



Log # TXX-94037
File # 10200
Ref. # 50.73(a)(2)(iv)

February 7, 1994

William J. Cahill, Jr.
Group Vice President

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES) - UNIT 2
DOCKET NO. 50-446
ENGINEERED SAFETY FEATURE ACTUATION
LICENSEE EVENT REPORT 94-002-00

Gentlemen:

Enclosed is the Licensee Event Report (LER) 94-002-00 for Comanche Peak Steam Electric Station Unit 2 "Engineered Safety Feature Actuation Due to Emergency Diesel Generator Voltage Regulator Card Failure."

Sincerely,

William J. Cahill, Jr.

By:
Roger D. Walker
Manager of Regulatory Affairs

OB:tg

cc: Mr. L. J. Callan, Region IV
Mr. L. A. Yandell, Region IV
Resident Inspectors, CPSES

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NRC FORM 388		U.S. NUCLEAR REGULATORY COMMISSION				APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92						
LICENSEE EVENT REPORT (LER)						ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC. 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC. 20503.						
Facility Name (1) COMANCHE PEAK-UNIT 2						Docket Number (2) 05000446		Page (3) 1 OF 5				
Title (4) ENGINEERED SAFETY FEATURE ACTUATION DUE TO EMERGENCY DIESEL GENERATOR VOLTAGE CARD 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 Numbers	
									N/A		05000446	
0	1	06	9	4	0	0	2	07	N/A		05000446	
Operating Mode (9)		This report is submitted pursuant to the requirements of 10 CFR § (Check one or more of the following) (11)										
1		20.402(b)		20.405(c)		<input checked="" type="checkbox"/> 60.7 - 2(iv)		73.71(b)				
		20.406(a)(1)(b)		60.38(c)(1)		60.73(a)(2)(iv)		73.71(c)				
Power Level (10)		20.405(a)(1)(b)		60.38(c)(2)		60.73(a)(2)(vii)		Other (Specify in Abstract below and in Text, NRC Form 388A)				
100		20.406(a)(7)(b)		60.73(a)(2)(b)		60.73(a)(2)(viii)(A)						
		20.405(a)(1)(b)(v)		60.73(a)(2)(ix)		60.73(a)(2)(viii)(B)						
		20.405(a)(1)(v)		60.73(a)(2)(iii)		60.73(a)(2)(ix)						
Name						Licensee Contact For This LER (12)						
W.G. Guldemon, Manager, System Engineering						Area Code Telephone Number 817-897-8739						
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)								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)												
<p>On January 6, 1994, Comanche Peak Steam Electric Station (CPSES) Unit 2 was in Mode 1, Power Operation with reactor power at 100 percent.</p> <p>At approximately 4:23 a.m. on January 6, 1994, while performing a post maintenance Train A Diesel Generator Load Performance Test, Diesel Generator 2-01 tripped on an apparent field ground while carrying the safety bus loads.</p> <p>The corrective action was to replace a voltage regulator card.</p>												

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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Text if more space is required, use additional NRC Form 368A's (17)

I. DESCRIPTION OF THE REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)(EIIIS:(JC)).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On January 6, 1994, Comanche Peak Steam Electric Station (CPSES) Unit 2 was in MODE 1, Power Operation, with reactor power at 100 percent.

C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

There were no inoperable structures, systems, or components that contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

On January 6, 1994, at approximately 3:51 a.m., Unit 2 Emergency Diesel Generator (EDG) 2-01 was started for post work testing purposes. At 4:22 a.m., the EDG tripped causing a loss of power on its respective bus, 2EA1. The bus slow transferred to the alternate offsite source and the Blackout Sequencer actuated. The system is designed to sequentially load the 6.9 kv emergency bus for a loss and subsequent restoration of bus voltage and/or Safety Injection (SI) condition. It actuates safety equipment at timed steps to mitigate the consequences of a Blackout or SI condition. The system response was as expected. Upon initiation of an under voltage signal from the 2EA1 bus, the sequencer actuated all output relays at the required step, and actuated all required safety related equipment.

An event or condition that results in an automatic or manual actuation of any ESF, including the RPS, is reportable within 4 hours under 10CFR50.72(b)(2)(ii). At 5:12 a.m., on January 6, 1994, the Nuclear Regulatory Commission Operations Center was notified of the event via the Emergency Notification System.

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E. THE METHOD OF DISCOVERY OF EACH COMPONENT FAILURE, OR PROCEDURAL OR PERSONNEL ERROR

Alarms on the Main Control Board alerted the Control Room Staff of the event.

II. COMPONENT OR SYSTEM FAILURES

A. FAILURE MODE, MECHANISM, AND EFFECT OF EACH FAILED COMPONENT

The normal voltage regulator failed causing voltage to increase. The transfer system swapped to the standby regulator and recovered to normal voltage range. However, at this time the field ground relay actuated due to the voltage increase causing the Diesel Generator to shutdown and the Diesel Generator output breaker to open.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

The normal voltage regulator card apparently failed based upon recorded data on strip charts.

C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS

Not applicable - there were no component failures with multiple functions associated with this event.

D. FAILED COMPONENT INFORMATION

Manufacturer: NEI - Peebles
Electric Products, Inc.
Model Number: 72-08300-100
Serial Number: 3548

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III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

The following safety system actuations occurred as expected as result of this event:

Bus 2EA1 under voltage relays and subsequent load shedding, Blackout Sequencer (BOS), Normal BOS loads including: Auxiliary Feedwater System (AFW)(EISS:(BA)), Component Cooling Water (EISS:(CC)), Station Service Water (EISS:(BI)), Safety Chill Water (EISS:(KM)), Chemical and Volume Control (EISS:(CB)) and Control Room Heating, Ventilation and Air Conditioning (EISS:(VI)).

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Emergency Diesel Generator 2-01 was inoperable from 4:22 a.m. January 6, 1994, until 7:59 a.m. January 7, 1994.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

This event resulted in the momentary loss of a single train of the safety busses. All safety related functions of load shedding, bus re-energization and load starting operated as designed. The subsequent period of Diesel Generator inoperability to replace the voltage regulator was in accordance with Technical Specification allowances. Loss of Class 1E buses, automatic bus transfer and loss of offsite power sources are events described in chapter 8 of the CPSES Final Safety Analysis Report (FSAR) including loss of power to both trains of safety busses. This bounds the single train event that occurred. It can be concluded that the event did not adversely affect the safe operation of CPSES Unit 2 or the health and safety of the public.

IV. CAUSE OF THE EVENT

The event was caused due to the voltage transient attributed to the failure of the normal voltage regulator card.

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V. CORRECTIVE ACTIONS

Investigative testing was performed to determine if any damage was done to the generator, exciter, and subsystems. No damage was found. The normal voltage regulator was checked in-place to the extent practicable, with no abnormalities identified. The voltage regulator was then replaced, with the new regulator being setup and successfully tested. TU Electric will send the original voltage regulator to the vendor to perform testing to determine the cause of the failure.

VI. PREVIOUS SIMILAR EVENTS

There have been no other previous LERs which dealt with Emergency Diesel Generator voltage failures.

VII. ADDITIONAL INFORMATION

Special Reports 2-SR-93-004-00 and 2-SR-94-001-00 provide amplifying information concerning Emergency Diesel Generator (EDG) 2-01 failures and post work testing being conducted when this event occurred.

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