

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Wolf Creek Generating Station	DOCKET NUMBER (2) 0 5 0 0 0 4 1 8 2	PAGE (3) 1 OF 0 3
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TITLE (4)  
Engineered Safety Features Actuation Due To Power Supply Failure

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 3	2 7	8 6	8 6	0 1	6	0 4	2 5	8 6			0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)										
POWER LEVEL (10) 1 1 0 0	20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 80.73(a)(2)(iv)			73.71(b)	
	20.405(a)(1)(i)			80.36(e)(1)			<input type="checkbox"/> 80.73(a)(2)(v)			73.71(c)	
	20.405(a)(1)(ii)			80.36(e)(2)			<input type="checkbox"/> 80.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 385A)	
	20.405(a)(1)(iii)			80.73(a)(2)(i)			<input type="checkbox"/> 80.73(a)(2)(vii)(A)				
	20.405(a)(1)(iv)			80.73(a)(2)(ii)			<input type="checkbox"/> 80.73(a)(2)(vii)(B)				
	20.405(a)(1)(v)			80.73(a)(2)(iii)			<input type="checkbox"/> 80.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Merlin G. Williams - Superintendent of Regulatory, Quality and Administrative Services		AREA CODE 3 1 6	3 1 6 4 1 - 1 8 1 3 1 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	J E	J X	X 9 9 9	N					

SUPPLEMENTAL 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 March 27, 1986, at 1813 CST, a Control Room Ventilation Isolation Signal (CRVIS), Containment Purge Isolation Signal (CPIS), and Fuel Building Isolation Signal (FBIS) occurred as a result of a malfunction in the -15 volt power supply to the bistables in Engineered Safety Features (ESF) Actuation System Cabinet SA036D. All required ESF equipment responded properly.

During subsequent troubleshooting, an unnecessary Auxiliary Feedwater Actuation, Steam Generator Blowdown and Sample Isolation, and switchover of Auxiliary Feedwater suction to the Essential Service Water System, starting Essential Service Water Pump "A", occurred at 2030 CST. These systems were restored to normal configuration by 2045 CST.

The -15 volt power supply was replaced at 1620 CST on March 28, 1986, and the CRVIS, CPIS, and FBIS were reset at 1630 CST. The root cause for the power supply failure could not be determined during subsequent inspections. A procedure is being developed to specify the proper sequence of actions to be performed when troubleshooting the ESF cabinets to prevent unnecessary ESF actuations.

During the time period of these events, the unit was operating in Mode 1, Power Operation, at 100 percent Reactor power. There was no damage to plant equipment or release of radioactivity as a result of this event, and at no time did conditions develop that may have posed a threat to the health or safety of the public. A previous similar occurrence is discussed in Licensee Event Report 85-076-00 (failure to block all necessary signals to prevent ESF Actuation).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		- 0   1   6	- 0   0	0   2	OF	0   3

TEXT (if more space is required, use additional NRC Form 388A's) (17)

On March 27, 1986, at 1813 CST, a Control Room Ventilation Isolation Signal (CRVIS), Containment Purge Isolation Signal (CPIS), and Fuel Building Isolation Signal (FBVIS) occurred. All required Engineered Safety Features equipment responded properly. After ensuring that these signals were not the result of an actual plant condition, the Control Room operators contacted Instrumentation and Control (I&C) to perform troubleshooting.

During the initial troubleshooting efforts, it was determined that the Separation Group I process monitoring bistables in the Engineered Safety Features (ESF) cabinet SA036D [JE-CAB] were in the tripped position and that the lamp indicating -15 volt power supply available was not illuminated. It was decided to check the power supply fuses. After a review of the applicable drawings, the I&C technicians concluded that the fuses labeled 15 volt supply and return should be inspected first. The operators blocked the cross-train actuation signals, believing that this action would prevent an unnecessary Auxiliary Feedwater Actuation while the fuse inspections were in progress.

The 15 volt fuse was then removed, inspected, and found to be functioning properly. When the fuse was reinstalled at 2030 CST, an Auxiliary Feedwater Actuation and Steam Generator Blowdown and Sample Isolation occurred. In addition, an Auxiliary Feedwater low pressure suction switchover to the Essential Service Water System occurred, which automatically started Essential Service Water Pump "A" [BI-P]. The Control Room operators were aware that inadvertent actuation was possible, and secured the Auxiliary Feedwater Pumps [BA-P] and "A" Essential Service Water Pump shortly thereafter and re-established Steam Generator Blowdown at 2045 CST.

This series of actuations occurred because the fuse which was removed powered the 15 volt logic power supply. When this fuse was reinstalled after being inspected, since the 48 volt relay power supply had not been de-energized, the logic coincidence was satisfied to initiate an Auxiliary Feedwater Actuation, Steam Generator Blowdown and Sample Isolation, and low suction pressure switchover.

At this time, it was decided to postpone further troubleshooting of the -15 volt power supply until the following day when additional I&C personnel were available. Because the -15 volt power supply supplies power only to the bistables, the actuation and logic circuits for the protection functions were unaffected. The bistables were left in the tripped position which reduced the coincidence logic necessary for actuation of the protective functions. The appropriate Technical Specification Action Statements were satisfied.

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

At 1550 CST on March 28, 1986, ESF Cabinet SA036D was de-energized to allow replacement of the -15 volt power supply. The power supply was replaced and verified to have the proper output voltage. The associated trip lamps and actuation lamps were verified to be in their proper status for the existing plant conditions. SA036D was re-energized and the bistables were positioned for normal operation at 1620 CST. The ventilation systems were restored from the CRVIS, CPIS, and FBIS in accordance with plant procedures at 1630 CST.

The failed power supply was subsequently disassembled and inspected, but no positive identification of the particular component which failed was possible. The power supply was manufactured by Semiconductor Circuits, Inc., Model No. DC 48-1552000, and supplied by Consolidated Controls Corporation.

The unnecessary Auxiliary Feedwater Actuation was a result of a cognitive personnel error by Instrumentation and Control personnel who were not aware of all required actions to be taken to prevent an unnecessary ESF actuation while troubleshooting. A procedure is being developed to specify the proper sequence of actions to be performed prior to de-energizing portions of the ESF cabinets and prior to re-energizing the cabinets to prevent unnecessary Engineered Safety Features Actuators.

During the time period of these events, the unit was operating in Mode 1, Power Operation, at 100 percent Reactor power. There was no damage to plant equipment or release of radioactivity as a result of this event, and at no time did conditions develop that may have posed a threat to the health or safety of the public.

There have been no previous occurrences of an ESF actuation caused by failure of this model power supply, although Licensee Event Report 85-058-00 discusses a previous ESF actuation caused by a faulty power supply of a different type. Licensee Event Report 85-076-00 discusses a previous similar occurrence of an unnecessary ESF actuation caused by failure to block all necessary actuation signals.



KANSAS GAS AND ELECTRIC COMPANY

GLENN L. KOESTER  
VICE PRESIDENT - NUCLEAR

April 25, 1986

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

Mr. E.H. Johnson, Director  
Division of Reactor Safety and Projects  
U.S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

KMLNRC 86-072  
Re: Docket No. STN 50-482  
Subj: Licensee Event Report 86-016-00

Gentlemen:

The enclosed Licensee Event Report is submitted pursuant to 10 CFR 50.73  
(a) (2) (iv) concerning an Engineered Safety Features actuation.

Yours very truly,

Glenn L. Koester  
Vice President - Nuclear

GLK:see

Enclosure

cc: PO'Connor (2), w/a  
JCummins, w/a