAR GENERATING STATION
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JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00702-JML/TRB/SBJ
November 8, 1990

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Mail Station P1-37
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 90-010-00
File: 90-020-404

Attached please find Licensee Event Report (LER) No. 90-010-00 prepared and submitted pursuant to 10CFR50.73. In accordance with 10CFR50.73(d), we are 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 Manager at (602) 393-2521.

Very truly yours,

JML/TRB/SBJ/dmn

Attachment

cc: W. F. Conway (all with attachment)
J. B. Martin
D. H. Coe
A. C. Gehr
C. M. Trammell
A. H. Gutterman
INPO Records Center

IE22
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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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.

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)

Engineered Safety Feature Actuation Caused By Calibration Step Omission In Work Document

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	1 2	9 0	9 0	0 1 0	0 0	1 1	0 8	9 0	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)
	20.405(a)(1)(i)		50.36(c)(1)
	20.405(a)(1)(ii)		50.36(c)(2)
	20.405(a)(1)(iii)		50.73(a)(2)(i)
	20.405(a)(1)(iv)		50.73(a)(2)(ii)
	20.405(a)(1)(v)		50.73(a)(2)(iii)
X	50.73(a)(2)(iv)		73.71(b)
	50.73(a)(2)(v)		73.71(c)
	50.73(a)(2)(vii)		OTHER *(Specify in Abstract below and in Text, NRC Form 366A)*
	50.73(a)(2)(viii)(A)		
	50.73(a)(2)(viii)(B)		
	50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Thomas R. Bradish, Compliance Manager	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	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 October 12, 1990 at approximately 0449 MST, Palo Verde Unit 1 was in Mode 1(POWER OPERATIONS) at 100 percent power. At approximately 0449 MST a spurious train "B" Containment Purge Isolation Actuation Signal (CPIAS) was initiated on the Balance of Plant Engineered Safety Features Actuation System. The train "B" CPIAS resulted in the designed cross-trips of train "A" CPIAS and trains "A" and "B" Control Room Essential Filtration Actuation Signals. All equipment responded as designed to the initiation signals.

The control room operators determined the cause of the isolation signal to be a loss of power to the Power Access Purge Radiation Monitor (RU-38) Remote Indicating Controller (RIC). The train "B" CPIAS was bypassed and actuated systems were reset by approximately 0540 MST.

The RIC power supply was replaced and a root cause of failure performed on the power supply removed. RU-38 was declared operable on October 15, 1990 at approximately 1158 MST.

The cause of the CPIAS was incorrect calibration of the RIC power supply as a result of a work authorization document omitting a step to adjust the power supply overcurrent potentiometer. The RIC power supply automatically shutdown when the overcurrent protection was activated.

There have been no previous similar events.

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On October 12, 1990 at approximately 0449 MST, Palo Verde Unit 1 was in Mode 1 (POWER OPERATION) at 100 percent power.

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

Event Classification: Engineered Safety Feature Actuation

On October 12, 1990 at approximately 0449 MST a spurious train "B" Containment Purge Isolation Actuation Signal (CPIAS)(VA)(JE) was initiated on the Balance of Plant Engineered Safety Features Actuation System (BOP ESFAS)(JE). The train "B" CPIAS resulted in the designed cross-trips of Train "A" CPIAS and Trains "A" and "B" Control Room Essential Filtration Actuation Signals (CREFAS)(VI)(JE). All equipment responded as designed. Investigation into the initiation signal identified that there were no unusual radiation levels.

During Power Operation the primary containment (NH) is periodically vented via the Containment Purge System to reduce containment pressure. The Containment Purge System has two independent flow paths to the power access purge air filtration unit. Each flow path is monitored by a radiation monitor(IL). If a preset radiation level (greater than 2.5 millirem per hour) is reached or the radiation monitor signal is lost, a CPIAS is initiated. The resulting Containment Purge isolation ensures the offsite dose does not exceed 10CFR100 limits.

The Power Access Purge Radiation Monitor(IL) signal is sent to a remote indicating controller (RIC). The RIC output signal is input to the Radiation Monitoring System(IL) computer. The RIC also generates the CPIAS actuation signal and inputs into the BOP ESFAS cabinet.

Prior to the event, a containment vent was initiated at approximately 0443 MST through the Containment Purge System. At approximately 0449 a train "B" CPIAS was received when the signal from the power access purge train "B" radiation monitor (RU-38) was lost. The train 'B' CPIAS resulted in the designed cross-trips of Train "A" CPIAS and Trains 'A' and 'B' CREFAS. The containment purge isolation valves (VA)(ISV) closed as designed. The components in the Control Room Essential Filtration System (VI) responded properly to the CREFAS. The required equipment

actuations (Trains "A" and "B" of the Essential Chilled Water System (KM), Essential Cooling Water System (BI), and the Essential Spray Pond System (BS)) were verified by approximately 0459 MST.

Control Room operators (utility, licensed) checked the train "A" power access purge radiation monitor (RU-37) and other radiation monitors located in the vicinity of RU-38. Radiation levels were determined to be normal. Radiation Protection personnel (utility, non-licensed) checked the indication of RU-38 locally. The radiation monitor was in service and there were no abnormal indications. Control room operators checked the RU-38 RIC and found it without power. Since there were no indications of abnormal radiation levels, the train "B" CPIAS was placed in bypass at approximately 0532 MST. Subsequently the CPIAS "A" and CREFAS "A" and "B" were reset. The actuated systems were secured and normal control room ventilation returned to service by approximately 0540 MST.

A containment air sample was obtained and analyzed, and RU-37, RU-38, the refueling purge exhaust radiation monitor (RU-34), and the plant ventilation exhaust radiation monitor were checked to verify no abnormal radiation levels existed.

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

Not applicable - no structures, systems, or components were inoperable at the start of the event which contributed to this event.

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 failures of components with multiple functions.

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:

Not applicable - no failures were involved which rendered a train of a safety system inoperable.

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

Not applicable - there have been no component or system failures or procedural errors identified.

I. Cause of event

The cause of the CPIAS "B" was the loss of power to the RIC for RU-38. The cause of the loss of power was the incorrect calibration of the radiation monitor power supply overcurrent potentiometer. The cause of the incorrect calibration was the work authorization document (work order) which was used to install the power supply in December 1989 omitted the step to adjust the overcurrent potentiometer (SALP cause code A). Therefore. the overcurrent potentiometer was set such that normal power supply drift over ten months allowed the current to change enough to allow normal current fluctuations associated with circuit operation to activate the overcurrent protection. When activated the overcurrent protection automatically shutdown the power supply.

The work order was prepared by work control personnel (utility, non-licensed) in accordance with plant procedures. No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event.

J. Safety System Response:

The containment purge isolation valves closed as designed. The control room essential filtration system, Essential Chilled Water System, Essential Cooling Water System, and the Essential Spray Pond System all actuated as designed.

K. Failed Component Information:

Not applicable - there were no component failures.

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

There were no safety consequences or implications from this event. The Train "B" Power Access Purge Radiation Monitor is located outside the containment near the power access purge exhaust. RU-38 monitors the exhaust for radioactivity concentrations that could potentially result in off-site doses exceeding 10CFR100 limits. As discussed in Section I.B., Unit 1 personnel verified that no actual high radiation levels existed. The loss of power to the RIC power supply resulted in the plant ventilation systems being placed in a conservative operating configuration. The event had no affect on the operation of the power plant or the capabilities of the operators to perform their job functions.

III. CORRECTIVE ACTION:

A. Immediate:

The redundant radiation monitor indications were checked and the initiating signal bypassed. The required equipment operations were verified to be as designed. The power supply to the RIC was replaced and appropriate surveillance testing performed. The CPIAS 'B' was reset on October 15, 1990 at approximately 1158 MST.

A root cause of failure investigation was performed on the power supply removed from the RIC by engineering.

B. Action to Prevent Recurrence:

The event has been discussed with the work control personnel involved. No other instances of work orders not providing steps to adjust the overcurrent potentiometer were found during a review of a sample of work orders that replaced RIC power supplies. There have been no other events attributed to this type of omission. However, as additional recurrence control, this report will be distributed to the Unit 1, 2, and 3 work control groups.

IV. PREVIOUS SIMILAR EVENTS:

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