

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

John A. Bailey  
Vice President  
Operations

October 3, 1991

NO 91-027A

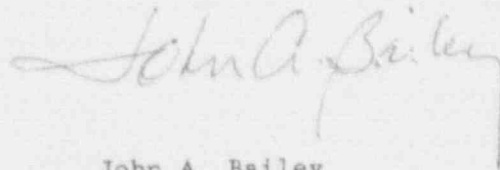
U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 91-016-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73 (a) (2) (i), and 50.73(a)(2)(vii) concerning a Technical Specification violation that caused two independent trains of a system to be inoperable.

Very truly yours,



John A. Bailey  
Vice President  
Operations

JAB/aem

Attachment

cc: L. L. Gundrum (NRC), w/a  
A. T. Howell (NRC), w/a  
R. D. Martin (NRC), w/a  
W. D. Reckley (NRC), w/a

9110100036 211003  
PDR ADOCK 05000482  
S PDR

070040

IE22  
1/1

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Wolf Creek Generating Station** DOCKET NUMBER (2) **0 5 0 0 0 4 8 2 1** OF **0 1 8** PAGE (3)

TITLE (4) **Technical Specification Violation - Removal of Ductwork Damper Inspection Covers Results in Inoperability of Ventilation Systems**

EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	DOCKET NUMBER (5)		
09	09	91	91	016	00	10	03	91	0 5 0 0 0		
									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)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
<b>Merlin G. Williams - Manager Plant Support</b>	<b>3 1 6 3 6 4 - 8 8 3 1</b>
AREA CODE	

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

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 September 10, 1991, at approximately 0845 CDT, it was discovered that five (5) of the Control Building Heating, Ventilation and Air Conditioning System (HVAC) ductwork damper inspection covers had not been reinstalled since the initiation of preventive maintenance activities on September 9, 1991, at approximately 0830 CDT. Subsequent testing of the Control Room Emergency Ventilation System (CREVS) and the Auxiliary Building Emergency Exhaust System (EES) determined that with these ductwork damper inspection covers removed, neither train of these systems were capable of maintaining the pressure requirements independently as required by Technical Specifications.

The root cause of this event is inadequate work controls. The work instructions did not provide directions for the sequential removal and reinstallation of the ductwork damper inspection covers. A procedure will replace the work instructions used in the past for performing maintenance on ventilation dampers. A review of work package instructions will be conducted and instructions revised where necessary to strengthen the restoration instructions.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Wolf Creek Generating Station	0500048291	-	016	-	00	02 of 08

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

**INTRODUCTION**

On September 10, 1991, at approximately 0845 CDT, it was discovered that five (5) of the Control Building Heating, Ventilation and Air Conditioning System (HVAC) [VI] ductwork damper inspection covers had not been reinstalled since the initiation of preventive maintenance (PM) activities on September 9, 1991, at approximately 0830 CDT. Subsequent testing of the Control Room Emergency Ventilation System (CREVS) [VI] and the Auxiliary Building Emergency Exhaust System (EES) [VF] determined that with these ductwork damper inspection covers removed, neither of these systems were capable of maintaining the pressure requirements independently as required by Technical Specifications (T/S) 3.7.6 and 3.7.7. Because this condition caused both trains of these systems to be inoperable, this condition should have resulted in entry into T/S 3.0.3. Therefore, this event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by T/S. Additionally, because the Auxiliary Building EES is designed to control the release of radioactivity, this condition is also being reported in accordance with 10 CFR 50.73(a)(2)(vii).

**DESCRIPTION OF EVENTS**

On September 9, 1991, at approximately 0435 CDT, Control room operators placed CREVS Train 'A' in recirculation mode and secured the Control Building HVAC normal supply and exhaust system [VI] in preparation for an annual PM for inspection and maintenance activities. The plant was in Mode 1, Power Operation, at approximately 86 percent rated thermal power. Because the Control Building HVAC normal supply fan provides air flow for the Control Room Radiation Monitors GKRE04 and GKRE05 [IL-MON] and Chlorine Monitors GKAIT02 and GKAIT03 [VI-AIT], these monitors are considered inoperable while the fan is secured. Therefore, CREVS Train 'A' was placed in recirculation mode in compliance with the applicable Technical Specification Action Statements for operation while these monitors are inoperable.

Subsequently, at approximately 0830 CDT, the scheduled inspection and maintenance activities were initiated. The inspection activities to be performed included the following seven Control Building isolation dampers [VI-DMP]:

1. GKD002 - Control Building supply air unit discharge isolation damper
2. GKD128 - Control Building supply air downstream isolation damper
3. GKD129 - Control Building supply air inlet upstream isolation damper
4. GKD279 - Control Building supply air unit to Control Room discharge isolation damper

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Wolf Creek Generating Station	051000482	91	016	00	03	OF 08

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

5. GKD300 - Control Building supply air unit discharge isolation damper
6. GKD309 - Control Building supply air unit discharge isolation damper
7. GKD310 - Control Building supply air unit discharge isolation damper

For this inspection activity, the ductwork damper inspection covers nearest to these dampers were removed to allow access to the dampers for visual inspection.

On September 9, 1991, at approximately 2015 CDT, the scheduled inspection and maintenance activities were completed. At approximately 2345 CDT, Control Room operators restored the Control Building Ventilation system to its normal configuration in accordance with plant procedures and Radiation Monitors GKRE04 and GKRE05 and Chlorine Monitors CKAIT02 and GKAIT03 were declared operable.

On September 10, 1991, at approximately 0845 CDT, an Electrical Maintenance worker who was verifying completion of the previous day's damper inspection activities discovered that five of the ductwork damper inspection covers had not been restored and contacted the Control Room operators. Upon notification, Control Room operators requested immediate restoration of the covers and requested an evaluation of the effect of the removed covers on the CREVS operability. Electrical Maintenance personnel then installed the five ductwork damper inspection covers, completing the replacement of the covers for Dampers GKD002, GKD279, GKD300, GKD309 and GKD310 at approximately 0857 CDT.

Subsequently, it was determined that a pressure test would have to be performed with the five ductwork damper inspection covers removed to show conclusively that the CREVS' excess capabilities were adequate to maintain the pressurization requirement of the system in this configuration. In part, the CREVS ensures that the Control Room will remain habitable for Operations personnel during and following all credible accident conditions. Technical Specification 3.7.6, which is applicable in all modes, requires two independent CREVS trains to be operable. For Mode 1, Power Operation, through Mode 4, Hot Shutdown, with one CREVS train inoperable, T/S 3.7.6 requires restoration of the inoperable train to operable status within seven days or be in at least Hot Standby within the next six hours and Cold Shutdown within the following 30 hours. T/S Surveillance Requirement 4.7.6.e.3 requires demonstrating operability of the CREVS at least once per 18 months by verifying that each train maintains the Control Room at a positive pressure of greater than or equal to one-quarter inch Water Gauge relative to the outside atmosphere during its operation. During the emergency mode of operation, the

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Wolf Creek Generating Station	0 5 0 0 0 4 8 2 9 1	-	0 1 6	-	0 0 0 4 of 0 8

TEXT (If more space is required, use additional NRC Form 386A's) (17)

Control Room is maintained at this positive pressure to prevent infiltration from surrounding areas. The CREVS initiates filtered ventilation of the Control Room following receipt of an actuation signal. On September 13, 1991, a pressure test with the five ductwork damper inspection covers removed was conducted. Dedicated personnel under direct authority of the Control Room were stationed at the inspection covers for the duration of the test so that the inspection covers could be reinstalled thus restoring the system to its normal configuration if so instructed. The pressure test showed that with the five covers removed CREVS Train 'A' could not meet this T/S requirement for pressurization. Evaluation of the pressure test results and the location of the removed ductwork damper inspection covers by engineering personnel concluded that similar results would be expected for the CREVS Train 'B'. Therefore, it was concluded that with the five ductwork damper inspection covers removed, both trains of the CREVS were inoperable. Because T/S 3.7.6 does not contain an action statement for both CREVS trains inoperable, this condition should have resulted in entry into T/S 3.0.3.

Additionally, the pressure test conducted on September 13, 1991, showed that with the five ductwork damper inspection covers removed, the Auxiliary Building EES' Train 'A' excess capabilities were not adequate to maintain the pressurization requirement of the system. In part, the Auxiliary Building EES ensures that any radioactive materials leaking from the Emergency Core Cooling System [JE] equipment within the Auxiliary Building following a loss of coolant accident are filtered prior to reaching the environment. Technical Specification 3.7.7, which is applicable in Mode 1 through Mode 4, requires that two independent Emergency Exhaust trains to be operable. With one EES train inoperable, T/S 3.7.7 requires restoration of the inoperable train to operable status within seven days or be in at least Hot Standby within the next six hours and Cold Shutdown within the following 30 hours. The T/S Surveillance Requirement 4.7.7.b.1 requires demonstrating operability of the EES at least once per 18 months by verifying that each train maintains the Auxiliary Building at a negative pressure of greater than or equal to one-quarter inch Water Gauge relative to the outside atmosphere during its operation. As with the CREVS, evaluation of the pressure test results and the location of the removed ductwork damper inspection covers by engineering personnel concluded that similar results would be expected for the Auxiliary Building EES Train 'B'. Therefore, it was concluded that with the five ductwork damper inspection covers removed, both trains of the Auxiliary Building EES were inoperable. Because T/S 3.7.7 does not contain an action statement for both Auxiliary Building EES trains inoperable, this condition also should have resulted in entry into T/S 3.0.3.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	PAGE	OF
Wolf Creek Generating Station	0   5   0   0   0   4   8   7   9   1	-	0   1   6	-	0   0	0   5   of   0   8

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

**ROOT CAUSE AND CORRECTIVE ACTIONS**

The root cause of this event is inadequate work controls. The work instructions did not provide directions for the sequential removal and reinstallation of the ductwork damper inspection covers during the PM activities. Therefore, the Control Room operators were unaware that the inspection activity required the opening of the covers and therefore, did not recognize the effect on the CREVS and Auxiliary Building EES operability. When work activities are being performed which breach the ventilation systems' pressure boundaries, Control Room operators assign dedicated personnel who can restore the pressure boundary in the event plant conditions warrant such actions. Because the Control Room operators were unaware that the covers were to be removed, they did not assign dedicated personnel for boundary restoration. The work instructions specified the method to be used for cycling the dampers. Because the normal exhaust fan and the dampers to be cycled were tagged out under the same clearance order, cycling of the dampers could not be accomplished without a change to the clearance order. It was decided to pull the clearance order and then cycle the dampers. The Electrical Maintenance workers discussed this work planning problem with the on-coming Electrical Maintenance crew during shift turnover but failed to inform the on-coming Electrical Maintenance crew that the covers for these 5 dampers had not been reinstalled. Therefore, the shift turnover failed to correctly relate the status of the work activity in progress. Additionally, the work instructions did not identify any limitations for working with the covers removed or any provisions to reinstall the covers. This resulted in Electrical Maintenance personnel having removed the inspection covers for the five dampers at the same time without adequate controls for maintaining the ventilation systems' operability. The review of the work instructions prior to the performance of the maintenance activities did not identify and correct these deficiencies. As a preventive maintenance activity, the work instructions were generated each time the activity was to be performed. Because the activity had been performed in the past, it is believed the review was not adequately detailed to recognize the deficiencies.

To prevent recurrence of this event, a procedure which was under development will provide appropriate details and will replace the work instructions used in the past for performing maintenance on ventilation dampers. This procedure will include a caution to ensure workers are aware that their activities may effect operability of the ventilation systems and a requirement to maintain adequate controls to ensure equipment operability while the work activities

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)  Wolf Creek Generating Station	DOCKET NUMBER (2)  0   5   0   0   0   4   8   2   9   1	LER NUMBER (6)	PAGE (3)						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">YEAR</th> <th style="width: 10%;">SEQUENTIAL NUMBER</th> <th style="width: 10%;">REVISION NUMBER</th> </tr> <tr> <td style="text-align: center;">-</td> <td style="text-align: center;">0   1   6</td> <td style="text-align: center;">-</td> </tr> </table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	-	0   1   6	-	0   6   0   6   0   8
YEAR	SEQUENTIAL NUMBER	REVISION NUMBER							
-	0   1   6	-							

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

are in progress. This procedure will go through the full procedure review cycle to ensure any deficiencies are identified and corrected prior to approval for use. This procedure will be completed by January 13, 1992. Operations personnel have revised the clearance orders for tagging out the fans separately from the dampers for this type of work activity. This will allow the workers to more easily complete cycling of dampers following damper inspection. Following the completion of the current refueling outage, a review of work package instructions will be initiated and instructions will be revised where necessary to strengthen the restoration instructions. This review and instruction revision will be completed by December 31, 1992. As an interim measure, a checklist has been developed for Maintenance personnel's use in system restoration to ensure equipment is restored to its proper configuration prior to signing off that the work is complete. To ensure that the workers are aware of the status of equipment that is being worked on, discussions were held with Electrical Maintenance personnel to stress the importance of proper shift turnover.

**ADDITIONAL INFORMATION**

Following the September 13, 1991 pressure test, the previous performances of this inspection and maintenance activity were reviewed in an effort to determine whether or not operability of the CREVS and/or Auxiliary Building EES had been previously adversely effected. This review was inconclusive as to whether or not the same methodology had been used in the past. Therefore, discussions with Electrical Maintenance personnel who had previously performed this activity were conducted. From these discussions, it is believed that the pressure boundaries for the CREVS and Auxiliary Building EES were maintained through the use of dedicated personnel during the previous performances.

Although the pressure test that was conducted on September 13, 1991, has shown that both trains of the CREVS and both trains of the Auxiliary Building EES were not capable of satisfying the Technical Specification operability requirements with the five ductwork damper inspection covers open, evaluation concludes that had actuation of the CREVS and/or Auxiliary Building EES occurred, both trains of these systems were available to respond thereby providing the capability to pressurize the Control Room and/or Auxiliary Building as required. Because both trains were available had an actuation occurred, the locations of the five removed ductwork damper inspection covers would have been isolated by the associated isolation damper (See Figure 1, "Leak Paths Between The Auxiliary Building And Control Room Pressure Boundary"). Therefore, at no time did conditions develop that may have posed a threat to the health and safety of the public. There was no damage to plant equipment or release of radioactivity as a result of this event.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	9 1	- 0 1 6	- 0 0	0 7	of 0 8

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

Because there have been several previous occurrences in which the pressure boundaries for various ventilation systems have been breached, it is believed that the Control Room operators would have recognized the effect of removing the covers on the pressure boundary had they been aware that the covers were to be removed during this activity. Licensee Event Report (LER) 90-010-00 concerns an event in which personnel were unaware that removal of the inspection access door during troubleshooting activities rendered the associated equipment inoperable and part of the corrective actions taken as a result of this event included conveying the fact the access doors must be installed in order to ensure operability of room coolers throughout the plant. The additional corrective actions taken in response to LER 90-010-00 were specific to communications between Maintenance and the Shift Supervisor prior to troubleshooting. Because this corrective action was specific to the event, it was unsuccessful in preventing this event's occurrence.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)
		YEAR	SEQUENTIAL NO. / ESR	REVISION NUMBER	
Wolf Creek Generating Station	0 5 0 0 0 4 8 2 9 3	0 1 6	0 0	0 8	of 0 8

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

FIGURE 1

LEAK PATHS BETWEEN THE AUXILIARY BUILDING  
AND CONTROL ROOM PRESSURE BOUNDARY

