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Ref: GL 2004-01

CPSES-200402318
Log # TXX-04182

October 14, 2004

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

**SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
UNITS 1 AND 2 - DOCKET NOS. 50-445 AND 50-446
RESPONSE TO NRC GENERIC LETTER 2004-01;
"REQUIREMENTS FOR STEAM GENERATOR TUBE
INSPECTIONS"**

Gentlemen:

By means of the Attachment to this letter, TXU Generation Company LP (TXU Power) submits its response to the Nuclear Regulatory Commission's request for information pursuant to Generic Letter 2004-01; "Requirements For Steam Generator Tube Inspections."

Should you have any questions, please contact Mr. Bob Kidwell at (254) 897-5310.

This communication contains no new or revised licensing basis commitments.

A115

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Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC
Its General Partner

Mike Blevins

By: 
Fred W. Madden
Director, Regulatory Affairs

RJK
Attachment

c - B. S. Mallett, Region IV
W. D. Johnson, Region IV
M. C. Thadani, NRR
Resident Inspectors, CPSES

Attachment to TXX-04182

**Response to NRC Generic Letter 2004-01
“Requirements for Steam Generator Tube Inspections”**

In accordance with the instructions provided within the Generic Letter, within 60 days of the date of this generic letter, addressees are requested to provide the following information to the NRC.

- 1. Addressees should provide a description of the SG tube inspections performed at their plant during the last inspection. In addition, if they are not using SG tube inspection methods whose capabilities are consistent with the NRC's position, addressees should provide an assessment of how the tube inspections performed at their plant meet the inspection requirements of the TS in conjunction with Criteria IX and XI of 10CFR Part 50, Appendix B, and corrective action taken in accordance with Appendix B, Criterion XVI. This assessment should also address whether the tube inspection practices are capable of detecting flaws of any type that may potentially be present along the length of the tube required to be inspected and that may exceed the applicable tube repair criteria.*

CPSES Response to Question 1:

Steam Generator tube Inservice Inspection (ISI) performed at CPSES is consistent with the NRC's position regarding tube inspections. TXU Power uses tube inspection methods that are capable of detecting flaw types that may be present. Prior to each inspection a degradation assessment, which includes operating experience, is performed to identify degradation mechanisms that may be present, and a technique validation assessment is performed to verify that the eddy current techniques are capable of detecting those flaw types identified in the degradation assessment.

CPSES Unit 1 has four (4) Westinghouse Model D4 steam generators. The tubing material in each of the steam generators is Inconel Alloy 600. To reduce the residual tensile stresses in the Model D4 tubing, Row 1 and Row 2 U-bends have been stress relieved using an in situ thermal process, and the hot and cold legs of all active tubes have been shotpeened within the tubesheet region.

CPSES Unit 2 has four (4) Westinghouse Model D5 steam generators. The tubing material in each of the steam generators is Inconel Alloy 600, thermally treated in the factory to reduce the residual tensile stresses.

CPSES Response to Question 1 (cont.):

During the last scheduled SG ISI on each unit, TXU Power performed the following:

• **CPSES Unit 1, April 2004**

The 1RF10 inspection scope exceeded both the Technical Specification minimum requirements as well as the recommendations of EPRI TR-1003138, "PWR Steam Generator Examination Guidelines," Revision 6. The inspection scope was developed to specifically address the areas identified by the degradation assessment (including expansion criteria), those areas expected to be affected based on industry experience, and site specific lessons learned from previous outages. The 1RF10 ISI for all four Unit 1 SGs included:

1. 100% full length bobbin inspection (except U-Bend region in Rows 1 and 2)
2. 100% Hot Leg TTS +Point inspection from 3 inches above to 3 inches below¹ for hard rolled expanded tubes and from 3 inches above to Hot Leg tube end for WEXTEx expanded tubes
3. 20% Cold Leg TTS +Point inspection from 3 inches above to 3 inches below² for hard rolled expanded tubes³
4. 100% Row 1 through 21 U-Bend +Point inspection⁴
5. 20% Row 22 U-Bend +Point inspection
6. 25% +Point inspection of tubes expanded at Cold Leg baffles B (C2) and D (C3)
7. +Point inspection of dents, regardless of voltage, at AVB locations
8. Rotating probe inspection of mixed residuals > 1.5 volts (by bobbin) and Hot Leg dented intersections \geq 5 volts (by bobbin) according to the requirements of GL 95-05

¹ Conservatively bounds the F* criterion of 1.47 inches (includes NDE measurement uncertainty).

² Conservatively bounds the F* criterion of 1.47 inches (includes NDE measurement uncertainty).

³ Cold Leg TTS inspection was expanded an additional 20% in SG 1 based on the observation of a volumetric signal. No additional degradation was reported.

⁴ Includes expansion to Rows 11 - 21 due to indications of oblique PWSCC in Row 10 in SGs 1 and 2. Although indications were observed in Row 13, no further expansion was required as this row was bounded by the critical area redefinition.

- **CPSES Unit 1 April 2004 (cont.)**

9. Rotating probe inspection of preheater baffle plate indications and freespan bobbin coil indications for flaw confirmation and characterization
10. 100% +Point inspection of all dented intersections at the H3 TSP ≥ 2 volts
11. 20% +Point inspection of freespan dings > 2 volts and ≤ 5 volts between TSH and H3 TSP
12. 100% +Point inspection of freespan dings > 5 volts
13. 20% +Point freespan paired ding inspection between the top two TSPs (Hot Leg and Cold Leg)
14. +Point inspection of tubes selected for installation of Alloy 800 sleeves in the region of the roll joint (TTS +3.0 inches to -10.0 inches)
15. Inspection of tubes unplugged during 1RF10 consistent with the above plan
16. 100% +Point inspection of sleeves installed in SGs 2, 3 and 4 during 1RF09 (weld to expansion in tubesheet)⁵
17. Baseline +Point inspection of all Alloy 800 sleeves installed during 1RF10
18. Special Interest +Point inspections for possible bobbin flaw indications
19. 100% tube plug visual inspection
20. Secondary side video inspection including a limited scope TTS in-bundle inspection and FOSAR at TTS and cold leg baffle plate B

⁵ Excludes 60 sleeves that were found partially collapsed. All tubes with partially collapsed sleeves were plugged.

- **CPSES Unit 2, October 2003**

The 2RF07 inspection scope exceeded both the Technical Specification minimum requirements as well as the recommendations of EPRI 1003138, "PWR Steam Generator Examination Guidelines," Revision 6. The inspection scope was developed to specifically address the areas identified by the degradation assessment (including expansion criteria), those areas expected to be affected based on industry experience and site specific lessons learned from previous outages. Additionally, tubes in SGs 1 and 4, which were identified as possibly having elevated residual stress (NRC IN 2002-21 Supplement 1), were included in the full length bobbin program (items 1 and 2 below) and TTS +Point program (items 4 or 5 below). The 2RF07 ISI for Unit 2 SGs 1 and 4, unless otherwise noted, included:

1. 75% full length bobbin inspection in SG 1 (except U-Bend regions of Rows 1 and 2)⁶
2. 55% full length bobbin inspection in SG 4 (except U-Bend regions of Rows 1 and 2)
3. 50% Row 1 and 2 U-Bend +Point inspection
4. 44% Hot Leg TTS +Point inspection from 3 inches above to 9 inches below⁷
5. 6% Hot Leg TTS +Point inspection from 3 inches above to Hot Leg tube end⁸
6. 50% +Point inspection of the expanded baffle plate intersections
7. 100% +Point inspection of all dented TSP intersections ≥ 5 volts at the H3 TSP
8. 50% +Point inspection of > 5 volt dings in the Hot Legs
9. Special Interest +Point inspections for possible bobbin flaw indications
10. 100% tube plug visual inspection
11. Secondary side video inspection including a limited scope TTS in-bundle inspection and FOSAR at TTS and cold leg baffle plate B in all four SGs

⁶ Includes 20% expansion due to a repairable indication in tube R47C56.

⁷ The inspection extent of -9 inches conservatively bounds the limiting distance for partial length RPC inspection of the tubesheet for the Unit 2 Model 5 Steam Generators (referred to as the H* distance). A License Amendment Request for implementation of H* criterion is still under development.

⁸ Represents the Technical Specification required inspection scope (i.e., 12% / 2 SG = 6%).

2. *If addressees conclude that full compliance with the TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B, requires corrective action, they should discuss their proposed corrective actions (e.g., changing inspection practices consistent with the NRC's position or submitting a TS amendment request with the associated safety basis for limiting the inspections) to achieve full compliance. If addressees choose to change their TS, the staff has included in the Attachment suggested changes to the TS definitions for a tube inspection and for plugging limits to show what may be acceptable to the staff in cases where the tubes are expanded for the full depth of the tube sheet and where the extent of the inspection in the tube sheet region is limited*

CPSES Response to Question 2:

Steam Generator tube inspections performed at CPSES are consistent with the NRC's position regarding tube inspections. Therefore this question does not apply.

3. *For plants where SG tube inspections have not been or are not being performed consistent with the NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B, the licensee should submit a safety assessment (i.e., a justification for continued operation based on maintaining tube structural and leakage integrity) that addresses any differences between the licensee's inspection practices and those called for by the NRC's position. Safety assessments should be submitted for all areas of the tube required to be inspected by the TS, where flaws are not being used, and should include the basis for not employing such inspection techniques. The assessment should include an evaluation of (1) whether the inspection practices rely on an acceptance standard (e.g., cracks located at least a minimum distance of x below the top of tube sheet, even if these cracks cause complete severance of the tube) which is different from the TS acceptance standards (i.e., the tube plugging limits or repair criteria), and (2) whether the safety assessment constitutes a change to the "method of evaluation" (as defined in 10CFR50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method of evaluation under 10 CFR 50.59, the licensee should determine whether a license amendment is necessary pursuant to that regulation.*

CPSES Response to Question 3:

Steam Generator tube inspections performed at CPSES are consistent with the NRC's position regarding tube inspections. Therefore this question does not apply.