



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 23, 2011

Mr. Rafael Flores
Senior Vice President and
Chief Nuclear Officer
Attention: Regulatory Affairs
Luminant Generation Company LLC
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNIT 2 - SUMMARY OF
CONFERENCE CALL REGARDING THE SPRING 2011 STEAM GENERATOR
TUBE INSPECTIONS (TAC NO. ME5826)

Dear Mr. Flores:

On April 14, 2011, the U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with representatives of Luminant Generation Company LLC (the licensee) regarding the ongoing steam generator (SG) tube inspection activities at Comanche Peak Nuclear Power Plant, Unit 2. The discussion was based on a brief summary of the scope and results of the SG tube inspections provided by the licensee.

Prior to the call on April 14, 2011, the licensee was provided with discussion points to help facilitate the conference call via NRC staff letter dated March 14, 2011, available at the Agencywide Document Access and Management System (ADAMS) Accession No. ML110690165. Based on the information provided by the licensee, the staff did not identify any issues that warranted immediate follow-up action. A summary of the conference call is enclosed and the information provided by the licensee is included as an attachment to the enclosure.

If you have any questions regarding this matter, I may be reached at 301-415-3016.

Sincerely,

Balwant K. Singal
Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-446

Enclosure:
As stated

cc w/encl: Distribution via Listserv

SUMMARY OF APRIL 14, 2011, CONFERENCE CALL
WITH LUMINANT GENERATION COMPANY LLC
REGARDING THE SPRING 2011 STEAM GENERATOR
TUBE INSPECTION RESULTS
AT COMANCHE PEAK NUCLEAR POWER PLANT, UNIT 2
DOCKET NO. 50-446

On April 14, 2011, the staff of the U.S. Nuclear Regulatory Commission's (NRC's) Steam Generator Tube Integrity and Chemical Engineering Branch of the Division of Component Integrity participated in a conference call with representatives of Luminant Generation Company LLC (the licensee) regarding the ongoing steam generator (SG) tube inspection activities at Comanche Peak Nuclear Power Plant (CPNPP), Unit 2.

CPNPP, Unit 2 has four Westinghouse Model D5 SGs that each have 4,570 thermally treated Alloy 600 tubes. These tubes have an outside diameter of 0.750 inches and a nominal wall thickness of 0.043 inches. The tubes are supported at various locations by stainless steel, broached, tube support plates with quatrefoil-shaped holes and V-shaped chrome-plated Alloy 600 anti-vibration bars (AVBs). The tubes were hydraulically expanded for the full depth of the 21-inch thick tubesheet.

Prior to the call on April 14, 2011, the licensee was provided with discussion points to help facilitate the conference call via NRC staff letter dated March 14, 2011, available at the Agencywide Document Access and Management System (ADAMS) Accession No. ML110690165. The information provided by the licensee for the conference call is included as an attachment. At the time of the April 14, 2011, call, SG tube inspections were in progress. Additional clarifying information or information not included in the material provided by the licensee is summarized below:

- At the time of the call, the inspection was approximately 36 percent complete on all four SGs. No cracks were found as of the time of the call. One indication of AVB wear was noted to have a high growth rate and will be retested with a probe calibrated for large wear scars. At the time of the phone call, there was no need to expand the scope of the SG tube inspections.
- The 2RF12 (CPNPP, Unit 2 Refueling Outage 12) inspection was the second inspection in the 90 effective full-power-month inspection interval.
- Foreign object search and retrieval (FOSAR) in SG 1 and 4 was nearly complete. The FOSAR in SG 2 was in progress and the SG 3 inspection had not commenced.
- To date, there was no slippage observed in any of the tubes inspected.

Enclosure

- A plug video inspection was completed on all SGs. All plugs were in place and no issues were identified during the inspections.
- If a loose part cannot be removed from the SG, an evaluation of the consequences of leaving the affected tubes in service is performed. A tube can be left in service following the evaluation, if any wear or impingement damage would not jeopardize tube integrity for at least two cycles. If the tube cannot meet this criterion, then it is removed from service. If a possible loose part indication is identified during the eddy current inspection and a visual inspection cannot be performed, the tube will be plugged (and possibly stabilized) if wear is observed in the tube. If there is no wear observed, an assessment is performed to determine how to disposition the tube (i.e., plug or leave in service).

Based on the information provided, the NRC staff did not identify any issues that warranted immediate follow-up action.

Attachment:
As stated

ATTACHMENT

Steam Generator Tube Inspections

Comanche Peak Nuclear Power Plant, Unit 2

(Spring 2011)

Discussion Points and Information Provided By Luminant Generation Company LLC in

Response to NRC Letter dated March 14, 2011

NRC – Luminant Phone Call on Comanche Peak 2RF12 SG Inspection
April 14, 2011

1. Please discuss any trends in the amount of primary-to-secondary leakage observed during the recently completed cycle.

Based on measurements by N-16 monitors, condenser off gas monitors, and grab samples there was no detectable primary-to-secondary leakage in Unit 2 Cycle 12.

2. Please discuss whether any secondary-side pressure tests were performed during the outage and the associated results.

No secondary-side pressure test was performed to detect tube leakage.

3. Please discuss any exceptions taken to the industry guidelines.

No exceptions were taken to industry guidelines.

4. For each SG, please provide a description of the inspections performed including the areas examined and the probes used (e.g., dents/dings, sleeves, expansion transition, U-bends with a rotating probe), the scope of the inspection (e.g., 100 percent of dents/dings greater than 5 Volts and a 20 percent sample between 2 and 5 Volts), and the expansion criteria.

See Table 1.

Expansion criteria were established prior to the outage based on the plant technical specifications and industry guidelines. Detailed logic charts were developed to address inspection findings from all base scope inspections.

For example, if a crack indication is reported at the top of the tubesheet in the hot leg, the +Point inspection at the top of the tubesheet would be expanded to 100% of the tubes in the affected SG (from the 50% base scope). The reported indication(s) would be screened for in situ testing as per the EPRI In Situ Pressure Test Guidelines.

5. For each area examined (e.g., tube supports, dent/dings, sleeves, etc.), please provide a summary of the number of indications identified to-date of each degradation mode (e.g., number of circumferential primary water stress-corrosion cracking (PWSCC) indications at the expansion transition). For the most significant indications in each area, provide an estimate of the severity of the indication (e.g., provide the voltage, depth, and length of the indication). In particular, please address whether tube integrity (structural and accident-induced leakage integrity) was

maintained during the previous operating cycle. In addition, please discuss whether any location exhibited a degradation mode that had not previously been observed at this location at this unit (e.g., observed circumferential PWSCC at the expansion transition for the first time at this unit).

Based on inspection completed so far, tube integrity was maintained during the last operating cycle. No new degradation mechanism (previously undetected in these SGs) has been reported and no pluggable indications identified.

6. Please describe repair/plugging plans.

Any repair/plugging action will be limited to plugging (no tube repair is planned).

7. Please describe in-situ pressure test and tube-pull plans and results (as applicable and if available).

No in situ pressure test or tube pull is planned during the current outage. This is consistent with the inspection results to-date and the industry guidelines.

8. Please discuss the following regarding loose parts:

- what inspections are performed to detect loose parts;

During normal operation feedwater is discharged into a “water box” in the SG from which it flows into the preheater above the baffle plate B (see Figure 1) in the cold leg. As a result, loose parts enter the SG over baffle plate B. Therefore close attention is paid to this region. Video inspection is performed over baffle plate B in all SGs. In particular, the periphery and the T-slot are inspected. These are the areas of highest potential for loose parts accumulation and tube damage. If video inspection detects the presence of a loose part (either over the tubesheet or over baffle plate B), the adjacent tubes are inspected by +Point to detect and quantify any tube degradation.

Full length bobbin inspection is performed on 50% of the tubes in all SGs. Any tube wear in these tubes and possible loose parts (PLP) adjacent to these tubes would be reported from this inspection. If a PLP is reported by bobbin, that tube and the adjacent tubes are inspected by +Point to confirm the presence of loose parts and to identify any tube degradation that may be present. In addition, foreign object search and retrieval is performed when a PLP is reported by eddy current inspection. The only exception to this is when the PLP is at a location that is not accessible to the secondary-side probe for video inspection or retrieval.

Of the tubes that are hydraulically expanded at baffle plates B and D (located in the high cross flow region near the periphery and the entrance of the T-slot) 50% are inspected by +Point.

- a description of any loose parts detected and their location within the SG (including the source or nature of the loose parts, if known);

See Table 2 for a summary of the foreign object search and retrieval activities completed so far. The largest objects found were as follows:

- A metal curl found on SG 1 at the top of the tubesheet at R7 C111 sized at 0.625 length x 0.25 height x 0.02 width
 - Wire lodged in SG 1 Baffle Plate B at R26 C37 sized at 1.25" length with a 0.030" diameter
- if the loose parts were removed from the SG; and

See Table 2.

- indications of tube damage associated with the loose parts.

No indication of tube damage from loose parts has been reported so far.

9. Please discuss the results of any secondary-side inspection and maintenance activities (e.g., in-bundle visual inspections, feeding inspections, sludge lancing, assessing deposit loading, etc).

The secondary-side activities during the 2RF12 outage are:

- 1) Sludge lancing in all SGs
- 2) Video inspection and FOSAR over baffle plate B in all SGs
- 3) Video inspection over the tubesheet in all SGs – annulus, tube lane, T-slot, and selected column gaps in both hot leg and cold leg; retrieval if necessary
- 4) Video inspection of the water box and upper bundle in only one SG (SG-4)

Secondary side inspection results appear normal. Video inspection of the upper bundle region in SG-4 showed that the tubes are clean with very little OD deposits and that the tube support plate crevices are open with very little deposit accumulation.

Analysis of deposits collected from the sludge lance operation and scale profiling evaluation of the eddy current test results to quantify and locate the scale deposits on the tube OD surface will be performed after the outage. The results from these evaluations will be used to refine the secondary side cleanliness management plan.

10. Please discuss any unexpected or unusual results.

There are no unexpected results so far.

11. Please provide the schedule for SG-related activities during the remainder of the current outage.

Primary side inspection will be completed as planned.

Inspection expansion will be performed if necessary.

Tube plugging and stabilization if necessary will be performed based on inspection results.

Secondary side sludge lancing and video inspection will be completed as planned.

Any foreign objects that can be removed will be retrieved.

These actions are expected to be completed by approximately 4/18/11.

Table 1. Comanche Peak 2RF12 Inspection Plan

Base Scope Inspection

- 1) 55% full length bobbin inspection, including tubes with prior indications and all tubes uninspected in 2RF10
- 2) 50% hot leg +Point inspection from 3 inches above to 17 inches below TTS including all tubes uninspected in 2RF10
- 3) 50% U-bend mag-biased mid-range +Point of Rows 1 and 2 (all tubes uninspected in 2RF10)
- 4) 50% +Point of tubes expanded at preheater baffle plates B and D (all tubes uninspected in 2RF10)
- 5) 100% +Point of ≥ 2 volt dents at H3 TSP
- 6) 50% +Point of ≥ 5 volt dings and dents in the hot leg (all such dings and dents uninspected in 2RF10)
- 7) Bobbin inspection of tubes identified for special inspection at preheater baffle plates. This is a one-time inspection of tubes most vulnerable to tube wear at baffle plates due to the increased feedwater flow resulting from the uprating implemented at the beginning of Cycle 12
- 8) Special interest RPC (freespan signals without historical resolution, bobbin I-code indications, etc.)
- 9) Inspection of specific locations for potential tube wear resulting from suspected or known loose parts – 41 locations distributed among the four SGs
- 10) Slippage monitoring
- 11) 100% tube plug video inspection
- 12) Top of the tubesheet and typical (periphery, T-slot, etc.) baffle plate B secondary side video inspection including FOSAR
- 13) Upper bundle video inspection (through Access Ports 1 and 2) in one SG (SG 4)

Inspection Expansion

(Fill in during outage)

Table 2. Foreign Object Search and Retrieval

SG	Location	Number of Parts Identified by Video	Number of Parts Retrieved
1	Tubesheet	9	3
1	Baffle Plate B	4	0
4	Tubesheet	4	0
4	Baffle Plate B	3	2
4	Tube Support Plate L	1	1
4	Tube Support Plate P	1	0

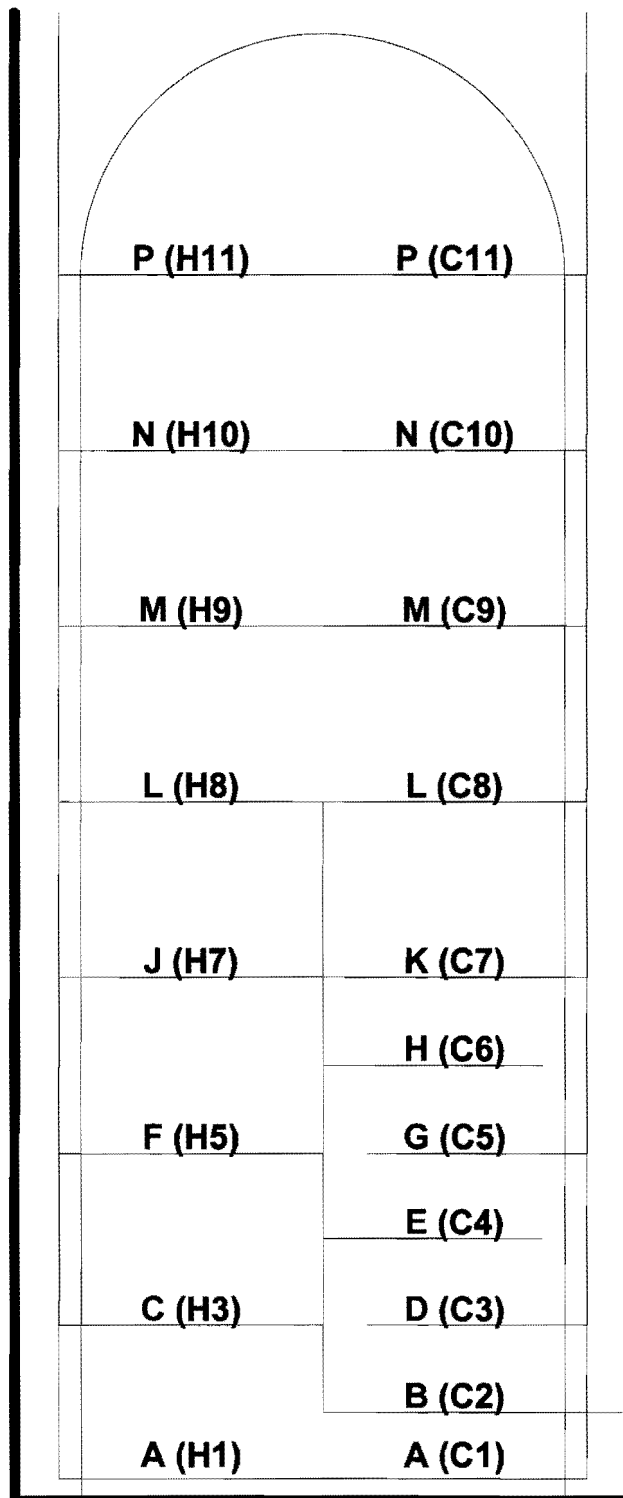


Figure 1. General Location and Designation of Tube Support/Baffle Plates (designations in parentheses show eddy current test terminology)

May 23, 2011

Mr. Rafael Flores
Senior Vice President and
Chief Nuclear Officer
Attention: Regulatory Affairs
Luminant Generation Company LLC
P.O. Box 1002
Glen Rose, TX 76043

**SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNIT 2 - SUMMARY OF
CONFERENCE CALL REGARDING THE SPRING 2011 STEAM GENERATOR
TUBE INSPECTIONS (TAC NO. ME5826)**

Dear Mr. Flores:

On April 14, 2011, the U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with representatives of Luminant Generation Company LLC (the licensee) regarding the ongoing steam generator (SG) tube inspection activities at Comanche Peak Nuclear Power Plant, Unit 2. The discussion was based on a brief summary of the scope and results of the SG tube inspections provided by the licensee.

Prior to the call on April 14, 2011, the licensee was provided with discussion points to help facilitate the conference call via NRC staff letter dated March 14, 2011, available at the Agencywide Document Access and Management System (ADAMS) Accession No. ML110690165. Based on the information provided by the licensee, the staff did not identify any issues that warranted immediate follow-up action. A summary of the conference call is enclosed and the information provided by the licensee is included as an attachment to the enclosure.

If you have any questions regarding this matter, I may be reached at 301-415-3016.

Sincerely,
/RA/

Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-446

Enclosure:
As stated

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrDorLpl4 Resource	RidsRgn4MailCenter Resource
LPLIV r/f	RidsNrrPMComanchePeak Resource	KKarwoski, NRR/DCI/CSGB
RidsAcrsAcnw_MailCTR Resource	RidsNrrLAJBurkhardt Resource	CHunt, NRR/DCI/CSGB
RidsNrrDciCsgb Resource	RidsOgcRp Resource	

ADAMS Accession No.: ML111400148

* Memo dated 5/10/11

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/CSGB/BC	NRR/LPL4/BC	NRR/LPL4/PM
NAME	BSingal	JBurkhardt	RTaylor*	MMarkley	BSingal
DATE	5/23/11	5/23/11	5/10/11	5/23/11	5/23/11

OFFICIAL RECORD COPY