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December 15, 1993

William J. Cahill, Jr. Troup 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 MANUAL OR AUTOMATIC ACTUATION OF ANY ENGINEERING SAFETY FEATURE LICENSEE EVENT REPORT 93-011-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 93-011-00 for Comanche Peak Steam Electric Station Unit 2, "Loose Jam Nut on the Positioner Feedback Linkage Arm of Separator Drain Tank Normal Valve Caused an ESF Actuation."

Sincerely,

William J. Cahill, Jr.

OB:tg Enclosure

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

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в.	PLANT OPERATING	CONDITIONS PRIOR TO TH	HE EVENT									
	On November 17, was in MODE 1.	1993, Comanche Peak St Power Operation, with	team Elect reactor pr	tric Sta ower at	tio 100	n (CP perc	SES) ent.	Unit	2			

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

At 7:58 p.m. on November 17, 1993, the Separator Drain Tank 2A (EIIS:(TK)(SN)) Normal Drain Valve 2-LV-2708 (EIIS:(V)(SN)) failed open. With valve 2-LV-2708 open, pressure in Heater Drain Tank (HDT) 2-01 began to increase. The pressure in HDT 2-01 quickly equalized with the pressure in HDT 2-02, forcing water out of HDT 2-01 and into HDT 2-02. As a result, the level in HDT 2-01 decreased to approximately 40 percent, while the level in HDT 2-02 rose to 90 percent, opening the HDT Alternate Drain Valve 2-LV-2594 (EIIS:(V)(SN)). Valve 2-LV-2594 controls level in both HDTs via a common discharge line.

With valve 2-LV-2594 open, level in both HDT 2-01 and HDT 2-02 decreased. The level in HDT 2-01 decreased to approximately 28 percent, while HDT 2-02 was approximately 50 percent. At this point, valve 2-LV-2592 (EIIS:(V)(SN)), the Heater Drain Pump discharge valve, closed on low level in HDT 2-01. This valve directs flow from the discharge of the Heater Drain Pumps to the suction of the Main Feedwater Pumps (MFP) (EIIS:(P)(SJ)). With the discharge valve closed, the Heater Drain Pumps went on full flow recirculation back to the HDTs.

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11.	LUMH	UNENT OR STSTEM FAILURE.	5								
	Α.	FAILURE MODE, MECHANIS	M, AND EFFECT O	F EACH FA	AILED	COMP	ONENT				
		Normal drain valve 2-L being loose. The feed a jam nut. The jam nu allowing valve stem tra	V-2708 failed o back linkage ar t was apparentl avel without fe	pen due t m is atta y loosene edback to	to the ached ed by b the	e fee to t vibr valv	dback he va ation e pos	linkaç lve ste . thus itioner	ge ari em via r.	n	
	Β.	CAUSE OF EACH COMPONEN	T OR SYSTEM FAIL	URE							
		The jam nut was appare	The jam nut was apparently loosened by vibration.								
	с.	SYSTEMS OR SECONDARY FOR COMPONENTS WITH MULTIP	UNCTIONS THAT W LE FUNCTIONS	ERE AFFEC	CTED E	BY FA	ILURE	OF			
		Failure of the valve 2 the Heater Drain System runback, and subsequen	-LV-2708 result m to the MFPs, t reactor trip.	ed in the resulting	e loss g in M	s of MFP t	forwa rip,	rd flov a turb	v from ine	m	
	D.	FAILED COMPONENT INFOR	MATION								
		Manufacturer: Fi Model Number: 12 Serial Number: 63	sher Controls -UR 28612								
III.	ANAL	YSIS OF THE EVENT									
	Α.	SAFETY SYSTEM RESPONSE	S THAT OCCURRED								
		The following safety s event:	ystem actuation	s occurre	ed as	a re	sult	of this	s		
		Reactor Protection Sys Auxiliary Feedwater Sy	tem (RPS) (EIIS stem (AFW) (EII	:(JC)) S:(BA))							
	Β.	DURATION OF SAFETY SYS	TEM TRAIN OPERA	BILITY							
		Not applicable - there inoperable due to this	was no safety failure.	systems v	which	were	e rend	lered			

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C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

This event is bounded by the accident analysis in Chapter 15.2.7 of the Final Safety Analysis Report for Loss of Normal Feedwater. A reactor trip on low Steam Generator (SG) water level in any SG and the initiation of AFW provides the necessary heat removal capability. The reactor automatically tripped on LO-LO SG Level.

Based on the above discussion, it is concluded that this 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

ROOT CAUSE

The cause of this event was valve 2-LV-2708 failing open. It was determined that valve 2-LV-2708 failed open due to the feedback linkage arm being loose. The feedback linkage arm is attached to the valve stem via a jam nut. The jam nut was found to be loose. The jam nut apparently came loose due to vibration, allowing valve stem travel without feedback to the valve positioner.

V. CORRECTIVE ACTIONS

A. IMMEDIATE CORRECTIVE ACTION

The jam nut was tightened, reattaching the feedback linkage arm to the positioner. Loctite was applied to prevent recurrence. The subject valve was tested to ensure functionality and placed back in service.

A review of the spurious trip of MFP 2-A revealed the probable cause to be a ground on the positive side of the MFP Turbine Trip Solenoid (SV12). During troubleshooting the ground cleared. Terminations at the turbine were inspected for any obvious potential grounds. None were found. Plant computer data was reviewed for any abnormal parameters that may have tripped MFP 2-A. None were found. No other problems were identified and MFP 2-A was subsequently restarted successfully. No further actions were required.

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B. CORRECTIVE ACTION TAKEN ON GEMERIC CONCERNS IDENTIFIED AS A DIRECT RESULT OF THE EVENT

GENERIC CONCERN

The possibility existed that other Fisher Positioner feedback linkage arms, identical to valve 2-LV-2708, could be loose.

CORRECTIVE ACTION

Twenty five (25) Fisher Positioners for Unit 1. Unit 2, and Common, were identified as having feedback linkage arms identical to valve 2~LV-2708. A walkdown was immediately conducted and all twenty five (25) Fisher Positioners were verified to be tight. Additional corrective action was taken and Loctite was placed on jam nuts of these valves.

GENERIC CONCERN

The possibility existed that other Fisher Positioner feedback linkage arms, <u>similar</u> to valve 2-LV-2708, could be loose.

CORRECTIVE ACTION

One hundred forty three (143), Fisher Positioners for Unit 1, Unit 2, and Common, were identified as having feedback linkage arms similar to valve 2-LV-2708. A walkdown was immediately conducted and all one hundred forty three (143) Fisher Positioners were verified to be tight.

VI. PREVIOUS SIMILAR EVENTS

There have been no other previous LERs which dealt with Fisher Positioners feedback linkage arms.

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VII. ADDITIONAL INFORMATION

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The times listed in the report are approximate and Central Daylight Time.

LER 445/90-025-00 for CPSES Unit 1 reported an event where the mounting nut for a Bailey Positioner on the Feedwater Flow Control valve loosened, allowing the drive rod to separate from the drive arm resulting in a reactor trip. The corrective actions were to initiate a design modification to dampen the vibrations. The corrective actions taken to resolve the previous event would not have prevented this event.

Additionally, as a result of Operating Experience (OE) 5042 Bailey Positioners have been identified for CPSES Unit 1, Unit 2 and common. Appropriate corrective actions are in place and are similar to the actions for the Fisher Positioners.