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ACCESSION NBR:8911020281 DOC.DATE: 89/10/25 NOTARIZED: NO DOCKET #
 FACIL:STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
 .AUTH.NAME AUTHOR AFFILIATION
 SHRIVER,T.D. 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 89-013-00:on 890926,inadvertent control room essential
 filtration actuation signal ESF actuation.

W/8 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.

05000530

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	AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
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	NRR/DEST/MTB 9H	1 1	NRR/DEST/PSB 8D	1 1
	NRR/DEST/RSB 8E	1 1	NRR/DEST/SGB 8D	1 1
	NRR/DLPQ/HFB 10	1 1	NRR/DLPQ/PEB 10	1 1
	NRR/DOEA/EAB 11	1 1	NRR/DREP/RPB 10	2 2
	NUDOCS-ABSTRACT	1 1	REG FILE 02	1 1
	RES/DSIR/EIB	1 1	RGN5 FILE 01	1 1
EXTERNAL:	EG&G WILLIAMS,S	4 4	L ST LOBBY WARD	1 1
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Arizona Public Service Company

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

192-00540-JML/TDS/DAJ
October 25, 1989

U. S. Nuclear Regulatory Commission
NRC Document Control Desk
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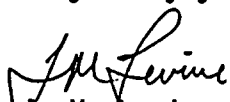
Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530 (License No. NPF-74)
Licensee Event Report 89-013-00
File: 89-020-404

Attached please find Licensee Event Report (LER) No. 89-013-00 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. D. Shriver, Compliance Manager at (602) 393-2521.

Very truly yours,

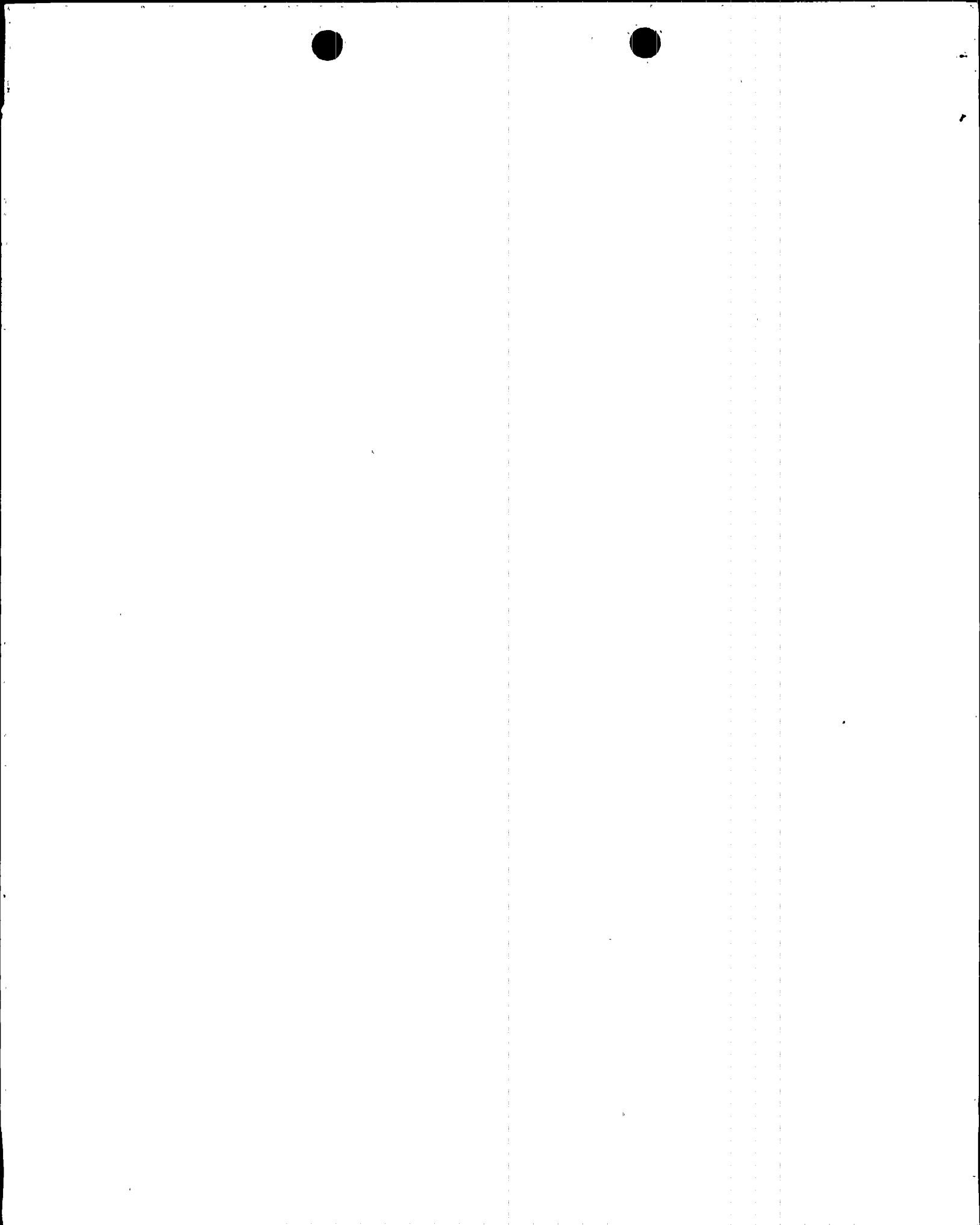

J. M. Levine
Vice President
Nuclear Production

JGH/TDS/DAJ/kj

Attachment

cc: W. F. Conway (all w/a)
E. E. Van Brunt, Jr.
J. B. Martin
T. J. Polich
M. J. Davis
A. C. Gehr
INPO Records Center

157123
11



LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH 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.

FACILITY NAME (1)

Palo Verde Unit 3

DOCKET NUMBER (2)

0 5 0 0 0 5 3 0 1 OF 0 6

PAGE (3)

TITLE (4)

Inadvertent Control Room Essential Filtration Actuation Signal ESF 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)												
0	9	2	8	9	0	1	3	0	0	1	0	2	5	8	9	N/A	0	5	0	0	0		
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																				
5																							
POWER LEVEL (10)			20.402(b)												X			50.73(a)(2)(iv)			73.71(b)		
0			20.405(a)(1)(i)															50.73(a)(2)(v)			73.71(c)		
0			20.405(a)(1)(ii)															50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
			20.405(a)(1)(iii)															50.73(a)(2)(viii)(A)					
			20.405(a)(1)(iv)															50.73(a)(2)(viii)(B)					
			20.405(a)(1)(v)															50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Timothy D. Shriver, 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 NPD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/>	<input checked="" type="checkbox"/>				

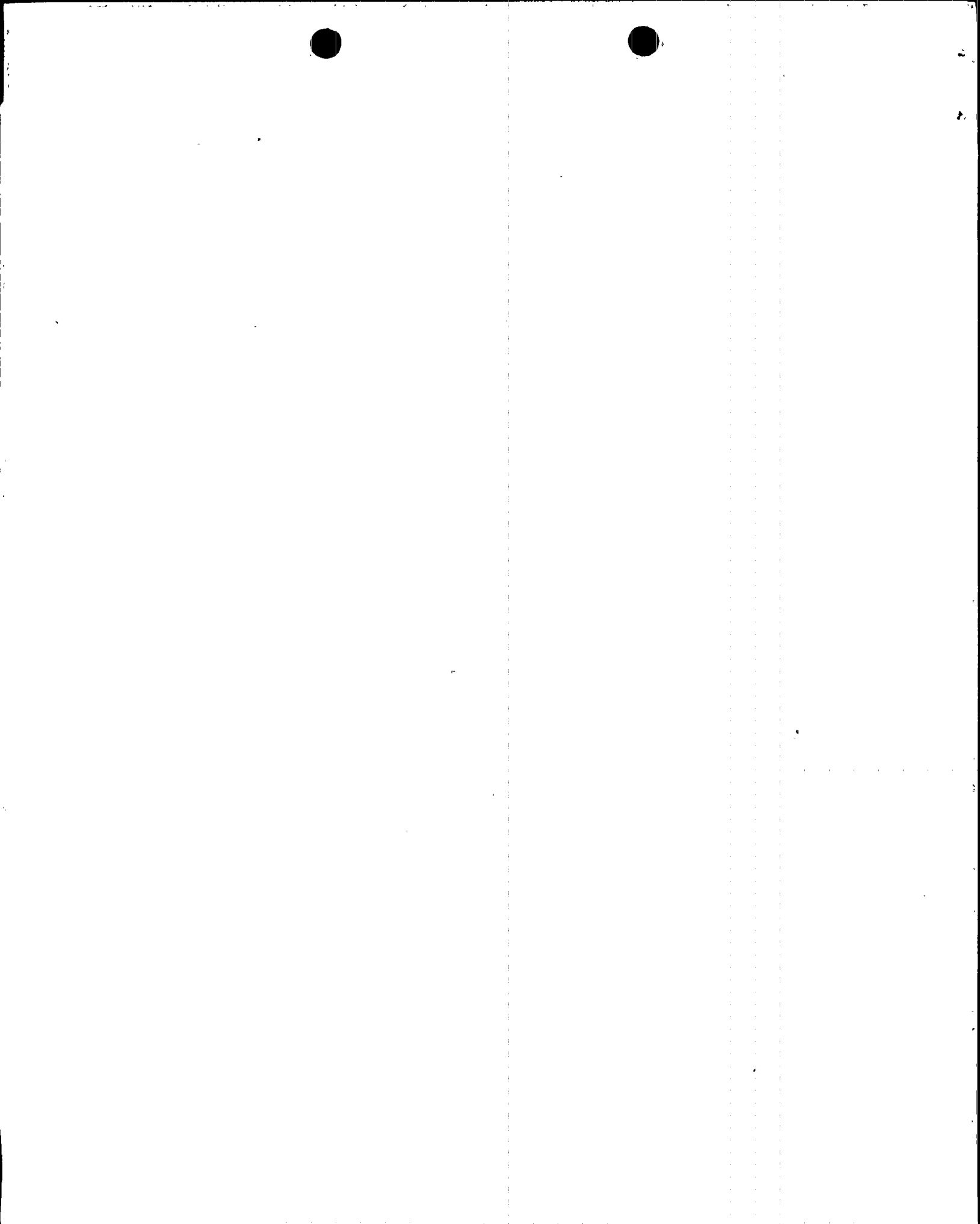
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At approximately 1439 MST on September 26, 1989, Palo Verde Unit 3 was in Mode 5 during a refueling outage when a control room operator inadvertently turned the wrong handswitch during post maintenance testing which resulted in a Control Room Essential Filtration Actuation Signal (CREFAS) Balance of Plant Engineered Safety Features Actuation System (BOP ESFAS) actuation. The ESF actuation was verified not to be the result of a valid signal, all actuated components were returned to their normal configuration, and testing was continued. Subsequently during test restoration, an inadvertent Control Room Ventilation Isolation Actuation Signal (CRVIAS) BOP ESFAS actuation occurred during removal of instrumentation test leads. All CREFAS and CRVIAS components responded properly.

The cause of the CREFAS was a cognitive personnel error. The cause of the CRVIAS was the inadvertent grounding of a handswitch contact via the test leads as they were being removed.

As corrective action for the CREFAS, appropriate disciplinary measures have been taken. As corrective action for the CRVIAS the work authorization documents being used for BOP ESFAS handswitch testing were revised.

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



LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

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

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

At approximately 1439 MST on September 26, 1989, Palo Verde Unit 3 was in Mode 5 (COLD SHUTDOWN) with the Reactor Coolant System (RCS)(AB) at approximately 105 degrees Fahrenheit and 350 pounds per square inch-absolute.

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

Event Classification: Engineered Safety Feature Actuation

At approximately 1439 MST on September 26, 1989, a Unit 3 control room operator (utility, licensed) inadvertently turned the wrong handswitch (HS) during post-maintenance testing resulting in an inadvertent Train "A" Control Room Essential Filtration Actuation Signal (CREFAS)(VI)(JE). CREFAS is part of the Balance of Plant Engineered Safety Features Actuation System (JE). Control room personnel (utility, licensed) verified that the actuation was manually initiated and not the result of a valid signal. All components responded properly to the actuation signal. CREFAS "A" was reset, all components were returned to their normal position, and testing was resumed in accordance with an approved work document.

Following completion of the testing, APS maintenance personnel (utility, non-licensed) were removing test equipment from the Train "A" Control Room Ventilation Isolation Actuation Signal (CRVIAS)(VI)(JE) manual initiation handswitch when a Train "A" CRVIAS occurred. CRVIAS is a manually initiated ESF and therefore is not the result of an automatic actuation. All components responded properly to the actuation signal. CRVIAS "A" was reset and all components were returned to their normal position.

Prior to the events described above, the CRVIAS and CREFAS manual actuation handswitches had been replaced during the refueling outage in accordance with approved work authorization documents. Prior to returning the switches to service, testing was required to be performed to verify that the switches would perform their intended function. The testing was being performed in accordance with an approved work authorization document.

On September 26, 1989, Unit 3 maintenance personnel were verifying the proper operation of the Train "A" CRVIAS handswitches. As part of the verification, it was required that control room personnel

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

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Palo Verde Unit 3

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

(utility, licensed) first cycle the Train "A" CRVIAS manual initiation handswitch three times verifying that jumpers have been installed properly. Next, test instrumentation is installed and the handswitch is cycled three times while maintenance technicians monitor the operation of the switch contacts. Following verification that the jumpers had been installed properly on the Train "A" CRVIAS handswitch, at approximately 1439 MST on September 26, 1989, the responsible control room operator (utility, licensed) inadvertently turned the Train "A" CREFAS manual initiation handswitch (Note: these handswitches are located adjacent to each other and are approximately four inches apart). This resulted in an inadvertent actuation of Train "A" Control Room Essential Filtration.

Control room personnel verified that the actuation was not the result of a valid signal. All components were verified to respond properly and Train "A" CREFAS was reset. All actuated components were returned to their normal alignment for the existing plant conditions and handswitch testing was resumed.

Following completion of the testing on the Train "A" CRVIAS manual initiation handswitches, maintenance technicians (utility, non-licensed) were removing test instrumentation leads when an inadvertent Train "A" CRVIAS occurred. Control room personnel verified that all components responded properly to the actuation signal. This event did not occur as a result of an automatic actuation as CRVIAS is manually initiated by control room personnel in accordance with approved procedural controls (i.e., there are no automatic actuation signals associated with CRVIAS). Following verification that all components actuated as designed, control room personnel reset Train "A" CRVIAS and returned actuated components to their normal alignment for the existing plant conditions.

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

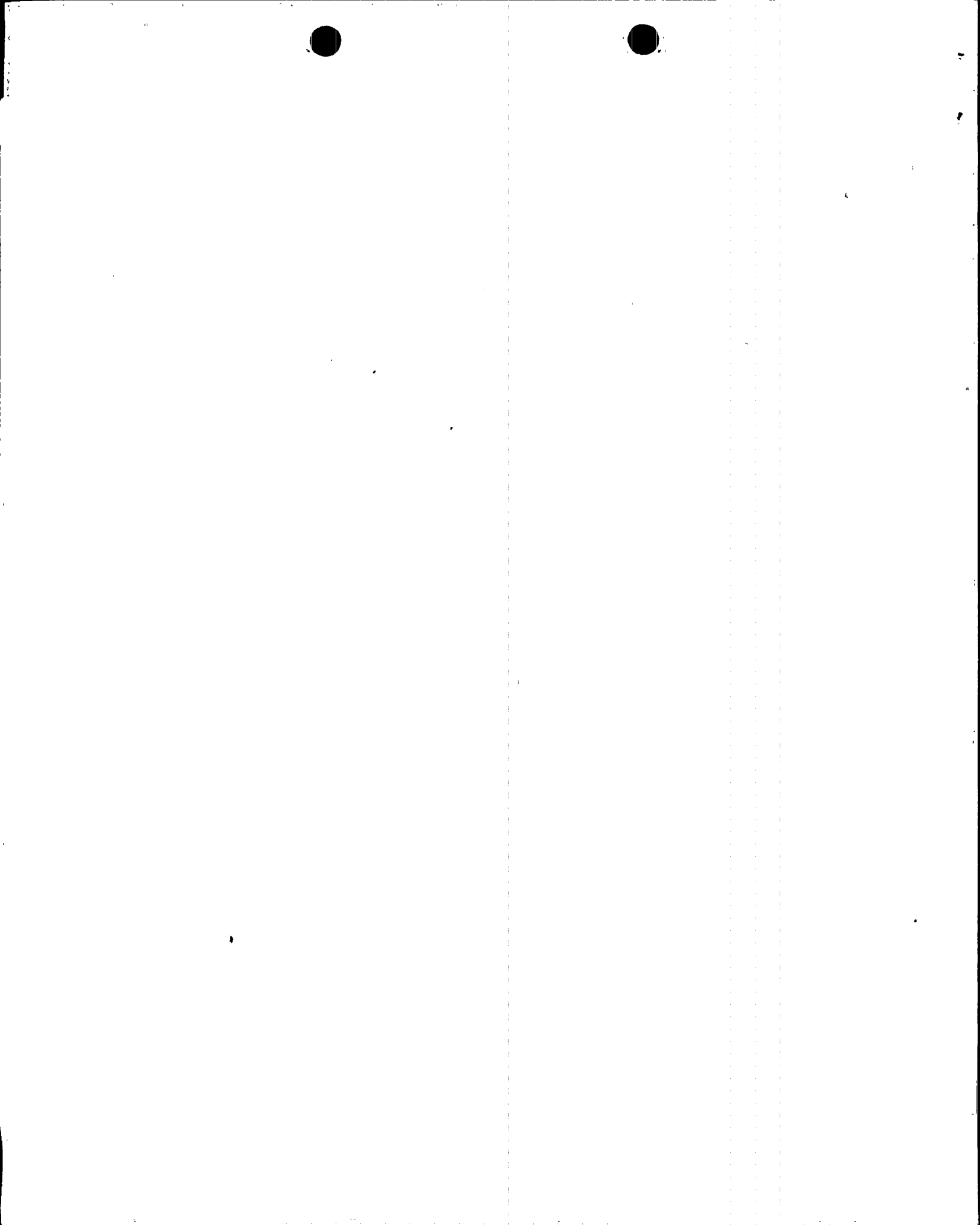
Other than described in Section I.B, no structures, systems, or components were inoperable at the start of the event which contributed to the event.

- 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.



LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1) Palo Verde Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 5 3 0	LER NUMBER (6)			PAGE (3)		
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		8 9	0 1 3	0 0	0 4	OF	0 6

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

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

Not applicable - no component failures were involved.

- G. For failures 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.

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

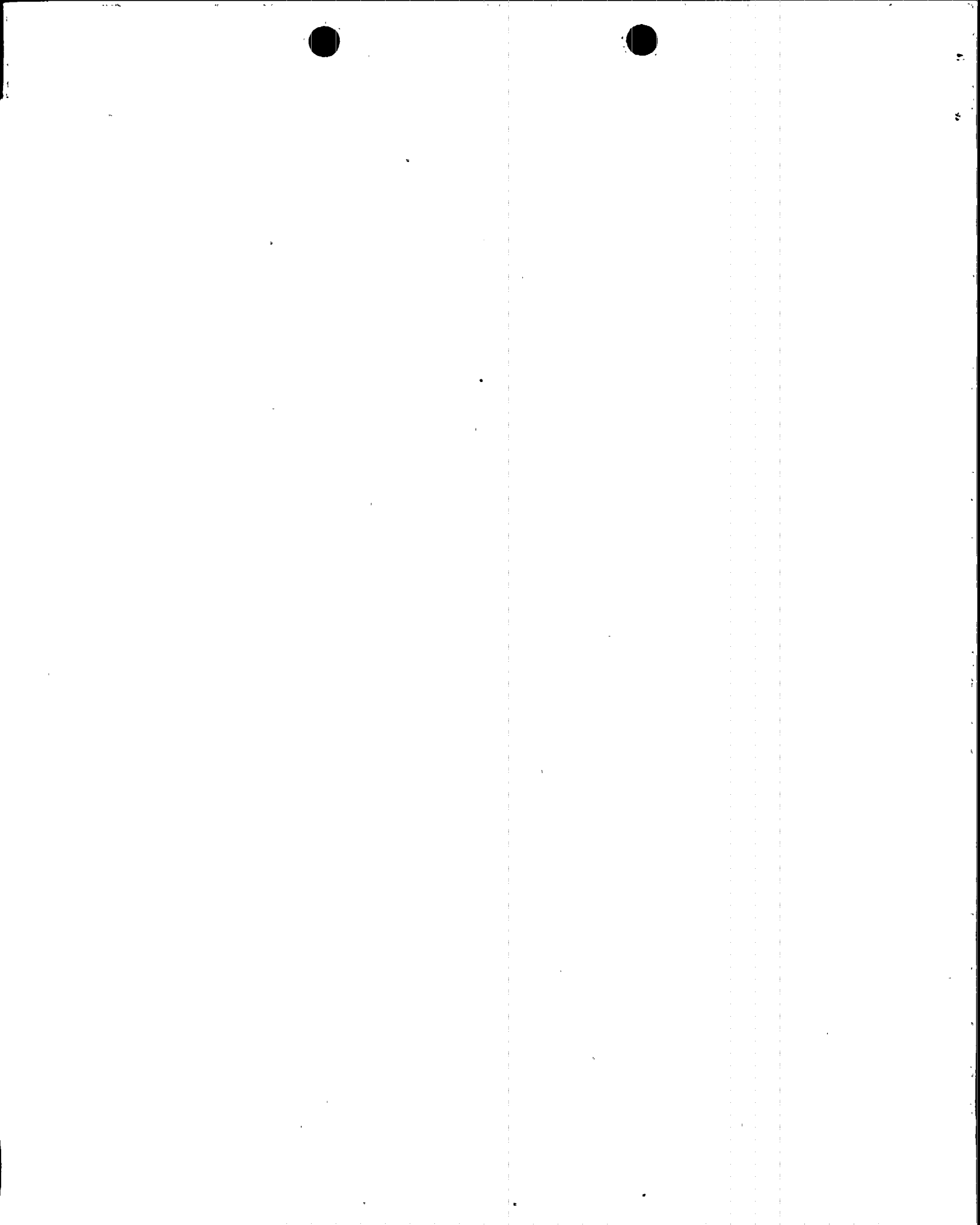
There were no component or system failures.

Based upon the results of an investigation of the inadvertent CRVIAS conducted in accordance with the APS Incident Investigation Program, it was determined that the work authorization document being utilized to perform the testing should have contained more prescriptive instructions and precautions.

CRVIAS is initiated when the normally energized system is grounded causing a voltage drop. To initiate a manual CRVIAS, the appropriate handswitch is repositioned on the main control board (MCBD) in the Control Room (NA) which causes line voltage to be grounded through the appropriate contacts. The voltage drop results in relays (RLY) repositioning which results in component actuations.

In order to perform testing of the CRVIAS handswitches, the lead connecting the appropriate handswitch contact to ground was determined in accordance with an approved work authorization document so the switch could be manipulated for testing without causing unnecessary actuations. On September 26, 1989, maintenance technicians were verifying the proper operation of CRVIAS Train "A" handswitch contacts adjacent to the determined "grounding contact." Following completion of the testing, the test leads were being removed when it is believed that one of the leads came into contact with the "grounding contact" on the handswitch resulting in a complete circuit to ground which caused the CRVIAS Train "A" actuations.

Based upon this cause, it has been determined that the work authorization documents being utilized should have contained more prescriptive instructions for ensuring that the appropriate handswitch "grounding contact" was sufficiently isolated from the system. Additionally, the work authorization document should have



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TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

contained precautionary notes for alerting maintenance personnel that inadvertent actuations could occur if test leads provided a complete circuit to ground under some situations.

I. Cause of Event:

The cause of the inadvertent CREFAS was a cognitive personnel error by the responsible control room operator (utility, licensed) who turned the wrong handswitch during the testing. The error was a result of not adequately following an approved work authorization document. There were no procedural errors or omissions which contributed to this event. There were no unusual characteristics of the work location which contributed to the event.

The cause of the inadvertent CRVIAS is discussed above in Section I.H.

J. Safety System Response:

The following safety system responses occurred:

- Control Room Essential Filtration Train "A" (VI)
- Control room Ventilation Isolation Train "A" (VI)
- Essential Chilled Water Train "A" (KM)
- Essential Cooling Water Train "A" (BI)
- Essential Spray Pond Train "A" (BS)

K. Failed Component Information:

Not applicable - no component failures were involved.

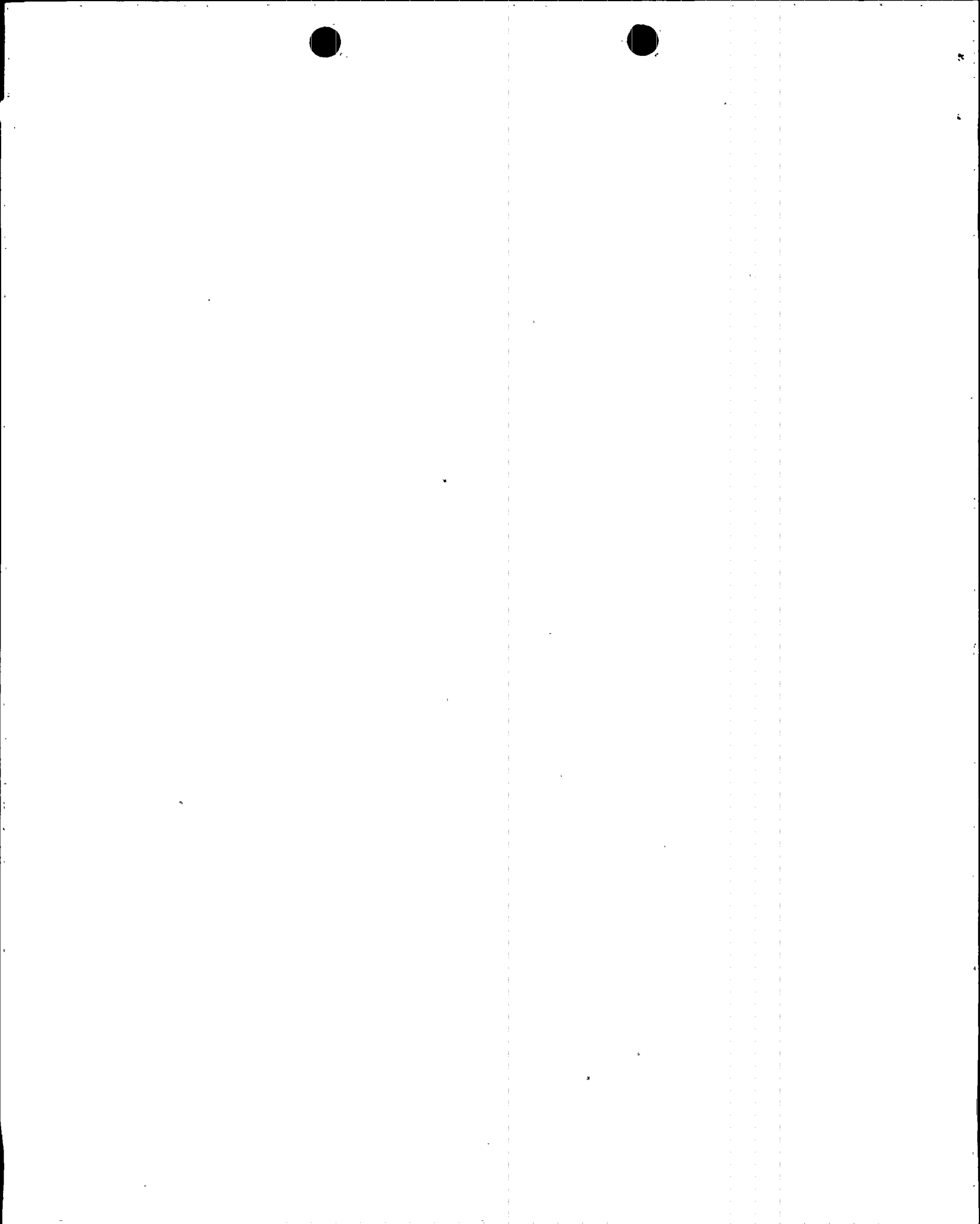
II. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:

There were no safety consequences or implications resulting from the events described in this LER. The component actuations were not the result of conditions requiring either system operation. All components operated properly and would have performed to maintain Control Room habitability.

III. CORRECTIVE ACTIONS:

A. Immediate:

As immediate corrective action, both actuations were verified not to be the result of conditions requiring system actuation, actuated



LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

components were verified to operate properly, and components were returned to their normal configuration for the existing plant conditions.

B. Action to Prevent Recurrence:

As corrective action to prevent recurrence for the inadvertent CREFAS, appropriate disciplinary measures have been taken. Additionally, a Human Performance Evaluation System analysis is being performed for the personnel error and further corrective measures will be developed and implemented if necessary. A supplement to this report will be submitted if substantial additional corrective measures are developed.

An independent investigation of the CRVIAS was conducted in accordance with the APS Incident Investigation Program. Based upon the results of this investigation, the following corrective actions were developed.

The work authorization documents for testing BOP ESF manual initiation handswitches have been revised to ensure that the switches are properly isolated from the ESF actuation circuitry and to include appropriate precautionary notes. Additionally, maintenance personnel responsible for testing the handswitches and personnel responsible for preparing the work authorization documents will be provided training regarding appropriate work practices for performing testing on the ESF actuation system handswitches.

IV. PREVIOUS SIMILAR EVENTS:

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

