



Log # TXX-96128
File # 10200
Ref. # 10CFR50.73(a)(2)(iv)

May 7, 1996

C. Lance Terry
Group Vice President

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
ACTUATION OF REACTOR PROTECTION SYSTEM
LICENSEE EVENT REPORT 445/96-006-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 96-006-00 for Comanche Peak Steam Electric Station Unit 1. "Rod Control Malfunction Results in a Manual Reactor Trip."

Sincerely,

A handwritten signature in cursive script, appearing to read 'C. L. Terry'.

C. L. Terry

GLM:glm
Enclosure

cc: Mr. L. J. Callan, Region IV
Ms. L. J. Smith, Region IV
Resident Inspectors, CPSES

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NRC FORM 366
(4-95)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 4/30/98

LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY
INFORMATION COLLECTION REQUEST: 50.6 HRS. REPORTED LESSONS LEARNED
ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO
INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE
INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 P33), U.S. NUCLEAR
REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE
PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND
BUDGET, WASHINGTON, DC 20503.

Facility Name (1)

Docket Number (2)

Page (3)

COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1

05000445

01 OF 05

Title (4)

ROD CONTROL MALFUNCTION RESULTS IN A MANUAL REACTOR TRIP

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 Name	Docket Numbers		
0	4	1	1	9	6	0	0	6	CPSES UNIT 2	0	5	0
0	4	1	1	9	6	0	0	6	N/A	0	5	0
Operating Mode (9) <input type="checkbox"/> 20.2201 (b) <input type="checkbox"/> 20.2203 (a) (2) (v) <input type="checkbox"/> 50.73 (a) (2) (i) <input type="checkbox"/> 50.73 (a) (2) (vii) Power Level (10) <input type="checkbox"/> 20.2203 (a) (1) <input type="checkbox"/> 20.2203 (a) (3) (i) <input type="checkbox"/> 50.73 (a) (2) (ii) <input type="checkbox"/> 50.73 (a) (2) (x) <input type="checkbox"/> 20.2203 (a) (2) (i) <input type="checkbox"/> 20.2203 (a) (3) (ii) <input type="checkbox"/> 50.73 (a) (2) (iii) <input type="checkbox"/> 73.71 <input type="checkbox"/> 20.2203 (a) (2) (ii) <input type="checkbox"/> 20.2203 (a) (4) <input checked="" type="checkbox"/> 50.73 (a) (2) (iv) <input type="checkbox"/> OTHER <input type="checkbox"/> 20.2203 (a) (2) (iii) <input type="checkbox"/> 50.36 (c) (1) <input type="checkbox"/> 50.73 (a) (2) (v) <input type="checkbox"/> Specify in Abstract below <input type="checkbox"/> 20.2203 (a) (2) (iv) <input type="checkbox"/> 50.36 (c) (2) <input type="checkbox"/> 50.73 (a) (2) (vii) <input type="checkbox"/> or in NRC Form 366A												

Licensee Contact For This LER (12)

Name

Telephone Number (Include Area Code)

RAFAEL FLORES - SYSTEM ENGINEERING MANAGER

(817)897-5590

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
				X					

Supplemental Report Expected (14)

YES (If yes, completed EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	Month	Day	Year
	X					

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On April 11, 1996, at 4:47 a.m., during a plant shutdown from less than 1 percent power to repair a leak in the Heater Drain System, Operators received numerous rod deviation alarms. At approximately 4:49 a.m., Operators noted that Control Bank "D" continued inserting at the specified Control Bank Offset position and Control Bank "B" failed to begin stepping in at the appropriate overlap point. Operators manually tripped the reactor at 5:03 a.m..

The cause of the event was determined to be failure of a Bank Overlap Counter Circuit Board. Corrective actions include replacement of the Bank Overlap Counter Circuit Board, functional testing of the replacement circuit board, and a failure analysis, to be completed by Westinghouse, of selected integrated circuit chips on the Bank Overlap Counter Circuit Board.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Text (if more space is required, use additional copies of NRC Form 366A) (17)

I. DESCRIPTION OF THE REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

Any event or condition that resulted in a manual or automatic actuation of an Engineered Safety Feature (ESF)(EIIS:(JG)).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On April 11, 1996, Comanche Peak Steam Electric Station Unit 1 was in Mode 2 at less than 1 percent power.

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 TIME

On April 11, 1996, at 4:47 a.m., during a plant shutdown from less than 1 percent power to repair a leak in the Heater Drain System, Operators (utility, licensed) received numerous rod deviation alarms. At approximately 4:49 a.m., the Operators noted that Control Bank "D" (EIIS:(ROD)(AA)) continued inserting at the specified Control Bank Offset position of 8 steps. The operators contacted the Unit Supervisor (US) (utility, licensed) and the US provided concurrence to continue inserting rods to 0 steps while monitoring for correct overlap between Control Bank "B" and Control Bank "C" rods. At 5:03 a.m., Operators noted that Control Bank "D" continued to insert below 0 steps and that Control Bank "B" did not begin inserting as required when Control Bank "C" was below 115 steps. Operators stopped moving rods and manually tripped the reactor.

An event or condition that results in an automatic or manual actuation of any ESF, including the RPS, is reportable within 4 hours pursuant to the requirements of 10CFR50.72(b)(2)(ii). At 6:03 a.m., on April 11, 1996, the Nuclear Regulatory Commission Operations Center was notified of the event via the Emergency Notification System.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	<table border="1" style="margin: auto;"> <tr> <th colspan="6">ER Number (6)</th> </tr> <tr> <th colspan="2">Year</th> <th colspan="2">Sequential Number</th> <th colspan="2">Revision Number</th> </tr> <tr> <td>9</td><td>6</td> <td>0</td><td>0</td> <td>6</td><td>0</td> </tr> </table>	ER Number (6)						Year		Sequential Number		Revision Number		9	6	0	0	6	0	<table border="1" style="margin: auto;"> <tr> <th colspan="3">Page (3)</th> </tr> <tr> <td>03</td> <td>OF</td> <td>05</td> </tr> </table>	Page (3)			03	OF	05
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E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL OR PERSONNEL ERROR

At 4:47 a.m. on April 11, 1996, Operators (utility, licensed) received numerous rod deviation alarms on the Main Control Board (EIIS:(MCBD)(IB)).

II. COMPONENT OR SYSTEM FAILURES

A. FAILED COMPONENT INFORMATION

Bank Overlap Counter Card
A209
Manufacturer: Westinghouse
Model Number: 3360C94G01

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

Troubleshooting on the Rod Control System (EIIS:(AA)) subsequent to this event determined that a Bank Overlap Counter Card (EIIS:(CBD)(AA)) had failed.

A failure analysis was performed on the failed Bank Overlap Counter Card which indicated that the third stage of the board had no output. Further troubleshooting by the CPSES Instrument and Controls Group revealed that the control logic was working, but one of the integrated circuit chips which controls the flip flop function was defective.

C. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

TU Electric will have the Rod Control System vendor (Westinghouse) perform a failure analysis on the defective integrated circuit chips to determine the cause of the failure.

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

Not applicable - there were no failed components with multiple functions that affected this event.

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III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

Not applicable - there were no safety system actuations associated with this event.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Not applicable - no safety system trains were declared inoperable.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

This event is bounded by the accident analysis in Chapter 15.4 of the CPSES Final Safety Analysis Report for a statically misaligned Rod Control Cluster Assembly (RCCA). The misaligned RCCA event is analyzed at full power and the analysis shows that Departure from Nucleate Boiling Ratio (DNB) does not occur for the RCCA misalignment incident and; thus, the ability of the primary coolant to remove heat from the fuel rod is not reduced.

Because this event occurred from a subcritical condition rather than a full power condition, the assumed rod positions were within those assumed in the misaligned RCCA analysis, and all other system parameters were in their nominal operating range (four Reactor Coolant Pumps (EIIIS:(P)(AB)) operating, nominal operating temperature and pressure), this event had no significant effect on any important core parameter. No combination of core power and peaking factors could exist with the core in this configuration which could result in the onset of DNB. Therefore, this event did not adversely affect the safe operation of CPSES Unit 1 or the health and safety of the public.

IV. CAUSE OF THE EVENT

The cause of the event was determined to be failure of a Bank Overlap Counter Circuit Board.

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V. CORRECTIVE ACTION

Corrective actions included replacement of the Bank Overlap Counter Circuit Board and functional testing of the replacement circuit board. TU Electric will have the Rod Control System vendor (Westinghouse) perform a failure analysis on the defective integrated circuit chips to determine the cause of the failure.

VI. PREVIOUS SIMILAR EVENTS

There have been no previous similar events within the last two years involving a Rod Control System malfunction which resulted in a reactor trip.

VII. ADDITIONAL INFORMATION

The times listed in this report are approximate and Central Daylight time.