

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Sequoyah, Unit 1** DOCKET NUMBER (2) **0 5 0 0 0 3 2 7** PAGE (3) **1 OF 0 5**

TITLE (4) **Control Room Emergency Ventilation System Inoperable Because Of Closure of Tornado Dampers**

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)		
03	20	89	89	008	00	04	13	89	Sequoyah, Unit 2	0 5 0 0 0 3 2 8		
										0 5 0 0 0		

OPERATING MODE (9) **1** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	XX 50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	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)(ii)	50.73(a)(2)(viii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
M. L. Green, Plant Reporting Section	6 1 5 8 4 3 - 7 0 4 6

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

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On March 20, 1989, at 1450 EST, with unit 1 in mode 1 and unit 2 in mode 5, both trains of the control room emergency ventilation system (CREVS) were declared inoperable and it was discovered that Limiting Condition for Operations (LCO) 3.0.3 had been inadvertently entered earlier in the day at 0820 EST as a result of tornado dampers that isolate fresh air intake to the main control room (MCR) having been closed. The dampers were closed to support replacement of smoke detectors. This condition could result in the loss of suction flow path from the outside atmosphere to the control building emergency pressurizing fans, if required upon receipt of an accident signal. Loss of suction to the pressurization fans could preclude the system from performing its design function to maintain the MCR habitability area at greater than or equal to 0.125 inch positive static pressure during accident periods. The cause of this event is attributed to an incomplete evaluation of the effect of closing the tornado dampers by a licensed operator. Immediate corrective actions, upon discovery of this condition, were to open the tornado dampers and exit LCO 3.0.3. Both trains of CREVS were returned to operable status at 1451 EST, on March 20, 1989. In addition to the disciplinary action taken, long-term corrective actions include, reviewing this event with Operations personnel emphasizing the need to do a thorough review of all available drawings and information and to consider the need to replan work instructions before deciding to operate equipment, replacing an ineffective placard on the containment/auxiliary (C/A) vent board 1A1 with one that more adequately details the consequences of closing the tornado dampers, and revising SOI-30.7, "On Site Electrical Power Systems Board Rooms Heating, Venting, Cooling" and SOI-30.1, "Control Building and Control Room Heating, Air Conditioning and Ventilation Systems" to include warnings about the effects on the CREVS when the tornado dampers are closed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7	LER NUMBER (6)						PAGE (3)		
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER		2	OF	5	
		8 9	0 0 8		0 0 0					

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

DESCRIPTION OF EVENT

At approximately 1450 EST, on March 20, 1989, with unit 1 in mode 1 (100-percent power, 2235 psig, and 577 degrees F) and unit 2 in mode 5 (0-percent power, 0 psig, and 133 degrees F), both trains of control room emergency ventilation system (CREVS) (EIS Code VI) were declared inoperable when it was discovered that tornado dampers that isolated the fresh air intake to the main control room (MCR) were closed. The CREVS is a common system serving both units 1 and 2. It is designed to function during an accident to maintain ambient temperature and to reduce radiation exposure to personnel in the MCR.

On the morning of March 20, 1989, two electricians were replacing smoke detectors O-XS-31A-3 and -4. This work was being performed in accordance with Work Request (WR)-B795168. These smoke detectors are located in the ducts that supply suction to the control building pressurizing fans. The electricians had problems working on the smoke detectors because of high air flow through the ducts. They asked the unit 1 senior reactor operator (SRO), if he could reduce the air flow through the ducts. The SRO referred to TVA flow print 47W866-4 and concluded that if he closed tornado dampers FCO-31A-180A and FCO-31A-180B, he could isolate suction through the duct. The SRO then went to handswitch O-HS-31A-180A on panel 1-M-9 in the MCR to isolate the dampers. A label above the handswitch indicated it was powered from the containment/auxiliary (C/A) vent board 1A1. The SRO went to the board room and located the tornado damper control transformer. There was a placard on the door stating, "Breaker Normally Open Per SOI 30.7, Reference SCR SQN EEB86136." The SRO reviewed System Operating Instructions (SOI) 30.7, "Onsite Electrical Power Systems Board Rooms Heating, Venting, Cooling," and found no information related to the dampers he wanted to close. He then referred to SOI 30.1, "Control Building and Control Room Heating, Air Conditioning and Ventilation Systems." This SOI indicated that the normal breaker position was open. The SRO, based on the fact that he found no warnings in the procedures concerning the breaker, decided to close it so he could manipulate the handswitch (O-HS-31A-180A) that closed the tornado dampers. The SRO did not reference Significant Condition Report (SCR) SQN EEB 86136. He stated that he did not know what a SCR was and therefore did not obtain a copy.

SCR SQN EEB 86136 is a design document that had previously been used to report a condition adverse to quality (CAQ). This SCR indicated that a single failure of either HS-31A-180A or HS-31A-180B could cause the total isolation and disability of the redundant control building pressurization systems by closing tornado dampers. The corrective action for this CAQ was to disable power for damper controls by removing power to the handswitches and revising the appropriate procedures to ensure that power is restored when manual isolation of tornado dampers is required. This condition was reported to NRC on SQRO-50-327/86057.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7 8 9 - 0 0 8 - 0 0 0 3 OF 0 5	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

At approximately 0820 EST, the Unit 1 SRO closed the tornado dampers. The electricians reported back to the SRO that their work environment had improved and they would proceed with replacing the smoke detectors. At approximately 1030 EST, the shift operations supervisor (SOS) questioned the Unit 1 unit operator (UO) about why air was whistling around the control room doors. The UO told him the Unit 1 SRO had closed a couple of tornado dampers to facilitate work on the smoke detectors. At approximately 1430 EST, the UO's work load decreased and he decided to check the control room ventilation system using flow and electrical prints. At 1440 EST, the UO approached the Unit 1 SRO asking whether the suction to the emergency pressurizing fans was isolated.

The UO and Unit 1 SRO reviewed the drawings and procedures, and at 1445 EST informed the SOS that the unit had inadvertently entered LCO 3.0.3 when the tornado dampers were closed. The SOS looked at the prints, and at 1450 EST, unit 1 entered LCO 3.0.3 and unit 2 entered 3.7.7. The Unit 1 SRO immediately verified that the electricians were clear, and opened the tornado dampers. The Unit 1 SRO then removed power from the handswitch, by opening the breaker, and LCO 3.0.3 and 3.7.7 were exited.

Upon verification that the CREVS had been rendered inoperable from 0820 to 1450 the Nuclear Regulatory Commission (NRC) was notified at 1638 EST, in accordance with 10 CFR 50.72, paragraph b.2.iii.

CAUSE OF EVENT

The cause of the condition described in this report, is attributed to a personnel error. The licensed individual involved failed to perform an adequate evaluation of all information available before closing the tornado dampers. He also failed to recognize the fact that the work request needed to be replanned before the tornado dampers were closed. A contributing cause of the event was attributed to inadequate operation aids to warn of the affects of closing the tornado dampers. The placard and procedures involved in this event did not contain warnings that stated the effect on CREVS if the tornado dampers are closed.

ANALYSIS OF EVENT

This event is being reported in accordance with 10 CFR 50.73, paragraph a.2.v, as a condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

The CREVS is designed such that during an accident, (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating of the equipment and instrumentation located within the main control room habitability zone (MCRHZ) and (2) the radiation exposure to personnel occupying the MCRHZ will remain within the guidelines of General Design Criteria (GDC)-19 as specified in Appendix A to 10 CFR 50.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7 8 9 - 0 0 8 - 0 0 0 4 OF 0 5	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

If an accident had occurred that resulted in large radiological releases, this first criteria would have been met as the air condition portion of CREVS would not have been substantially affected. The second criteria may not have been met and would have been dependent upon the amount of inleakage past the tornado dampers. In addition, the use of a more realistic source term would substantially reduce the predicted exposure during the design basis accident. Following an incident with a credible control room isolation and with the tornado dampers closed the area radiation monitors and low pressurizing fan flow alarms would alert the operator to the condition, and the tornado dampers could be opened either manually or with the handswitch.

CORRECTIVE ACTION

Immediate corrective actions were to open the tornado dampers, remove power from handswitch (HS-31A-180A), and exit LCO 3.0.3 and LCO 3.7.7. Technical Specification LCO 3.7.7 requires both trains of the CREVS to be operable in modes 1 through 4, and the action statement does not give provisions for both trains of the CREVS being inoperable. Since unit 1 was in mode 1 at the time of discovery, unit 1 complied with the action of LCO 3.0.3. Since unit 2 was in mode 5 at the time of discovery, it complied with the action of LCO 3.7.7. In addition to the disciplinary action taken, long-term corrective actions include the following:

Operations personnel will receive a training letter by May 12, 1989, and review this event in requalification training by August 10, 1989. The placard will be revised by April 28, 1989, and procedures involved will be revised by May 15, 1989, to include warnings about the effects on the CREVS when the tornado dampers are closed.

ADDITIONAL INFORMATION

There have been no previous reports of tornado dampers causing CREVS to be inoperable. There have been three previous reports of conditions affecting both trsins of CREVS.

1. SQRO-50-327/86057 relating to single failure potentially causing tornado dampers to close.
2. SQRO-50-327/87039 relating to single failure critieria violated during design of CREVS.
3. SQRO-50-327/88011 relating to diesel testing resulting in both trains of CREVS being inoperable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	- 0 0 8	- 0 0	0 5	OF 0 5

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

COMMITMENTS

1. Review this event with Operations personnel by training letter (due May 12, 1989).
2. Review this event with Operations personnel during requalification training (due August 8, 1989).
3. Revise SOI-30.1 and SOI-30.7 to include warnings about the effects of closing the tornado dampers (due May 15, 1989).
4. Update the placard to include a warning about the effects of closing the tornado dampers (due April 28, 1989).

0530Y

TENNESSEE VALLEY AUTHORITY

Sequoyah Nuclear Plant
Post Office Box 2000
Soddy-Daisy, TN 37379

April 13, 1989

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 1 - DOCKET NO
50-327 - FACILITY OPERATING LICENSE DPR-77 LICENSEE EVENT REPORT (LER)
50-327/89008

The enclosed licensee event report provides information concerning an event
in which the control room emergency ventilation system was inoperable due to
personnel error in closing tornado dampers. This event is being reported in
accordance with 10 CFR 50.73, paragraph a.2.v.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


S. L. Smith
Plant Manager

Enclosure
cc (Enclosure):

J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323

Records Center
Institute of Nuclear Power Operations
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Inspector, Sequoyah Nuclear Plant

IE22
1/1