

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

John A. Bailey  
Vice President  
Operations

June 7, 1991

NO 91-0163

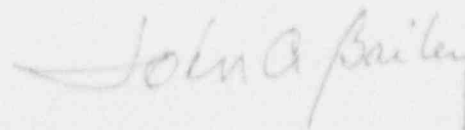
U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 91-006-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73 (a)(2)(iv) concerning Actuation of Engineered Safety Features.

Very truly yours,



John A. Bailey  
Vice President  
Operations

JAB/sem

Attachment

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

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LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

INTRODUCTION

On May 12, 1991 at 1800 CDT, a "B" Train Control Room Ventilation Isolation Signal (CRVIS), "A" Train Containment Purge Isolation Signal (CPIS), "B" Train Auxiliary Feedwater Actuation Signal (AFAS), Turbine Driven AFAS, "A" Train Fuel Building Isolation Signal (FBIS), and a "B" Train Steam Generator Blowdown and Sample Isolation Signal (SGBSIS) were generated when a 15 volt power supply in Engineered Safety Features Actuation System (ESFAS) cabinet SA036D [JE-CAB] failed. This event, which resulted in automatic actuation of Engineered Safety Features equipment, is being reported pursuant to 10 CFR 50.73 (a)(2)(iv).

DESCRIPTION OF EVENT

On May 12, 1991 at 1800 CDT, with the plant at 60 percent power, a "B" Train CRVIS, "A" Train CPIS, "A" Train FBIS, "B" Train AFAS, Turbine Driven AFAS, and a "B" Train SGBSIS occurred. In response to these signals, the "B" Train Control Room Emergency Ventilation System components repositioned in their Safeguards lineup, the "B" Train Auxiliary Feedwater Pump [BA-P] started, the Turbine Driven Auxiliary Feedwater Pump [BA-P] started, and the "B" Train Steam Generator Blowdown and Sampling isolated. These signals were generated when the 15 volt DC power supply, supplying power to the "A" Train logic and relay actuation racks in ESFAS cabinet SA036D, failed. Because of the loss of power to the actuation racks, the Fuel Building and Containment Purge System equipment did not reposition after the FBIS and CPIS were received. The "B" Train Motor Driven and Turbine Driven Auxiliary Feedwater Pumps started because of cross-train actuation signals.

Control Room personnel contacted Instrumentation and Controls personnel to investigate. Because of the possibility that supply water for the Auxiliary Feedwater System may have switched from the Condensate Storage Tank [KA-TK] to Essential Service Water, Motor Driven Auxiliary Feedwater Pump "B" was placed in "pull-to-lock" after verifying auxiliary feedwater was not required. Entry was made into Technical Specification 3.7.1.2 which requires three independent Auxiliary Feedwater Pumps and allows one Auxiliary Feedwater Pump to be inoperable for a maximum of 72 hours. At approximately 1937 CDT, Instrumentation and Controls personnel determined that the automatic actuation logic and actuation relays for "A" train Auxiliary Feedwater Actuation were inoperable with the failed power supply. Technical Specification 3.3.2 requires that two trains of automatic actuation logic and actuation relays be operable. With less than two trains operable, this Technical Specification requires that the plant be placed in Hot Standby within 6 hours and Hot Shutdown within the following 6 hours. The provisions of this Technical Specification became effective at 1800 CDT, at the time of the power supply failure.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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Instrumentation and Controls personnel blocked the cross-train actuation signals on cabinet SA036D at approximately 1952 CDT, which allowed the Control Room operators to reset the actuation signal to the Turbine Driven Auxiliary Feedwater Pump. At 2115 CDT, a Notification of Unusual Event was declared and a reduction in power to comply with Technical Specification 3.3.2 commenced.

At 2144 CDT, the 15 volt DC power supply was replaced and Control Room operators were able to reset the CPIS, FBIS, and the actuation signal to Motor Driven Auxiliary Feedwater Pump "B". Cabinet SA036D was subsequently returned to service following restoration of the cross-train actuation signals at 2150 CDT. Reactor power was then stabilized at approximately 50 percent. The Notification of Unusual Event was terminated at approximately 2208 CDT. The Control Room Emergency Ventilation System was restored to normal configuration at 2302 CDT and Steam Generator Blowdown was returned to service at 2320 CDT. Reactor power was returned to 60 percent (for fuel conservation purposes) at 0122 CDT on May 13, 1991.

ROOT CAUSE AND CORRECTIVE ACTIONS

The Engineered Safety Feature Actuation was the result of a failed 15 volt DC power supply in cabinet SA036D. The power supply was replaced. Following this event, the failed power supply was disassembled and it was determined that the pre-regulator board, which regulates incoming voltage, had failed. However, troubleshooting failed to identify the root cause of the failure. A review of the event conducted by Instrumentation and Controls personnel concluded that the ESFAS responded as expected to the failed power supply. Also, the power loss to the Automatic Test Insertion System actuated the "B" train Control Room Emergency Ventilation System.

Although there have been previous power supply failures, this was the first instance of this particular power supply failing and causing an Engineered Safety Feature actuation. Testing and monitoring of this type of power supply has indicated that a generic problem does not exist.

ADDITIONAL INFORMATION

At the time of the event, the plant was in Mode 1, Power Operation, at approximately 60 percent Reactor power. There was no damage to plant equipment or a release of radioactivity as a result of this event.

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The failed power supply was manufactured by Sorensen Power Supplies, Model Number SIM 15-15M20, and supplied by Consolidated Controls Corporation.

There have been no previous occurrences of an Engineered Safety Features actuation caused by failure of this model power supply, although Licensee Event Reports 86-016 and 88-024 discuss previous Engineered Safety Features actuation caused by a faulty power supply of a different model.