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Log # TXX-99236
File # 10200
Ref. # 10CFR50.73(a)(2)(ii)(B)

October 25, 1999

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445
CONDITION THAT ALONE COULD HAVE PREVENTED SAFETY FUNCTION
LICENSEE EVENT REPORT 445/98-006-00

Enclosed is Licensee Event Report (LER) 98-006-00 for Comanche Peak Steam Electric Station Units 1, " Steam Generator Tube Plugging due to Stress Corrosion Cracking."

This report also meets the requirements of Special Report as specified in CPSES Technical Specification 5.6.10.a. Additionally, this communication does not contain any new commitments pertaining to CPSES license.

Sincerely,

C. L. Terry

By: Roger D. Walker
Roger D. Walker
Manager, Regulatory Affairs

OAB:oab
Enclosure

cc: E. W. Merschoff, Region IV
J. I. Tapia, Region IV
Resident Inspectors, CPSES

IE22

PDR ADOCK

Enclosure to TXX-99236

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 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, 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)
STEAM GENERATOR TUBE PLUGGING DUE TO STRESS CORROSION CRACKING

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
10	04	99	99	006	00	10	25	99	CPSES UNIT 2	05000446
										05000

Operating Mode (9)	6	This report is submitted pursuant to the requirements of 10 CFR : (Check one or more) (11)			
Power Level (10)	0	20.2201 (b)	20.2203 (a) (2) (v)	50.73 (a) (2) (i)	50.73 (a) (2) (viii)
		20.2203 (a) (1)	20.2203 (a) (3) (i)	50.73 (a) (2) (ii)	50.73 (a) (2) (x)
		20.2203 (a) (2) (i)	20.2203 (a) (3) (ii)	50.73 (a) (2) (iii)	73.71
		20.2203 (a) (2) (ii)	20.2203 (a) (4)	50.73 (a) (2) iv)	OTHER
		20.2203 (a) (2) (iii)	50.36 (c) (1)	X 50.73 (a) (2) (v)	Specify in Abstract below
		20.2203 (a) (2) (iv)	50.36 (c) (2)	50.73 (a) (2) (vii)	or in NRC Form 366A

Licensee Contact For This LER (12)

Name	Telephone Number (Include Area Code)
Ben Mays - Engineering Programs Manager	(254)897-6816

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)	Month	Day	Year
YES (If YES, complete EXPECTED SUBMISSION DATE)	X	NO				

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

On October 4, 1999, with Comanche Peak Steam Electric Station (CPSES) Unit 1 in Mode 6 (Refueling), analysis of eddy current testing data on Steam Generators (SG) (EIIS: (AB)(SG)) indicated that greater than 1 percent of the total tubes inspected in SG 1-4 were defective. The majority of the tube defects are attributed to outer diameter stress corrosion cracking at the hot leg top of tubesheet.

TXU Electric has plugged all defective tubes identified during the current refueling outage. All defective tubes met the criteria of Draft Regulatory Guide 1.121 for structural integrity. TXU Electric maintains a comprehensive program to minimize SG tube degradation.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

DESCRIPTION OF REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

The subject event is reportable pursuant to the requirements of TS 5.6.10 specifically 10CFR50.73(a)(2)(v)(C).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

Comanche Peak Steam Electric Station (CPSES) Unit 1 was in its seventh refueling outage (1RF07).

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

Not Applicable - There were no structures, systems, or components that were inoperable at the start of the event which contributed to this event.

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

CPSES Technical Specification (TS) 5.5.9, "Steam Generator (SG) Tube Surveillance Program," requires that the results of each SG tube inspection be classified as Category C-3 if more than 1 percent of the total tubes inspected are defective. Defective tubes must be removed from service.

Additionally, if the results of the SG tube sample inspections are classified as Category C-3, then prompt NRC notification is required in accordance with TS 5.5.9 Table 5.5-2.

On October 4, 1999, at approximately 6:30 a.m., CPSES Unit 1 was in its seventh refueling outage. Analysis of eddy current testing data on Steam Generator (SG) (EIIS: (AB)(SG)) 1-4, indicated that greater than 1 percent of the total tubes inspected in SG 1-4 were defective.

On October 4, 1999 at approximately 8:11 a.m., CPSES made notification of the event via the emergency notification system (ENS) pursuant to the requirements of 10CFR50.72 and TS 5.5.9.

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

The defective tubes were found during scheduled eddy current testing of CPSES Unit 1 SG tubing.

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II. COMPONENT OR SYSTEM FAILURES

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

TXU Electric believes that top of tube support (TTS) outside diameter stress corrosion cracking (ODSCC) was caused by the temperature, chemistry and residual stress effects on the tubing material (Inconel 600 MA).

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Not Applicable - No safety system train was rendered inoperable.

C. SAFETY CONSEQUENCES AND IMPLICATIONS

The outside diameter stress corrosion cracking (ODSCC) associated with the hot leg rolled transition was found to be the predominant degradation mechanism seen during the CPSES 1FR07 inspection. A total of 48 tubes were repaired in SG 1-4 as a result of top of tubesheet ODSCC. Am additional 9 tubes were plugged due to loose parts, volumetric indications, and tube pulls in Steam Generator 1-4. There were no instances of ODSCC tube degradation identified in the cold leg hard rolled transition based upon 20 percent eddy current (MRPC/ Plug Point) inspection performed for SG 1-4. None of the indications reported met the industry accepted threshold nondestructive examination (NDE) screening criteria for leakage or structural integrity. Growth rates based on consecutive inspection data associated with tubes exhibiting baffle plate and anti-vibrations bar (AVB) wear were within expected progression. The condition of the tubes at the end of Cycle 7 meets all NRC accepted integrity levels. The planned operating length for Cycle 8 is 496 effective full power days (EFPD) compared to 510.4 EFPD (actual) for Cycle 7. This represents a decrease in operating length. There are no planned changes of significance in operating temperatures and steam pressure nor in the operating temperatures and steam pressure nor in the operating secondary side chemistry. Therefore, the structural and leakage integrity condition of the CPSES Unit 1 SGs is bounded by the acceptable Cycle 7 performance. Based on the aforementioned, it was concluded that the event had no impact on the health and safety of the public.

III. CAUSE OF THE EVENT

TXU Electric believes that the top of tube sheet (TTS) outside diameter stress corrosion cracking (ODSCC) was caused by the temperature, chemistry and residual stress effects on the tubing material (Inconel 600 MA).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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IV. CORRECTIVE ACTIONS

Chemical cleaning was performed during the CPSES Unit 1 fifth refueling outage (1RF05) to remove the chemical contaminants at the TTS and TSPs. Prior to operation for cycle 7, 124 tubes in each steam generator were expanded at the B and D baffle plate to reduce wear. TXU Electric has removed all known defective tubes from service as required by CPSES Technical Specification.

V. PREVIOUS SIMILAR EVENTS

There has been one other previous similar event of this type at CPSES, which occurred during the 1RF06 SG tube inspection. Corrective actions taken for the previous event would not have prevented this event.

VI. ADDITIONAL INFORMATION

Information provided below satisfies the requirements of CPSES TS 5.6.10.a

CPSES UNIT 1 STEAM GENERATOR 1

8 tubes were plugged in this generator
0 tubes were designated as an F* tube.

CPSES UNIT 1 STEAM GENERATOR 2

20 tubes were plugged in this generator
0 tubes were designated as an F* tube.

CPSES UNIT 1 STEAM GENERATOR 3

35 tubes were plugged in the generator
0 tubes were designated as an F* tube.

CPSES UNIT 1 STEAM GENERATOR 4

57 tubes were plugged in this generator
0 tubes were designated as an F* tube.