

NRC Form 366  
(9-83)

U.S. Nuclear Regulatory Commission  
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L I C E N S E E E V E N T R E P O R T ( L E R )

FACILITY NAME (1) Arkansas Nuclear One, Unit One DOCKET NUMBER (2) | PAGE (3)  
| 0 | 5 | 0 | 0 | 0 | 3 | 1 | 3 | 1 | 0 | 0 | 3

TITLE (4) Inadvertent Signals From Radiation and Chlorine Detectors Due to Unknown Causes Result in Automatic Actuations of the Control Room Emergency Ventilation System

EVENT DATE (5)			LER NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
Month	Day	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)	
0	2	4	8	9	0	0	9	ANO, Unit Two	0   5   0   0   0   3   6   8	
0	2	4	8	9	0	0	9		0   5   0   0   0   3   6   8	

OPERATING MODE (9) THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10)	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.36(c)(1)	50.36(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	X	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text, NRC Form 366A)
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LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
Larry A. Taylor, Nuclear Safety and Licensing Specialist	5   0   1   9   6   4   -   1   3   1   0   0

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

SUPPLEMENT REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)	Month	Day	Year
<input checked="" type="checkbox"/> Yes (If yes, complete Expected Submission Date) <input type="checkbox"/> No	0	9	0

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

Between February 24 and March 13, 1989, the Control Room Emergency Ventilation System (CREVS) has unexpectedly automatically started seven times as a result of an initiation signal from a radiation monitor or chlorine concentration detector. Following each start of the CREVS, the radiation monitor or chlorine detector was reset and the CREVS was returned to standby. During these events, the CREVS actuated as designed and no actual high radiation or high chlorine concentration condition existed. The CREVS for the combined Control Rooms consists of two redundant filter trains. In the event of detection of high radiation or high chlorine concentration, the Control Rooms are isolated from the normal ventilation system and the CREVS is automatically actuated. The root cause of these events has not been determined. An evaluation of the CREVS has been initiated to determine the root cause of the inadvertent actuations and to determine the appropriate corrective actions required to reduce the occurrence of future inadvertent actuations. Additionally, the area in the vicinity of the chlorine monitors has been posted to prohibit the use of radios. A supplement to this report will be submitted following the root cause determination of these events.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Arkansas Nuclear One, Unit One	DOCKET NUMBER (2) 01510101013113	LER NUMBER (6)			PAGE (3) 01210F1013
		Year 89--	Sequential Number 009--	Revision Number 00	

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

A. Plant Status

At the time of these events, Arkansas Nuclear One, Unit 1 (ANO-1) was in the Cold Shutdown Operating Condition. Arkansas Nuclear One, Unit 2 (ANO-2) was in Operational Mode 1 (Power Operation) at approximately 100 percent of rated power.

B. Event Description

On February 24, 1989, at approximately 0130, the Control Room Emergency Ventilation System (CREVS) [VI] unexpectedly started during the performance of a monthly surveillance test of the Control Room Emergency Air Conditioning System. Step 2.3 of Auxiliary System Operating Procedure 2104.07, "Control Room Emergency Air Conditioning and Ventilation," Supplement 1, "'A' Control Room Emergency Air Conditioning System Monthly Test," directs the performer to place the hand switches for the Control Room normal ventilation system supply and exhaust isolation dampers in the closed position. While this step was being performed, the indication for the Control Room radiation monitor 2RE-8750-1 spiked high resulting in the automatic actuation of the CREVS. The radiation monitor was reset and the CREVS was returned to standby at 0131.

On February 25, 1989, at approximately 1225, the CREVS unexpectedly started due to an initiation signal from chlorine detector 2CLS-8762-2. Operation of hand held radios in the vicinity of the chlorine detector was observed at the time of the CREVS start. The chlorine detector was reset and the CREVS was returned to standby.

On March 3, 1989, at approximately 1020, the CREVS unexpectedly started during the performance of a monthly surveillance test of the Plant Protection System (PPS) [JC]. Step 8.28.65 of I&C Periodic Test Procedure 2304.37, "Plant Protection System Channel A Test," directs the performer to rotate the Matrix Relay Trip Select switch to the number 2 position. While this step was being performed, the indication for the Control Room radiation monitor 2RE-8750-1 spiked high resulting in the automatic actuation of the CREVS. The radiation monitor was reset and the CREVS was returned to standby. The steps of the procedure involved in this event were repeated; however, the radiation monitor was unaffected.

On March 5, 1989, at approximately 1345, the CREVS unexpectedly started due to an initiation signal from chlorine detectors 2CLS-8762-2 and 2CLS-8763-1. Operation of hand held radios in the vicinity of the chlorine detectors was observed at the time of the automatic start of the CREVS. The chlorine monitors were reset and the CREVS returned to standby at 1350.

On March 6, 1989, at approximately 1525, the CREVS unexpectedly started during the performance of I&C Periodic Test Procedure 2304.06, "Gaseous Process Radiation Monitoring System Calibration." While replacing the drawer containing Penetration Room Ventilation System discharge radiation monitor, 2RE-8845-1, the Control Room radiation monitor 2RE-8750-1 spiked high resulting in the automatic actuation of the CREVS. Radiation monitors 2RE-8845-1 and 2RE-8750-1 are located adjacent to each other in the same cabinet. The radiation monitor was reset and the CREVS was returned to standby at 1544.

On March 8, 1989, at approximately 0015, the CREVS unexpectedly started due to an initiation signal from the ANO-1 Control Room area radiation monitor RE-8001. The observed monitor reading following the actuation was normal. The radiation monitor was reset and the CREVS was returned to standby.

On March 13, 1989, at approximately 1010, the CREVS unexpectedly started during the performance of I&C Periodic Test Procedure 2304.76, "Chlorine Detector Calibration." While reestablishing flow through the normal Control Room ventilation system, the indication for the Control Room radiation monitor 2RE-8750-1 spiked high resulting in the automatic actuation of the CREVS. The radiation monitor was reset and the CREVS was returned to standby.

C. Safety Significance

The CREVS for ANO-1 and ANO-2 combined Control Rooms consists of two redundant filter trains, both of which are located outside the ANO-1 section of the Control Room. Each filter train includes a centrifugal fan, roughing filter, absolute filter, and charcoal absorbent. Filtered outside air is also provided to pressurize the Control Rooms to minimize unfiltered air inleakage into the Control Room under isolated conditions. The CREVS trains are normally isolated from the Control Room by isolation dampers. In the event of detection of high radiation or high chlorine concentration, the normal Control Room air ventilation systems of both ANO-1 and ANO-2 are automatically isolated and the CREVS is automatically actuated.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Arkansas Nuclear One, Unit One		Year	Sequential Number	Revision Number	
	01510101 31 1 31	8 9 --	0 0 9 --	0 0	0101310F1013

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

Two quick acting chlorine detectors (2CLS-8760-2 and 2CLS-8761-1) are provided at the normal ventilation system supply duct for ANO-1 and two detectors (2CLS-8762-2 and 2CLS-8763-1) at the ANO-2 supply air duct. Any one of these detector signals will initiate operation of the CREVS. Additionally, radiation monitors RE-8001, located in the ANO-1 Control Room area, and RE-8750-1, located in the ANO-2 normal outside air intake, are provided to automatically actuate CREVS upon detection of high radiation.

The CREVS maintains Control Room habitability by automatically starting and isolating the normal Control Room ventilation system upon receipt of indications of high radiation or high chlorine concentration. During these events, the system actuated as designed and no actual high radiation or high chlorine concentration condition existed. Therefore, these events had no safety significance.

D. Root Cause

The root cause of these events has not been determined. An evaluation of the actuations is underway to determine the root causes of the inadvertent starts of the CREVS.

E. Basis for Reportability

These events are reportable pursuant to 10CFR50.73(a)(2)(iv), automatic actuation of an Engineered Safety Feature (ESF). Each event was also reported pursuant to 10CFR50.72(b)(2)(ii) as required.

F. Corrective Actions

As a result of these events, an evaluation of the CREVS has been initiated to determine the root cause of the inadvertent actuations and to determine the appropriate corrective actions required to reduce the occurrence of future inadvertent actuations. Additionally, the area in the vicinity of the chlorine monitors has been posted to prohibit the use of radios.

G. Additional Information

A supplement to this report will be submitted following the root cause determination of these events.

No previous similar reportable events have been identified. Prior to occurrence of these events, Arkansas Power & Light Company did not consider automatic starts of the CREVS as reportable under 10CFR50.73(a)(2)(iv), automatic actuations of an ESF. Therefore, previous unplanned actuations of the CREVS, such as the events reported in this LER, were not documented via LERs. However, as a result of recent discussions with the NRC, actuations of the CREVS are being reported in accordance with 10CFR50.72 and 10CFR50.73.

Energy Industry Identification System (EIIIS) codes are identified in the text as [XX].



ARKANSAS POWER & LIGHT COMPANY

March 24, 1989

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U. S. Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, D.C. 2055

SUBJECT: Arkansas Nuclear One - Unit 1  
Docket No. 50-313  
License No. DPR-51  
Licensee Event Report No. 50-313/89-009-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv), attached is the subject report concerning inadvertent signals from radiation and chlorine detectors due to unknown causes resulting in automatic actuations of the Control Room Emergency Ventilation System.

Very truly yours,

*J. M. Levine / JML*

J. M. Levine  
Executive Director,  
Nuclear Operations

JML:DAH:vgh  
attachment

cc w/att: Regional Administrator  
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