



October 30, 1990

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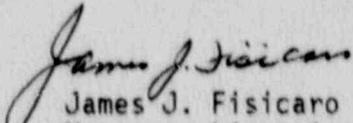
U. S. Nuclear Regulatory Commission
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SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Licensee Event Report No. 50-313/90-011-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv), attached is the subject report concerning the inadvertent actuation of the Control Room Emergency Ventilation System initiated by the tripping of a chlorine monitor which was most likely caused by radio frequency interference.

Very truly yours,


James J. Fisicaro
Manager, Licensing

JJF/RHS/sgw
Attachment

cc: Regional Administrator
Region IV
U. S. Nuclear Regulatory Commission
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit One DOCKET NUMBER (2) | PAGE (3)
 050003 | 1 | 31 OF 03

TITLE (4) Inadvertent Actuation of the Control Room Emergency Ventilation System Initiated
 by a Trip of a Chlorine Monitor Most Likely Caused by Radio Frequency Interference

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	3	0	9	0	9	0	--	0	1	1	--	0	0	1	0	3	0	9	0	AND-2	050003 6 8
0	9	3	0	9	0	9	0	--	0	1	1	--	0	0	1	0	3	0	9	0		050003

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

POWER LEVEL	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)	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)
													<input checked="" type="checkbox"/>								

LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
Richard H. Scheide, Nuclear Safety and Licensing Specialist	Area Code 501964-3100

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

Cause	System	Component	Manufacturer	Reportable to NIPDS	Cause	System	Component	Manufacturer	Reportable to NIPDS

SUPPLEMENT REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)	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) (16)

On September 30, 1990, at approximately 0050, an unexpected actuation of the Control Room Emergency Ventilation System (CREVS) occurred. Investigation into the cause of the actuation revealed that chlorine monitor 2CLS-8762-2 was tripped. However, the immediate cause of the monitor trip could not be positively determined. Since no actual high chlorine condition existed, the monitor was reset and the Control Room ventilation lineup was returned to normal at 0058 hours. The most likely cause of the actuation was radio frequency interference (RFI) caused by the keying of a hand held radio in the vicinity of the monitor. However, the root cause of this event is directly related to system design. The extreme sensitivity of the chlorine monitors coupled with the actuation logic configuration, which requires only one monitor to trip in order to initiate the CREVS, makes the system highly susceptible to inadvertent actuations. Action was initiated to better mark areas in the plant where radio usage is prohibited. Additionally, since the use of chlorine as a biocide in the service water system is being discontinued and replaced with an alternate method, a change will be pursued to remove the chlorine monitors from the Technical Specifications, and if approved, a plant change will be implemented to remove the monitors from the CREVS actuation logic.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						PAGE (3)
		Year	Sequential Number	Revision Number				
Arkansas Nuclear One, Unit One	05000313	90	011	00				02 of 03

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

A. Plant Status

At the time of occurrence of this event, Arkansas Nuclear One, Unit 1 (ANO-1) was operating at approximately 80 percent of rated power. Arkansas Nuclear One, Unit 2 (ANO-2) was at approximately 25 percent of rated power.

B. Event Description

On September 30, 1990, at approximately 0050, an unexpected actuation of the Control Room Emergency Ventilation System (CREVS) [VI] occurred.

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. In addition to recirculation and filtration of Control Room air, filtered outside makeup air is also provided to pressurize the Control Rooms to minimize unfiltered air inleakage into the Control Rooms 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 started. 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 (an area radiation monitor located in the ANO-1 Control Room area) and 2RE-8750-1 (a process radiation monitor located in the ANO-2 normal ventilation system outside air intake ductwork) are provided to automatically actuate CREVS upon detection of high radiation. If either one of these radiation monitors detects radiation levels above predetermined values, the CREVS will be automatically actuated.

Investigation into the cause of the actuation revealed that chlorine monitor 2CLS-8762-2 was tripped. However, the immediate cause of the monitor trip could not be positively determined. Since no actual high chlorine condition existed, the monitor was reset and the Control Room ventilation lineup was returned to normal at 0058 hours.

C. Root Cause

A review of previous actuations of the CREVS which were initiated by tripping of a chlorine monitor and conversation with the chlorine monitor vendor resulted in the determination that the most likely immediate cause of the most recent actuation was radio frequency interference (RFI) caused by the keying of a hand held radio in the vicinity of the monitor. However, the root cause of this event is directly related to system design. The extreme sensitivity of the chlorine monitors coupled with the actuation logic configuration, which requires only one monitor to trip in order to initiate the CREVS, makes the system highly susceptible to inadvertent actuations.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						PAGE (3)
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Arkansas Nuclear One, Unit One	05000313	90	01	1	0	0	03 OF 03	

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

D. Corrective Actions

Due to previous actuations of the CREVS which were initiated by RFI induced tripping of the chlorine monitors, the area in the vicinity of the monitors was already posted to prohibit the use of radios. A memorandum was also issued to inform plant personnel of the effect of RFI on the chlorine monitors and to ensure that they are cognizant of the restriction on the use of radios in the area. However, since these actions were not sufficient to prevent the recurrence of similar events, additional steps will be taken to better mark the areas in the plant where radio usage is prohibited. This action is expected to be completed by March 15, 1991.

As a result of previous inadvertent CREVS actuations, several system enhancements were completed which have significantly reduced the frequency of recurring events (see LER 50-313/89-009-01). Additionally, an engineering evaluation of the system design was initiated to determine if additional corrective actions were necessary. This evaluation, which has been completed, included in its recommendations the removal of the chlorine monitors from the CREVS actuation logic. Since the use of chlorine as a biocide for the service water system is being discontinued and replaced with an alternate method, a change will be pursued to remove the monitors from the Technical Specifications (TS) and, if approved, a plant change will be implemented to remove them from the actuation logic. This TS change is expected to be submitted by March 31, 1991.

E. Safety Significance

Since no actual high chlorine concentration existed, and because the CREVS actuated as designed, there was no safety significance related to this event.

F. Basis For Reportability

This event is considered reportable pursuant to 10 CFR 50.73(a)(2)(IV) as the automatic actuation of an Engineered Safety Features system.

This event was also reported in accordance with 10 CFR 50.72(b)(2)(ii) on September 30, 1990.

G. Additional Information

Previous similar occurrences in which the CREVS was actuated by the spurious tripping of a chlorine monitor were reported in LERs 50-313/89-009-01, 50-313/89-011-00, 50-313/89/035-00, 50-313/89-036-00 and 50-313/89-042-01.

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