



William J. Cahill, Jr.
Executive Vice President

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April 22, 1991

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
MANUAL OR AUTOMATIC ACTUATION OF ANY ENGINEERED SAFETY FEATURE
LICENSEE EVENT REPORT 91-009-00

Gentlemen:

Enclosed is Licensee Event Report 91-009-00 for Comanche Peak Steam Electric Station Unit 1, "Automatic Isolation of Steam Generator Blowdown Due to Cognitive Personnel Error."

Sincerely,

W. J. Cahill Jr.

By:


W. G. Guldemon
Manager, Site Licensing

JAA/bm

Enclosure

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

JE28
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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: 60.0 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 1								Docket Number (2) 015101010141415		Page (3) 1 OF 016				
Title (4) AUTOMATIC ISOLATION OF STEAM GENERATOR BLOWDOWN DUE TO COGNITIVE PERSONNEL ERROR														
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				
03	21	91	91	009	0	03	21	91	N/A	015101010111				
This report is submitted pursuant to the requirements of 10 CFR 50.73 (Check one or more of the following) (11): <table border="0" style="width:100%;"> <tr> <td style="width:33%;"> Operating Mode (9) 5 Power Level (10) 01010 20.402(b) 20.405(a)(1)(i) 20.405(a)(1)(ii) 20.405(a)(1)(iii) 20.405(a)(1)(iv) 20.405(a)(1)(v) </td> <td style="width:33%;"> 20.405(c) 50.36(c)(1) 50.36(c)(2) 50.73(a)(2)(i) 50.73(a)(2)(ii) 50.73(a)(2)(iii) </td> <td style="width:33%;"> <input checked="" type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> 50.73(a)(2)(vi) <input type="checkbox"/> 50.73(a)(2)(vii)(A) <input type="checkbox"/> 50.73(a)(2)(vii)(B) <input type="checkbox"/> 50.73(a)(2)(x) </td> </tr> </table>												Operating Mode (9) 5 Power Level (10) 01010 20.402(b) 20.405(a)(1)(i) 20.405(a)(1)(ii) 20.405(a)(1)(iii) 20.405(a)(1)(iv) 20.405(a)(1)(v)	20.405(c) 50.36(c)(1) 50.36(c)(2) 50.73(a)(2)(i) 50.73(a)(2)(ii) 50.73(a)(2)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> 50.73(a)(2)(vi) <input type="checkbox"/> 50.73(a)(2)(vii)(A) <input type="checkbox"/> 50.73(a)(2)(vii)(B) <input type="checkbox"/> 50.73(a)(2)(x)
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Licensee Contact For This LER (12) <table border="0" style="width:100%;"> <tr> <td style="width:60%;">Name T. A. HOPE</td> <td style="width:20%;">Area Code 8117</td> <td style="width:20%;">Telephone Number 819171-16131710</td> </tr> </table>												Name T. A. HOPE	Area Code 8117	Telephone Number 819171-16131710
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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)				
<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) (10)														
<p>On March 21, 1991, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 5, Cold Shutdown, with Reactor Coolant System temperature of 130 degrees F and pressure of 325 psig. Steam Generator Blowdown (SGBD) System was in service and being used to drain the Steam Generators (SG).</p> <p>At 0300 draining of SG-03 began. The Unit Supervisor followed the System Operating Procedure as written and knew that an ESF actuation would occur at 25 percent level in SG-03, however; he thought this was a controlled evolution, with procedural guidance, and therefore not reportable. Prior to the ESF actuation, the Turbine Driven and both Motor Driven Auxiliary Feedwater pumps, as well as SGBD valves to SG-01, 02, and 04, were secured to minimize the impact on plant equipment. At 0656, a SG Lo-Lo Level ESF actuation occurred, automatically closing the SGBD valve to SG-03. At 0657 the oncoming shift, Reactor Operator, recognized this as a reportable event, started MDAFW pump-02 and re-filled SG-03 to approximately 30 percent, to clear the ESF actuation signal.</p> <p>The root cause of this event was cognitive personnel error and less than adequate procedural guidance. Corrective actions include training and procedure revisions.</p>														

NRC FORM 1 986A LICENSEE EVENT REPORT (LER) TEXT CONTINUATION		U.S. NUCLEAR REGULATORY COMMISSION APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92 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 1	Docket Number (2) 015101010141415	LER Number (6) <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">Year</th> <th style="width: 10%;">Sequential Number</th> <th style="width: 10%;">Revision Number</th> </tr> <tr> <td>91</td> <td>0109</td> <td>010</td> </tr> </table>	Year	Sequential Number	Revision Number	91	0109	010	Page (3) 012 OF 016
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91	0109	010							

Text (If more space is required, use additional NRC Form 366A'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) (EIS: (JC)).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On March 21, 1991, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 5, Cold Shutdown, with the Reactor Coolant System (RCS)(EIS:(AB)) at a temperature of 130 degrees Fahrenheit and a pressure of 325 pounds per square inch-gage. The Steam Generator Blowdown (SGBD) System (EIS:(WI)) was in service and being used to drain Steam Generator-03 (SG) (EIS:(SG)(SB)).

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

Not applicable - no structures, systems or components were inoperable at the start of the event that contributed to the event.

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

On March 21, 1991, prior to draining SG-03, the Operations Shift Crew (utility, licensed) discussed the upcoming process and the SG Lo-Lo Level ESF actuation signal. As a precaution, the Turbine Driven Auxiliary Feedwater (TDAFW) pump (EIS:(P)(BA)) and both Motor Driven Auxiliary Feedwater (MDAFW) pumps (EIS:(P)(BA)) were secured by placing the control switches (EIS:(33)(BA)) in the "pull-to-lock" position. The SGBD valves (EIS:(V)(WI)) to SG-01, 02, and 04 were also secured in the closed position.

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At 0300 on March 21, 1991, the Operations Shift Crew began draining SG-03. The Unit Supervisor (utility, licensed) followed the System Operating Procedure as written, which allowed draining of SG-03 in the present plant condition. The Unit Supervisor knew that an ESF actuation would occur at 25 percent level in SG-03 and that SGBD would be isolated; however, he thought this to be a controlled evolution, with procedural guidance, and therefore, not a reportable event. The Unit Supervisor planned to continue the drain of SG-03, from inside containment, after the ESF actuation.

At 0656 on March 21, 1991, SG-03 level reached 25 percent, and a SG Lo-Lo Level ESF actuation occurred. As a result, the SGBD valve to SG-03 automatically closed, and the Condensate Storage Tank (CST) (EIS:(TK)(KA)) was isolated from the Main Condenser (EIS:(COND)(SG)). At 0657 the oncoming shift, Reactor Operator (RO) (utility, licensed), recognized this as a reportable event, started MDAFW pump-02 and re-filled SG-03 to approximately 30 percent to clear the Lo-Lo Level condition. At 0730 the RO placed the Solid State Protection System (SSPS) "Mode 5/6-Normal" switch (EIS:(33)(JE)) in the "Mode 5/6" position to allow SG-03 to be drained below 25 percent without an ESF actuation signal.

An event or condition that results in a manual or automatic actuation of any ESF, including the RPS, is reportable within 4 hours under 10CFR50.72(b)(2)(ii). At 0906 on March 21, 1991, the Nuclear Regulatory Commission Operations Center was notified of the event via the Emergency Notification System.

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

The System Operating Procedure used to drain SG-03 did not instruct the RO to place the SSPS "Mode 5/6-Normal" switch in the "Mode 5/6" position to prevent the ESF actuation. This was recognized by the Unit Supervisor and discussed with the Operations Shift Crew prior to draining SG-03. The Unit Supervisor knew that an ESF actuation would occur, but thought that this was a controlled evolution, with procedural guidance, and therefore not a reportable event.

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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.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

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

D. FAILED COMPONENT INFORMATION

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

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

The SG Lo-Lo Level ESF actuation signal resulted in the Condensate Storage Tank (E11S:(TK)(KA)) being isolated from the Main Condenser (E11S:(COND)(SG)), and the SGBD valve to SG-03 automatically being closed. SGBD valves to SG-01, 02, and 04, as well as the TDAFW pump and both MDAFW pumps had been secured prior to the event as a precaution.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

No safety system trains were inoperable as a result of this event.

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C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

An ESF actuation was anticipated and was not required in response to an actual event. SG-03 was being drained in accordance with procedure and in a controlled manner. Prior to the ESF actuation precautions were taken to minimize the impact of the ESF actuation on plant equipment.

Based on the above discussion, the 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

ROOT CAUSE - 1

The root cause of this event was cognitive personnel error. The Unit Supervisor knew the ESF actuation would occur but still allowed it to occur as he misunderstood the guidance as to when an ESF actuation could occur during the performance of a controlled evolution. This is allowed only if the ESF occurs as part of a planned operational procedure or test.

ROOT CAUSE - 2

The System Operating Procedure was less than adequate. The procedure allows the SGs to be drained without placing the SSPS "Mode 5/6-Normal" switch in the "Mode 5/6" position.

V. CORRECTIVE ACTIONS

A. CORRECTIVE ACTIONS TO PREVENT RECURRENCE

ROOT CAUSE - 1

The root cause of this event was a cognitive personnel error.

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CORRECTIVE ACTION - 1

The Operations Shift Crew was counselled as to when an ESF actuation is allowed to occur and not be reportable and the implications and perceptions of their actions. In addition, training will be developed on the requirements of NUREG-1022, "Licensee Event Report System," and what constitutes an FSF actuation. This training will be presented to all Licensed Operators.

ROOT CAUSE - 2

Procedure was less than adequate.

CORRECTIVE ACTION - 2

A procedure change has been implemented to allow the SSPS "Mode 5/6-Normal" switch to be placed in the "Mode 5/6" position immediately after entry into Mode 5, if desired.

VI. PREVIOUS SIMILAR EVENTS

Although there have been several previous events due to personnel error, the root causes of those events were unrelated to the root cause of this event. The corrective actions taken to resolve the root causes of the previous events would not have prevented this event. Therefore, no previous similar events have been reported, pursuant to 10CFR50.73.

VII. ADDITIONAL INFORMATION

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