

## ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9201090152 DOC. DATE: 92/01/02 NOTARIZED: NO DOCKET #  
 FACIL: STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Public 05000529  
 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 91-007-00: on 911205, discovered that containment  
 isolation valve required to be closed during core alteration  
 was in open position. Caused by procedure inadequacy.  
 Personnel involved w/ actuator. W/920102 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: Standardized plant.

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AEOD/DOA	1 1	AEOD/DSP/TPAB	1 1
AEOD/ROAB/DSP	2 2	NRR/DET/ECMB 9H	1 1
NRR/DET/EMEB 7E	1 1	NRR/DLPQ/LHFB10	1 1
NRR/DLPQ/LPEB10	1 1	NRR/DOEA/OEAB	1 1
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NRR/DST/SICB8H3	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 BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
NRC PDR	1 1	NSIC MURPHY, G.A	1 1
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NOTES:

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*Cont no  
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**Arizona Public Service Company**

PALO VERDE NUCLEAR GENERATING STATION  
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

JAMES M. LEVINE  
VICE PRESIDENT  
NUCLEAR PRODUCTION

192-00766-JML/TRB/KR  
January 2, 1992

U: S. Nuclear Regulatory Commission  
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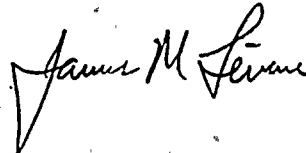
Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Unit 2  
Docket No. STN 50-529 (License No. NPF-51)  
Licensee Event Report 91-007-00  
File: 91-020-404

Attached please find Licensee Event Report (LER) 91-007-00 prepared and submitted pursuant to 10CFR50.73. In accordance with 10CFR50.73(d), a copy of this LER is being sent to the Regional Administrator, NRC Region V.

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

Very truly yours,



JML/TRB/KR/nk

Attachment

cc: W. F. Conway (all with attachment)  
J. B. Martin  
D. H. Coe  
INPO Records Center

9201090152 920102  
PDR ADOCK 03000529  
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## LICENSEE EVENT REPORT (LER)

FACILITY NAME Palo Verde Unit 2										DOCKET NUMBER 0 5 0 0 0 5 2 9 1										PAGE OF 0 6										
TITLE Technical Specification Violation - Containment Integrity During Core Alterations																														
EVENT DATE			LER NUMBER				REPORT DATE			OTHER FACILITIES INVOLVED																				
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES						DOCKET NUMBER(S)															
1	2	0	5	9	1	9	1	0	0	7	0	0	0	1	0	2	9	2	N/A						0 5 0 0 0 0					
OPERATING MODE 6			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following)																											
POWER LEVEL 0 0 0			20.402(b)				20.406(c)				80.73(a)(2)(iv)				73.71(b)															
			20.406(a)(1)(i)				80.36(c)(1)				80.73(a)(2)(v)				73.71(c)															
			20.406(a)(1)(ii)				80.36(a)(2)				80.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text)															
			20.406(a)(1)(iii)				80.73(a)(2)(i)				80.73(a)(2)(vii)(A)																			
			20.406(a)(1)(iv)				80.73(a)(2)(ii)				80.73(a)(2)(vii)(B)																			
			20.406(a)(1)(v)				80.73(a)(2)(iii)				80.73(a)(2)(ix)																			
LICENSEE CONTACT FOR THIS LER																														
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																														
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC																				
SUPPLEMENTAL REPORT EXPECTED												EXPECTED SUBMISSION DATE				MONTH	DAY	YEAR												
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO																		

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines)

On December 5, 1991, during a planned refueling outage, Palo Verde Unit 2 was in Mode 6 (REFUELING) with the reactor vessel head removed and the reactor coolant system at approximately 100 degrees Fahrenheit and atmospheric pressure when maintenance personnel discovered that a containment isolation valve (SIA-UV-673) which was required to be closed during core alterations was in the open position. Technical Specification Limiting Condition For Operation (TS LCO) 3.9.4.c.1 requires that each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be closed by an isolation valve, blind flange, or manual valve during core alterations. If TS LCO 3.9.4.c.1 is not satisfied, the associated TS LCO ACTION requires the immediate suspension of all operations involving core alterations. From November 30, 1991 to December 5, 1991, core alterations were in progress. Therefore, the ACTION requirements of TS LCO 3.9.4 were not met.

The cause of SIA-UV-673 being open was due to procedure inadequacy in that the valve stem was not required by procedure to be matchmarked or locked in the closed position when the actuator was removed. The valve disc unexpectedly opened. The actuator was reinstalled when the valve disc was open. This resulted in the valve being open when the indicated position showed the valve to be closed. As corrective action, procedures will be revised appropriately.

There have been no previous similar events reported pursuant to 10CFR50.73.



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TEXT

## I. DESCRIPTION OF WHAT OCCURRED:

## A. Initial Conditions:

On December 5, 1991, during a planned refueling outage, Palo Verde Unit 2 was in Mode 6 (REFUELING) with the reactor vessel head removed (RPV)(AB) and the reactor coolant system (RCS)(AB) at approximately 100 degrees Fahrenheit and atmospheric pressure.

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

Event Classification: Operation prohibited by the plant's Technical Specifications.

On December 5, 1991, maintenance personnel discovered that a containment isolation valve (SIA-UV-673)(ISV) which was required to be closed during core alterations was in the open position. Valve SIA-UV-673 is one of two containment isolation valves for containment penetration (PEN)(NH) 23. Penetration 23 is the containment penetration for the line connecting the containment recirculation sump to the containment spray (BE), low pressure safety injection (BP), and high pressure safety injection (BQ) headers. Valve SIA-UV-673 is located inside the containment building (NH) in the containment sump. Valve SIA-UV-674 (ISV) is the other containment isolation valve for penetration 23 and is located outside the containment building. Valves SIA-UV-673 and SIA-UV-674 are motor operated butterfly valves. Technical Specification Limiting Condition For Operation (TS LCO) 3.9.4.c.1 requires that each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be closed by an isolation valve, blind flange, or manual valve during core alterations or movement of irradiated fuel in the containment building. If the requirement of TS LCO 3.9.4.c.1 is not satisfied, the associated TS LCO ACTION requires the immediate suspension of all operations involving core alterations or movement of irradiated fuel in the containment building. From November 30, 1991 to December 5, 1991, core alterations were in progress and irradiated fuel was being moved in the containment building during core reload. Therefore, the ACTION requirements of TS LCO 3.9.4 were not met.

On November 27, 1991, during motor operated valve (MOV) testing activities, the actuator for valve SIA-UV-673 was removed for maintenance. The valve was verified to be in the closed position prior to removing the actuator, and the maintenance technician (contractor, non-licensed) matchmarked the actuator flanges and mating valve yoke flange. At this time, containment isolation was not established and the valve stem was not required by procedure





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to be matchmarked or locked in the closed position when the actuator was removed. In addition, the valve stem locking device was not installed due to planned MOV testing activities which would require the removal of the locking device prior to installation of a strain gauge.

On November 29, 1991, in order to establish containment isolation for penetration 23 prior to core reload, the actuator was reinstalled on valve SIA-UV-673 prior to completion to the actuator's maintenance. The maintenance technician aligned the valve yoke flange and the actuator flanges matchmarks, centered the mechanical stop nuts to assure the valve would seat and then turned the handwheel in the closed direction until he encountered resistance and considered the valve to be seated and closed. A clearance tag was placed on the valve, restricting any changes in its position. At that time, the valve disc position could not be visually verified closed due to installed grating and radiological controls (contaminated area).

Prior to commencement of core alterations, each containment building penetration was verified to be closed in accordance with an approved surveillance test procedure. A clearance tag was used to take credit for isolation of penetration 23. The clearance tag indicated that the valve was in its normal or closed position. In addition, the valve's position indicator showed the valve to be closed. There was no reason to believe that the valve disc was out of position. At approximately 0553 MST on November 30, 1991, core reload was started.

Since valve SIA-UV-673 was credited for providing containment isolation of penetration 23, MOV testing activities were initiated on valve SIA-UV-674. This included stroking the valve open and closed. On December 5, 1991, MOV testing activities were completed on valve SIA-UV-674. The required valve for containment integrity for penetration 23 was then changed from valve SIA-UV-673 to valve SIA-UV-674 to allow completion of MOV testing activities on valve SIA-UV-673.

MOV testing activities for valve SIA-UV-673 were resumed on December 5, 1991. When the valve was stroked manually open the valve did not respond as expected (i.e., approximately 50 full stroke turns were required to open the valve, not the expected 75). An investigation of the event by maintenance personnel determined that the actuator was reinstalled when the valve disc was open rather than closed. This resulted in the valve being open when the indicated position showed the valve to be closed. At this time, core alterations were not suspended because valve SIA-UV-674 was verified to be providing the required containment integrity for penetration 23.



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

Other than the containment isolation valve discussed in Section I.B, no other structures, systems, or components were inoperable at the start of the event that contributed to this event.

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

Not applicable - no component or system failures were involved.

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

Not applicable - no component failures were involved.

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

Not applicable - no failures of components with multiple functions were involved.

- 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 that rendered a train of a safety system inoperable were involved.

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

As discussed in Section I.B, maintenance personnel discovered that SIA-UV-673 which was required to be closed during core alterations was in the open position. The valve stem was not required by procedure to be matchmarked or locked in the closed position when the actuator was removed. In addition, the valve stem locking device was not installed due to planned MOV testing activities which would require the removal of the locking device prior to installation of a strain gauge.

- I. Cause of Event:

An investigation of this event by maintenance personnel determined that prior to the actuator being reinstalled, the valve disc moved past the fully opened position into the second quadrant or moved up against the backside of the valve's physical hard stop. Therefore, the actuator was reinstalled when the valve disc was open rather than closed. This resulted in the valve being open



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when the indicated position showed the valve to be closed. The procedure did not require the valve stem to be locked in the closed position, nor did it require the original closed position of the valve stem to be matchmarked to the stem nut, gear unit, or yoke extension, as necessary, to provide visual indication of valve disc movement (SALP Cause Code D: Defective Procedures).

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event. There were no personnel errors which contributed to this event.

J. Safety System Response:

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

K. Failed Component Information:

Not applicable - no component failures were involved.

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

The requirement for containment integrity during core alterations or movement of irradiated fuel in the containment building ensures that a release of radioactive material in the containment building due to fuel element rupture will not be released to the environment. Even though valve SIA-UV-673 was not maintaining containment integrity during core reload, valve SIA-UV-674 was closed and would have provided the required containment isolation, except when the valve was stroked open during MOV testing activities. Valve SIA-UV-674 was capable of being closed in the unlikely event of a fuel element rupture. Therefore, there were no safety consequences or implications as a result of this event. This event did not adversely affect safe operation or the health and safety of the public.

III. CORRECTIVE ACTION:

A. Immediate:

The actuator was reinstalled on the valve with the valve disc in the closed position.

B. Action to Prevent Recurrence:

1. Maintenance personnel involved with actuator assembly and reassembly are currently being briefed on this event. The briefings are expected to be completed by January 31, 1992.



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2. Four valve actuator rebuild procedures will be revised to require that the original closed position of the valve stem be marked appropriately. In addition, the procedure will be revised to require the installation of stem locking devices on containment isolation valves when the actuator is removed and the valve is not actively undergoing testing. The procedure changes are expected to be completed by February 14, 1992.

## IV. PREVIOUS SIMILAR EVENTS:

No other previous similar events have been reported pursuant to 10CFR50.73.

