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Ref. # 10CFR50.73(a)(2)(v)

C. Lance Terry
Group Vice President

April 25, 1996

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)-UNIT 1
DOCKET NOS. 50-445
CONDITION THAT COULD PREVENT FULFILLMENT OF A SAFETY FUNCTION
LICENSEE EVENT REPORT 445/96-004-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 96-004-00 for Comanche Peak Steam Electric Station Units 1 and 2, "A Potential Failure of Personnel Airlock Control Systems for Both Unit 1 and 2."

Sincerely,

A handwritten signature in cursive script, appearing to read 'C. L. Terry', is written over the typed name.

C. L. Terry

EAS:eas
Enclosure

cc: Mr. L. J. Callan, Region IV
Mr. W. D. Johnson, Region IV
Resident Inspectors, CPSES

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NRC FORM 366
(4-95)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-016
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: 90.0 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 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, A/ID TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

Facility Name (1)

COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1

Docket Number (2)

05000445

Page (3)

1 OF 5

Title (4)

A POTENTIAL FAILURE OF PERSONNEL AIRLOCK CONTROL SYSTEMS FOR BOTH UNIT 1 AND 2

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	3	2	6	9	6	0	3	2	CPSES UNIT 2			0	5	0	0	0	4	4	6									
0	3	2	6	9	6	-	0	0	4	-	0	0	0	4	2	5	9	N/A			0	5	0	0	0			

Operating Mode (9)	1	This report is submitted pursuant to the requirements of 10 CFR 5. (Check one or more) (11)									
Power Level (10)	100	<input type="checkbox"/> 20.2201 (b)	<input type="checkbox"/> 20.2203 (a) (2) (v)	<input type="checkbox"/> 30.73 (a) (2) (i)	<input type="checkbox"/> 50.73 (a) (2) (viii)						
		<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 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 checked="" type="checkbox"/> 50.73 (a) (2) (v)	<input type="checkbox"/> Specify in Abstract below or in NRC Form 366A							
	<input type="checkbox"/> 20.2203 (a) (2) (iv)	<input type="checkbox"/> 50.36 (c) (2)	<input type="checkbox"/> 50.73 (a) (2) (vii)								

Licensee Contact For This LER (12)		Telephone Number (Include Area Code)	
J. Amin - Electrical/I&C Engineering Manager		(817)897-6469	

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
				N					

Supplemental Report Expected (14)				EXPECTED SUBMISSION DATE (15)		
YES (if yes, completed EXPECTED SUBMISSION DATE)	X	NO		Month	Day	Year

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

At 1615 hours on March 26, 1996, it was determined that the present design of the Units 1 & 2 containment personnel airlocks were such that, under an unlikely combination of failures, they could have prevented the fulfillment of their safety function. Assuming a design basis accident (DBA) while the airlock is enabled for personnel transit, non-Class 1E electrical devices could fail when exposed to harsh environment in such a manner that the airlock pressure equalizing valves, which are containment isolation valves, could open thus breaching containment and allowing the release of radioactive material and steam.

The cause of this event was a failure to consider all design and licensing interfaces in the design validation process. Contributing factors included inadequate 10CFR 50.59 reviews prior to implementing plant modifications.

Corrective actions to date included completion of procedure changes to administratively control airlock operation. Permanent corrective actions will require a system design change.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)	Page (3)		
		Year	Sequential Number	Revision Number	
		9 6	. 0 0 4	. 0 0	2 OF 5

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 alone could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material.

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On March 26, 1996, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in MODE 1 Power Operation, with reactor power at 100 percent. Unit 2 was in a refueling outage in MODE 6.

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

From 1986-1989, a design validation program was undertaken to assure compliance to 10CFR50.49 with respect to non-Class 1E electric power requirements. Personnel airlocks were considered in the scope of this program but the airlock controls were not adequately addressed. On 8/31/92, the Final Safety Analysis Report (FSAR) was amended to indicate that power to the hydraulic pumps that operate the hydraulically operated equalization valves and doors in the personnel airlocks (EIIS:(NH)(AL)) is tripped by a safety injection signal to ensure that no failure to non-class 1E control circuits or a spurious signal could cause the valves to open coincident with a Loss of Coolant Accident (LOCA). On 2/24/94, the design basis document DBD ME-013 was revised requiring this trip.

On 6/21/93 and 2/16/94 engineering was approved for plant modifications on Unit 1 and Unit 2 airlocks respectively. The airlock control system designs are different for each unit. Unit 1 has one hydraulic pump and Unit 2 has two. Prior to the modification, the Unit 1 pump and both Unit 2 pumps (one exterior to containment and one interior to containment) were powered from non-Class 1E Motor Control Centers (MCCs) in the onsite emergency power system which were tripped on receipt of an "S"-signal. These modifications moved the power sources to the non-Class 1E controls for the Unit 1 hydraulic pump and the Unit 2

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	ER Number (6)						Page (3)					
		Year	Sequential Number			Revision Number							
		9	6	-	0	0	4	-	0	0	3	OF	5

Text (if more space is required, use additional copies of NRC Form 365A) (17)

exterior pump to plant support power. This was done to facilitate operation of the airlocks during refueling outages when the emergency onsite power buses are often taken out of service. The design and design verification for these modifications were inadequate and did not include consideration of the containment isolation function of the airlocks. In addition, the 10CFR50.59 safety reviews for these modifications did not include a review of the containment isolation portion of the FSAR which had been amended nor did it consider the potential failure modes of the airlocks. The Unit 1 modification was implemented 11/8/93 and the Unit 2 modification was implemented 11/14/94. Upon completion of these modifications there were no "S"-system signal trips for the airlock hydraulic pump for both Unit 1 doors or the Unit 2 outer airlock door. The electrical devices needed to operate the airlocks (switches, pushbuttons, relays, etc.) are not environmentally qualified. Subsequently, a potential problem with the newly modified design was identified. Evaluation of this condition resulted in among other things, the declaration of the deficient condition, the 4-hour verbal notification requirement to the NRC per 10CFR50.72 and the ongoing actions described in this report.

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

During the evaluation process described above, it was determined that the present airlock design could potentially fail under certain postulated harsh environmental conditions.

II. COMPONENT OR SYSTEM FAILURES

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

Not applicable - there were no failed components associated with this event.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

Not applicable - there were no system or component failures associated with this event.

C. 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.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Facility Name (1)	Docket	LER Number (6)						Page (3)			
COMANCHE PEAK STEAM ELECTRIC STATION UNIT I	05000445	Year	Sequential Number			Revision Number			4	OF	5
		9	6	-	0	0	4	-			

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

D. FAILED COMPONENT INFORMATION

Not applicable - there were no failed components associated with this event.

III. ANALYSIS OF THE EVENT**A. SAFETY SYSTEM RESPONSES THAT OCCURRED**

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

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Not applicable - there were no systems or components that were inoperable that contributed to this event.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

The Personnel Airlock is provided as a barrier to mitigate the consequences of a loss of coolant accident, other high energy line breaks, rod ejection accident and reactor coolant pump locked rotor accident. Multiple consequential failures of non-class 1E electrical devices could potentially result in the opening of airlock equalization valves and a breach of containment allowing the release of radioactive materials and steam to the Safeguards Building during these accidents. This condition, therefore, could increase the possibility of a release of fission products in excess of the releases identified by the FSAR accident analysis section. The multiple failures of the electrical devices for this to occur has an extremely low probability. However, this is being conservatively reported as an event or condition that alone could have prevented the fulfillment of a safety function.

IV. CAUSE OF THE EVENT

The cause of this event was the failure to consider all design and licensing interfaces in the environmental qualification design validation of the personnel airlocks. Contributing factors include less than adequate 10CFR50.59 reviews.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

Facility Name (1) COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1	Docket 05000445	LER Number (6)						Page (3)					
		Year	Sequential Number			Revision Number			OF				
		9	6	.	0	0	4	.	0	0	5	OF	5

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

V. CORRECTIVE ACTIONS

Corrective actions have been taken to administratively control the operation of the personnel airlocks by procedural changes. Permanent corrective actions will include design changes to the airlocks. Generic implications include the possibility of other non-Class 1E controls may not have been adequately addressed during the design validation program. This will be further addressed by the continuing review of this event.

VI. PREVIOUS SIMILAR EVENTS

There have been no other similar events at CPSES.