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

William J. Cahill, Jr.  
Executive Vice President

October 26, 1990

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION  
DOCKET NO. 50-445  
OPERATION PROHIBITED BY TECHNICAL SPECIFICATION  
LICENSEE EVENT REPORT 90-033-00

Gentlemen:

Enclosed is Licensee Event Report 90-033-00 for Comanche Peak Steam Electric Station Unit 1, "Personnel Error Leading to Momentary Loss of Containment Integrity."

Sincerely,

A handwritten signature in cursive script, appearing to read 'William J. Cahill, Jr.'.

William J. Cahill, Jr.

JRW/daj

Enclosure

c - Mr. R. D. Martin, Region IV  
Resident Inspectors, CPSES (3)

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400 North Olive Street L.B. 81 Dallas, Texas 75201

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NRC FORM 366		U.S. NUCLEAR REGULATORY COMMISSION				APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92				
<b>LICENSEE EVENT REPORT (LER)</b>						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) <b>COMANCHE PEAK - UNIT 1</b>						Docket Number (2) <b>015101010141415</b>		Page (3) <b>1</b> OF <b>016</b>		
Title (4) <b>PERSONNEL ERROR LEADING TO MOMENTARY LOSS OF CONTAINMENT INTEGRITY</b>										
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	
<b>09</b>	<b>26</b>	<b>90</b>	<b>90</b>	<b>0313</b>	<b>010</b>	<b>10</b>	<b>26</b>	<b>90</b>	<b>N/A</b>	
									<b>015101010111</b>	
									<b>015101010111</b>	
Operating Mode (9) <b>1</b>										
This report is submitted pursuant to the requirements of 10 CFR 8 (Check one or more of the following) (11)										
Power Level (10) <b>01717</b>		20.402(b)		20.405(c)		50.73(a)(2)(iv)		79.71(b)		
		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		79.71(c)		
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		Other (Specify in Abstract below and in Text, NRC Form 386A)		
		20.405(a)(1)(iii)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)		50.73(a)(2)(viii)(A)				
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(ix)				
Licensee Contact For This LER (12)										
Name <b>D. E. BUSCHBAUM</b>						Telephone Number <b>81117 819171-15181511</b>				
Area Code <b>81117</b>										
Complete One Line For Each Component Failure Described in This Report (13)										
Cause	System	Component	Manufacturer	Reportable To NPHDS	Cause	System	Component	Manufacturer	Reportable To NPHDS	
Supplemental Report Expected (14)								Expected Submission Date (15)		
<input type="checkbox"/> Yes (If yes, complete Expected Submission Date)								<input checked="" type="checkbox"/> No		
								Month	Day	Year
Abstract (Limit to 1400 spaces, i.e., approximately fifteen single-space (pewritten) lines) (16)										
<p>On September 26, 1990, Comanche Peak Steam Electric Station Unit 1 was in Mode 1, power operation, with reactor power at 77 percent. During maintenance activities performed earlier on the Containment Personnel Air Lock (PAL) a pressure equalizing valve was inadvertently left in the open position. When the outer door of the PAL was opened, a direct path for the release of fission products was created between the Containment atmosphere and the Safeguards building. The causes of the event are personnel error and procedural weakness. Corrective actions include procedural enhancement and increased administrative control on the PAL equalizing valves.</p>										



**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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.

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

**I. DESCRIPTION OF THE REPORTABLE EVENT**

**A. REPORTABLE EVENT CLASSIFICATION**

Any operation or condition prohibited by the plant's Technical Specifications.

**B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT**

On September 26, 1990, just prior to the event, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 1, Power Operations, with reactor power at 77 percent.

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

During normal operation the Containment Personnel Airlock (PAL) (EIS:(AL)(NH)) uses an installed hydraulic system to rotate locking rings which secure the inner and outer doors (EIS:(DR)). The system has interlocks to ensure that equalizing valves (EIS:(V)) between the Safeguards building and the PAL and the Containment Building and the PAL are opened and closed in the proper sequence. The equalizing valves are used to equalize the differential pressure across the hatch, reducing the force required to move the locking ring. The alternate method of operation is by use of manually actuated hydraulic pumps (EIS:(P)) connected to the installed hydraulic lines (EIS:(TBG)) via quick-disconnect fittings (EIS:(CON)). Difficulty with the installed hydraulic system had led to an earlier decision to operate the PAL in the alternate mode.

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

On September 24, 1990, at approximately 1755 CDT, Operations, Maintenance, and Systems Engineering personnel (utility, non-licensed) entered the Personnel Air Lock through the outer door to perform troubleshooting and maintenance activities on the PAL hydraulic system. The system operating procedure was used to enter the PAL, and troubleshooting was performed with the knowledge and consent of the Control Room using applicable station procedures. Difficulty was encountered in

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manually pumping the PAL inner door locking ring open, and it was suggested that the differential pressure across the door could be causing the ring to bind. Continued maintenance activities included numerous cyclings of the PAL inner door locking ring, and at some point in the troubleshooting activity the equalizing valve was opened by the System Engineer.

By approximately 0013 on September 25, maintenance activities had been completed and the inner door was functioning properly. The Auxiliary Operator performed a final valve position verification in accordance with the system operating procedure prior to exiting the PAL through the outer door. The procedure instructs the user to close the pressure equalization valve if the valve was opened in a previous step. Because the operator had not manipulated the valve previously, he assumed it was in the correct position and did not perform the step.

On September 26, 1990, at approximately 1824, the PAL outer door was opened to allow installation of a Temporary Modification to the system. At approximately 2000 a second Auxiliary Operator observed that the inner door pressure equalization valve was open, in violation of both the system operating procedure and Technical Specification 3.6.1.3. The Auxiliary Operator immediately closed the pressure equalizing valve and notified the Control Room of the condition. He subsequently documented the condition in accordance with station procedures.

#### **E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE OR PROCEDURAL ERROR**

While supporting maintenance activity on the PAL, an Auxiliary Operator observed that the PAL inner door pressure equalizing valve was improperly positioned.

## **II. COMPONENT OR SYSTEM FAILURES**

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

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



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**B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE**

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

**C. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE**

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

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

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

**III. ANALYSIS OF THE EVENT**

**A. SAFETY SYSTEM RESPONSES THAT OCCURRED**

Not applicable - no safety system responses occurred as a result of this event.

**B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY**

Technical Specification 3.6.1.1 requires that Containment Isolation Integrity be maintained at all times when operating in modes 1, 2, 3 and 4. This is demonstrated in part by verifying that each containment air lock is in compliance with the requirements of Technical Specification 3.6.1.3, which requires that both doors be closed except when the airlock is being used for normal transit exit or entry to containment. Closure of the associated pressure equalization valves is considered a requirement for satisfying the operability requirement for the containment airlocks.

The valve was known to be in the closed position on September 24 at 1755 at the commencement of troubleshooting activities. In the most conservative estimate, the pressure equalization valve associated with the PAL inner door could have been open from approximately 1800 on September 24 until 2000 on September 26, or about 50 hours.

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<p>COMMITTEE PEAK - UNIT 1 0   5   0   0   0   4   4   5 910 - 013   3 - 010 015 OF 016</p> <p><small>Text (8)   If space is required, use additional NRC Form 386A's (17)</small></p>																	
<p>With the equalizing valve open, a direct path from containment to the Safeguard Building is created when the PAL outer door is opened. This occurred twice - once on September 25 at approximately 0013 at the completion of maintenance activities, and again on September 26 at approximately 1824 when the PAL outer door was again opened to allow access to the PAL hydraulic system for additional maintenance. A conservative estimate of the total time that this condition existed is 20 minutes. During this period, a direct path existed from Containment to the Safeguards Building for the release of fission products.</p> <p><b>C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT</b></p> <p>Operation of the plant with a direct path for the Containment atmosphere to communicate with the Safeguards Building violates Technical Specifications 3/4.6.1.1 and 3/4.6.1.3, as implemented by station procedures. Actual offsite radiological consequences can exist only if leakage of containment atmosphere occurs during a loss of coolant accident releasing fission product inventory to the containment atmosphere. In the event of a LOCA, it is reasonable to assume that pressure monitoring instrumentation and the leak detection capabilities required by Technical Specification would alert Control Room personnel to the condition, and additional controls would be placed on containment access, thus assuring the PAL outer door would remain closed. In addition, the release occurring during the brief period that the PAL outer door might be open during a LOCA would be processed through the Primary Plant Ventilation System emergency filtration units.</p> <p><b>IV. CAUSE OF THE EVENT</b></p> <p><b>Root Cause 1</b></p> <p>The Auxiliary Operator present during maintenance activities on the evening of September 24 failed to perform a complete valve alignment verification at the completion of maintenance activities, prior to exiting the PAL.</p>																	

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**Root Cause 2**

The operating procedure for the PAL being used by the Auxiliary Operator did not require the operator to verify the position of the manual equalizing valve after manual operation of the system.

**V. CORRECTIVE ACTIONS**

**Cause:** Personnel error

**Corrective Action:** The potential for recurrence of the personnel error has been eliminated by placing a locked valve requirement on the PAL equalizing valves.

**Cause :** Procedural weakness

**Corrective Action :** The operating procedure has been changed to provide more positive assurance of correct valve position and to require that all locked valve positions are verified.

**VI. PREVIOUS SIMILAR EVENTS**

There have been no previous similar events reported pursuant to 10CFR50.73.