TUELECTRIC

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William J. Cahill, Jr.
Executive Vice President

October 17, 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 90-031-00

Gentlemen:

Enclosed is Licensee Event Report 90-031-00 for Comanche Peak Steam Electric Station Unit 1, "Failure to Comply With Technical Specification Action Statement Due to Non-Conservative Alarm Setpoints."

Sincerely,

William J. Cahill, Jr.

By: H. D. Bruner
H. D. Bruner
Senior Vice President

JRW/daj

Enclosure

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

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Enclosure to TXX-90355

NRC FORM 366 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.

LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
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Title (4): FAILURE TO COMPLY WITH TECHNICAL SPECIFICATION ACTION STATEMENT DUE TO NON-CONSERVATIVE ALARM SETPOINTS

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
0 8	2 2	9 0	9 0	- 0 3 1	- 0 0	1 0	1 7	9 0	N/A	0 5 0 0 0
									N/A	0 5 0 0 0

Operating Mode (9)	1	This report is submitted pursuant to the requirements of 10 CFR §: (Check one or more of the following) (11)			
Power Level (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(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 366A)
		20.405(a)(1)(iii)	[X] 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)(x)	

Licensee Contact For This LER (12)

Name	Telephone Number: Area Code	
G. P. McGEE SUPERVISOR, COMPLIANCE	8 1 7	8 9 7 - 5 4 7 7

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)	Month	Day	Year
[ ] Yes (If yes, complete Expected Submission Date)	[X] No				

Abstract (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On July 23, 1990, the Containment Atmosphere Gaseous Radioactivity Monitoring System (CAGRM) was declared inoperable due to steady state background activity levels above the alert setpoint. On August 10, 1990, the Containment Air Cooler (CARCS) condensate flow rate alarm setpoints were determined to be non-conservative, and was declared inoperable. With both CARCS and CARGM inoperable Operations personnel entered Technical Specification (TS) Action Statement 3.4.5.1. Containment atmosphere sampling began at the time of discovery. On August 27, 1990, new CARCS condensate flow rate alarm setpoints were installed and CARCS declared operable.

Reconstruction of the event, prior to discovery, shows that CARCS had been inoperable due to non-conservative alarm setpoints since February 8, 1990. Furthermore, containment atmosphere grab samples between July 23, 1990, and August 10, 1990 were not taken, and plant shutdown after 30 days (August 22, 1990) was not accomplished. Non-compliance with the TS Action Statement was due to CARCS inoperability not being discovered until August 10, 1990.

The root cause was determined to be non-conservative assumptions made in establishing the original and subsequent CARCS condensate flow rate alarm setpoints. Corrective actions include a revision of these alarm setpoints and a memo to Engineering personnel addressing these concerns.

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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 August 22, 1990, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 1, Power Operation, at approximately 100 percent power.

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

At 1328 on July 23, 1990, the Containment Atmosphere Gaseous Radioactivity Monitoring System (CAGRM) (EIIS: (MON)(IK)) was declared inoperable and removed from service. The CAGRM was determined to be inoperable due to steady state background activity levels that were above the alert setpoint of the CAGRM. As a result, the CAGRM was in constant alert, and was unable to detect a one gallon-per-minute (GPM) leak, or its equivalent, in less than one hour, as required by Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems", May 1973.

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

On August 3, 1990, the Radiation Monitoring System Engineer (utility, nonlicensed) identified a potential problem with the Containment Air Cooler (CARCS)(EIIS:(VA)) condensate flow rate alarm setpoints. After further review, these alarm setpoints were determined to be non-conservative. Although continuous strip chart recording of the CARCS condensate flow rate was available and not affected, at 1640 on August 10, 1990, the CARCS was declared inoperable due to the non-conservative CARCS condensate flow rate alarm setpoints. A Limiting Condition for Operation Action Requirement (LCOAR) was initiated to document the entrance into Technical Specification (TS) Action Statement 3.4.5.1, based on the inoperability of both the CAGRM and the CARCS. Containment atmosphere sampling began at the time of

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discovery, August 10, 1990. The LCOAR required termination time/date was documented as 1640 on September 9, 1990.

On August 21, 1990, new CARCS condensate flow rate alarm setpoints were successfully installed. Post work test results were subsequently reviewed, the LCOAR closed out, and CARCS declared operable at 1519 on August 22, 1990.

On August 23, 1990, the Radiation Monitoring System Engineer determined the new CARCS condensate flow rate alarm setpoints to be non-conservative when all four CARCS units were in operation. The new alarm setpoints, installed on August 21, 1990, were based on the operation of the three required CARCS units and did not consider the affect of operating the fourth (spare) unit. With the fourth CARCS unit in operation the new alarm setpoints would not alarm on a one GPM leak. The fourth CARCS unit had been started by Operations personnel at 0240 on August 21, 1990, due to high containment (EIIS:(NH)) temperatures. At 1530 on August 23, 1990, the CARCS was declared inoperable and a LCOAR initiated to document the entrance into TS Action Statement 3.4.5.1, based on the inoperability of both the CAGRM and the CARCS. Containment atmosphere sampling began upon entry into TS Action Statement 3.4.5.1. The LCOAR required termination time/date was documented as 1530 on September 22, 1990.

At 1041 on August 24, 1990, Operations personnel (utility, licensed) determined that operability of the CARCS had not been restored as required by the original LCOAR, initiated August 10, 1990. This LCOAR was terminated on August 22, 1990. In actuality, TS Action Statement 3.4.5.1 had never been exited. As a result, the required termination time/date for the August 23, 1990 LCOAR, was made retroactive to 1640 on September 9, 1990, consistent with the original LCOAR.

At 1044 on August 24, 1990, the fourth CARCS unit was stopped. With only three CARCS units in operation a one GPM leak, or its equivalent, was capable of alarm.

On August 27, 1990, new CARCS condensate flow rate alarm setpoints were successfully installed. Post work test results were subsequently reviewed, the LCOAR closed out, and CARCS declared operable at 1520 on August 27, 1990.

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

On September 17, 1990, while researching the CARCS condensate flow rate alarm setpoint concerns, a Compliance Engineer (contractor, nonlicensed) discovered that the CARCS condensate flow rate alarm setpoints had been non-conservatively set since CPSES Unit 1 Licensing, February 8, 1990. As a result of these non-conservative alarm setpoints the CARCS had been inoperable since February 8, 1990.

At 1328 on July 23, 1990, when the CAGRM was declared inoperable and removed from service, TS Action Statement 3.4.5.1 was unknowingly entered, requiring containment sampling and eventual plant shutdown. The CARCS condensate flow rate non-conservative alarm setpoints were not discovered and reported to Operations personnel until August 10, 1990. Operations personnel entered TS Action Statement 3.4.5.1 at the time of discovery, August 10, 1990. Reconstructing the event prior to discovery shows that containment atmosphere grab samples between July 23, 1990, and August 10, 1990, were not taken, and plant shutdown after 30 days (at 1328 on August 22, 1990) was not accomplished. Non-compliance with TS Action Statement 3.4.5.1 was due to CARCS inoperability not being discovered until August 10, 1990.

At 1044 on August 24, 1990, the fourth CARCS unit was stopped. With only three CARCS units in operation a one GPM leak, or its equivalent, was capable of alarm.

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.

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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

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

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

As a result of the non-conservative CARCS condensate flow rate alarm setpoints the CARCS had been inoperable since February 8, 1990, and was not declared operable until 1520 on August 27, 1990. The CARCS was inoperable for approximately 200 days.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

The Reactor Coolant System (RCS) (EIIS:(AB)) Leakage Detection Systems, required by TS 3.4.5.1, are provided to monitor and detect leakage from the reactor coolant pressure boundary. These Detection Systems are consistent with the recommendations of Regulatory Guide 1.45. During the period that the CARCS and the CARGM were inoperable, RCS pressure boundary leakages and containment atmosphere grab samples were demonstrated to be within TS limits by the appropriate surveillance tests.

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.

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IV. CAUSE OF THE EVENT

ROOT CAUSE - 1

The CARCS Design Basis Document (DBD) contained unconfirmed alarm setpoints that were based on assumptions subsequently determined to be non-conservative. These initial alarm setpoints were established based on an assumed containment humidity source. These initial alarm setpoints were determined to be non-conservative based on operating experience. These setpoints had been identified in the DBD as open items requiring confirmation of the bases. Engineering did not recognize these setpoints as an integral part of operability of the system.

ROOT CAUSE - 2

Non-conservative assumptions were made in establishing the CARCS condensate flow rate alarm setpoints with regard to equipment operating configurations. The design basis operational configuration (three CARCS units in operation) was assumed. The possibility that all four CARCS units might be operated simultaneously was not identified as the more limiting configuration with regard to the alarm setpoints.

V. CORRECTIVE ACTIONS

A. CORRECTIVE ACTIONS TO PREVENT RECURRENCE

ROOT CAUSE - 1

The CARCS Design Basis Document (DBD) contained unconfirmed alarm setpoints that were based on assumptions subsequently determined to be non-conservative.

CORRECTIVE ACTION - 1

The alarm setpoints for the CARCS have been revised and the DBD updated. Furthermore, Operations will document the methodology being employed for operability determinations where system attributes (such as non-safety alarms) not specified in TS are considered essential to operability. This methodology will be

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presented to Engineering to ensure a common understanding is applied to both design and operational activities.

ROOT CAUSE - 2

Non-conservative assumptions were made in establishing the CARCS condensate flow rate alarm setpoints with regard to equipment operating configurations.

CORRECTIVE ACTION - 2

A memo addressing this concern will be distributed to Engineering personnel.

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

GENERIC CONSIDERATION

The possibility exists that unconfirmed, non-conservative assumptions could be in other DBDs.

CORRECTIVE ACTION

DBD open items will be reviewed and revised as required.

VI. PREVIOUS SIMILAR EVENTS

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

VII. ADDITIONAL INFORMATION

The times listed in the report are approximate and Central Daylight Savings Time (CDT).