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June 14, 2001

1CAN060101

U. S. Nuclear Regulatory Commission Document Control Desk Mail Station OP1-17 Washington, DC 20555

Subject: Arkansas Nuclear One - Unit - 1 Docket No. 50-313 License No, DPR-51 Licensee Event Report 50-313/2001-003-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(v)(D), and 10CFR50.73(a)(2)(vii), enclosed is the subject report concerning Control Room Emergency Ventilation System radiation monitors. The enclosure contains no commitments.

Very truly yours,

Jimmy D. Vandergrift Director, Nuclear Safety

JDV/tfs

enclosure

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 cc: Mr. Ellis W. Merschoff Regional Administrator
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NRC FC	ORM 366			U	.S. NUCLI	EAR REG		RY N	A	PPROVE	BY OMB NO. 3	150-	0104 E	XPIRES	6-30-2001
	LICENSEE EVENT REPORT (LER) LICENSEE EVENT REPORT (LER) Burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Desk Officer, Office of Information and Regulatory Affairs NEOB-10202 (3150-0104), Office of Management and Budget Washington, DC 20503.														
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	On April 17, 2001, the Control Room Emergency Ventilation System (CREVS)														
	dam	pers w	ere clo	osed for mai	Intenar	nce wi	thout	eith	1er	Emerg	ency Venti	ila	tion		
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	been provided to Operations personnel on CREVS, particularly on the relationship between the inlet air monitors and airflow. The resulting														

situation to remain undetected for an extended period of time. The procedure was changed and Operations personnel were informed. Additional procedure enhancements and training for Operations personnel from both units are planned.

knowledge deficiencies affected the procedure revision and allowed the

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U.S. NUCLEAR REGULATORY COMMISSION

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NARRATIVE (17)

A. Plant Status

At the time this condition occurred, Arkansas Nuclear One Unit 1 (ANO-1) and Arkansas Nuclear One Unit 2 (ANO-2) were operating in steady state conditions at 100 percent power.

B. Event Description

Both trains of radiation monitors for the Control Room Emergency Ventilation System (CREVS) [VI] were inoperable due to an inadequate procedure revision.

Upon detection of high radiation or chlorine concentrations, the CREVS for the combined ANO-1 and ANO-2 Control Room (CR) is designed to actuate and isolate the normal ventilation system. This actuation closes dampers on supply and return ducts, except for filtered outside air provided by Emergency Ventilation Supply Fans (designated VSF-9 and 2VSF-9) for pressurization to minimize unfiltered air in-leakage.

At approximately 0505 on April 17, 2001, Control Room ventilation dampers were closed for maintenance on filters. Neither VSF-9 nor 2VSF-9 was operating. This configuration was allowed by the system operating procedure, 2104.007, "Control Room Emergency Air Conditioning and Ventilation." A System Engineer noticed and questioned the acceptability of this line up. The Control Room Ventilation System was restored to normal at approximately 1925 on April 17. On April 18, 2001, a condition report was originated to document and evaluate the condition. The initial evaluation concluded that the configuration was acceptable based on the system design, the configuration being allowed by procedure, and the capability to start the fans manually if required. However, on April 26, 2001, an engineering evaluation determined that the radiation monitors were significantly degraded and inoperable without airflow representative of the activity entering the Control Room.

C. Root Cause

Procedure 2104.007 was revised in February 1992 to add a statement; "The operability of the radiation monitors, chlorine detectors, and smoke detectors is NOT affected by placing the Control Rooms on Emergency Recirculation by this section." The procedure required starting VSF-9 or 2VSF-9 when operating in the recirculation mode. The purpose of this change appears to have been to provide a statement of the accepted practice. A revision to the procedure (Revision 17) in January 1996 changed the NRC FORM 366A (1-2001)

NRC FORM 366A (1-2001)	U.S. NUCLEAR REGULATORY COMMISSION							
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wording of the statement to, "The operability of the radiation monitors, chlorine detectors, and smoke detectors is NOT affected by isolating the Control Room." The note then incorrectly implied that Control Room isolation did not affect operability of the air intake monitors. This re-wording was considered to be an enhancement and not an intent change.

In the mid-1990s, reliability problems were being experienced To monitor with Control Room Emergency Chillers (2VE-1A and B). for degraded performance, tasks were initiated to run each The tasks required the chillers to be run under chiller weekly. load but did not require the Control Room Ventilation System to be placed in the emergency recirculation mode. In February 1996, a change to procedure 2104.007 was recommended. The recommendation was to isolate Control Room ventilation without starting the Emergency Ventilation Supply Fans in order to reduce the effort required to perform the tasks, minimize run time of safety-related equipment, and reduce noise in the Control Rooms In September 1996, this recommendation was during the testing. incorporated by Revision 18 to procedure 2104.007. The originator and reviewers of the procedure revision did not recognize the consequences of this change. The incorrect note from Revision 17 specifically stating that the monitors were operable with the dampers closed influenced the decision that Revision 18 was not an intent change requiring Engineering review.

The root cause of this condition was deficient training that has been provided on the Control Room Ventilation System, particularly on the relationship between the air monitors and ventilation airflow isolation. This resulted in Operations personnel having knowledge deficiencies that affected the inadequate procedure revision and allowed the condition to remain undetected for an extended period of time.

D. Corrective Actions

On April 19, 2001, procedure 2104.007 was revised to prohibit isolating ventilation to the Control Rooms without starting one of the Emergency Ventilation Supply Fans. Additional enhancements to the procedure are planned.

As a short-term action, a night order was issued to Operations personnel to inform them of this condition. During the next training cycle, training will be provided for personnel from the Operations Departments of both units to review this condition and to improve their understanding of the relationship between the air monitors and isolation of Control Room ventilation.

NRC FORM 366A (1-2001)

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E. Safety Significance

The present evaluations of radiation dose to Control Room personnel are predicated upon Control Room isolation and pressurization within ten seconds of a radiation signal. Implicit in that evaluation is the assumption that the monitors are located in the intake ducts and the activity sensed by the detectors is representative of air entering the Control Room. Shine from airborne activity outside the ventilation ducts might cause these detectors to initiate a CREVS actuation and start VSF-9 and 2VSF-9 after an accident; however, this could occur at higher activity levels and be delayed in time beyond existing analyzed parameters.

Previous experience indicates that detector sensitivity could result in CREVS actuation before reaching significant personnel exposure levels. Licensee Event Report (LER) 50-313/98-002-00 (ANO letter 1CAN069801) dated June 1, 1998, documented a CREVS actuation from a filtration/vacuum assembly measuring 20 millirem/hour at one foot that was located in the Spent Fuel [DA] area approximately 20 feet from the radiation monitor. Also, in LER 50-313/1999-001-00 (ANO letter 1CAN069903) dated June 21, 1999, it was documented that a CREVS actuation resulted from a filter measuring 45.4 millirem/hour at 30 centimeters and was located approximately 26 feet from another radiation monitor.

Although not credited, there is a radiation detector located in the ANO-1 section of the Control room that will automatically start VSF-9 and provide Control Room pressurization if its setpoint is reached. This detector is normally in service and was operable during the April 17 condition. Furthermore, actual values of fuel leakage and containment leakage during previous periods when the non-conforming CREVS configuration existed were significantly below those assumed in the dose calculations.

Therefore, the overall potential safety significance of this condition was minimal. There was no actual impact on the public health and safety due to this condition.

F. Basis for Reportability

The ANO-1 Technical Specifications (TS) Table 3.5.1-1 and ANO-2 TS Table 3.3-6 state that with both channels of CREVS radiation monitors inoperable within one hour CREVS must be placed in the recirculation mode of operation. This requires closure of the isolation dampers and starting one of the Emergency Ventilation Supply Fans. Not having complied with these provisions constitutes operation prohibited by TS. This condition is being NRC FORM 386A (1-2001)

NRC FORM	366A
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reported in accordance with 10CFR50.73(a)(2)(i)(B). Compliance with ANO-1 TS requirements was not affected by this condition until May 2000 following a modification to add radiation monitors to the inlet duct.

This condition is also being reported in accordance with 10CFR50.73(a)(2)(v)(D) as a condition that could have prevented the fulfillment of a safety function of a system that is needed to mitigate the consequences of an accident. A report was not made in accordance with 10CFR50.72(b)(3)(v) because the radiation monitors were operable at the time it was discovered that the function could have been prevented.

This condition is also being reported in accordance with 10CFR50.73(a)(2)(vii) as a common cause resulting in two independent channels becoming inoperable in a single system.

G. Additional Information

The functionality of the chlorine monitors that provide a CREVS actuation signal was also affected by this condition. These monitors provide no required safety function and their operability is not required by Technical Specifications; therefore, there are no applicable reporting requirements for their having been non-functional. Operability requirements for the chlorine monitors were re-located to the Technical Requirements Manual from Technical Specifications in 1998.

There have been no previous similar conditions reported by ANO as Licensee Event Reports.

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