**TXU Electric**
**Comanche Peak**
**Steam Electric Station**
P.O. Box 1002
Glen Rose, TX 76043
Tel: 254 897 8920
Fax: 254 897 6652
lterry1@txu.com

**C. Lance Terry**
Senior Vice President & Principal Nuclear Officer

Ref: 10CFR50.90

CPSES-200003045
Log # TXX-00219
File # 236

December 14, 2000

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
LICENSE AMENDMENT REQUEST (LAR) 00-04
REQUEST FOR ADDITIONAL INFORMATION REGARDING
STEAM GENERATOR TUBE REPAIR USING LASER WELDED
SLEEVES (TAC NOS. MA9950 AND MA9951)

REF: 1) NRC Letter from Mr. David H. Jaffe to Mr. C. Lance Terry dated December 1, 2000

2) TXU Electric Letter, logged TXX-00014, from Mr. C. Lance Terry to the NRC dated September 6, 2000

Gentlemen:

Via Reference 2 TXU Electric submitted proposed changes to the Technical Specifications associated with steam generator repair using laser welded sleeves at CPSES Unit 1. After review of the proposed changes the NRC staff requested additional information via Reference 1.

Attachment 2 to this letter provides the information requested by the NRC and TXU Electric's responses. Attachment 3 to this letter provides the changes and justification for the change. TXU Electric believes that the changes being provided do not impact the previously submitted Regulatory Analysis (No Significant Hazards Determination) via Reference 2. This communication contains the following new commitments which will be completed as noted:

D029

| Commitment Number | Commitment |
|---|---|
| [27215] | [The weld width limit of 0.021 inch will be implemented at Comanche Peak Unit 1 via the site specific procedures. TXU Electric will perform a 100% pre-service inspection of sleeves. The inspection of the laser weld will be done ultrasonically.] |
| [27216] | [TXU Electric will not use Cecco-5/bobbin probe, and will use plus point probe to inspect the sleeves during the pre-service and inservice inspections.] |

The Commitment number is used by TXU Electric for the internal tracking of CPSES commitments.

Should you require additional information please do not hesitate to contact Obaid Bhatty at (254) 897-5839.

Sincerely,

C. L. Terry

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

OAB/oab

Attachments
Enclosures

cc: E. W. Merschoff, Region IV
J. I. Tapia, Region IV
D. H. Jaffe, NRR
Resident Inspectors, CPSES

Mr. Arthur C. Tate
Bureau of Radiation Control
Texas Department of Public Health
1100 West 49th Street
Austin, Texas 78704

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| TXU Electric | ) | Docket Nos. 50-445 |
| | ) | 50-446 |
| (Comanche Peak Steam Electric Station, | ) | License Nos. NPF-87 |
| Units 1 & 2) | ) | NPF-89 |

AFFIDAVIT

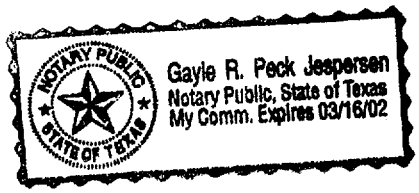
Roger D. Walker being duly sworn, hereby deposes and says that he is Regulatory Affairs Manager of TXU Electric, the licensee herein; that he is duly authorized to sign and file with the Nuclear Regulatory Commission this supplement to License Amendment Request 00-04; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

Roger D. Walker
Regulatory Affairs Manager

STATE OF TEXAS )
)
COUNTY OF )
Somervell

Subscribed and sworn to before me, on this 14th day of December, 2000.

Gayle R. Peck Jespersen
Notary Public



# NRC Request for Additional Information and TXU Electric Responses

## I. Questions Related to Proposed Technical Specifications (TSs)

1. The proposed changes to Table 5.5-2, Steam Generator Tube Inspection, are not implemented in accordance with Section 3.0 of EPRI Steam Generator Examination Guideline, Revision 5, TR-107569-V1R5, September 1997. Specifically, EPRI recommends a 20% sample for initial sleeve inspection. In addition, the staff has approved past sleeving license amendments based on TSs that included a separated, stand alone table specifically for sleeve inservice inspection and expansion criteria.

   Response:

   The proposed changes are being implemented in accordance with the EPRI Steam Generator Examination Guideline, Revision 5, TR-107569-V1R5. TXU Electric has committed to perform Steam Generator Tube Inspection under the auspices of NEI 97-06 "Steam Generator Program Guidelines," which refers to the aforementioned guideline. This guideline recommends a 20% sample and as such implementing procedures (site specific) will include these recommendations or the most current recommendations in the guideline at the time of implementation of the program. Nevertheless, TXU Electric has generated a separate Table **5.5-3** which will be incorporated in the TS. The proposed table and a revised section to reference the table is provided in Enclosure 1.

2. The proposed sleeve plugging limit of 43% does not correspond to any of the plugging limits shown on page 3-16 of WCAP-15090, Revision 1. Clarify the discrepancy. Also, confirm that the 43% plugging limit is derived using the current operating conditions in Unit 1 and not the power uprate conditions.

   Response:

   The staff is correct that the proposed sleeve plugging limit of 43% does not correspond to any of the plugging limits shown on page 3-16 of WCAP-15090, Revision 1. A more conservative value was chosen by TXU Electric which is 43%. Actual recommendation proposed by WCAP-15090 Revision 1 is 44%. Additionally, the 43% plugging limit is derived using the **current operating conditions** in Unit 1 and not the power uprate conditions.

3. The disposition procedures for degraded sleeve(s) is not clear to the NRC staff. TS 5.5.9.e.1.f proposed a 43% plugging limit for the degraded sleeve. However, Section 7.6 of WCAP-13698 specifies that "...[A]ny change in the eddy current signature of the sleeve and sleeve/tube joint region will require further inspection by alternate techniques prior to acceptance. Otherwise the tube containing the sleeve in question shall be removed from service by plugging..." This implies that tubes with eddy-current indications in the sleeve region may be left in service. Discuss eddy-current probe types and qualifications for sleeve inspection and the disposition procedures for degraded sleeve(s) at Comanche Peak Unit 1.

   Response:

   The proposed TS 5.5.9e.1.f, is for "Plugging or Repair Limit" while the proposed TS 5.5.9e.1.n, refers to tube serviceability and the methodology for tube repair prescribed via WCAP-13698, Revision 3. Degraded sleeves will be processed in accordance with TXU Electric's corrective action program. The methodology defined in WCAP-13698, Revision 3, will be adhered to.

4. In proposed TS 5.5.9.e.1.n, WCAP-15090, Revision 0, is referenced. However, in the amendment request package, WCAP-15090, Revision 1, is included. Clarify the discrepancy in the revision number.

   Response:

   This appears to be a typographical error and will be corrected. The correct revision is WCAP-15090, Revision 1. Nonetheless, WCAP-15090, Revision 0 is also correct because the only changes that were made in revision 1 are for the power uprating, which is [currently] only applicable to CPSES Unit 2. A revised page with the corrected version is provided in Enclosure 1 of this letter.

5. In proposed TS 5.5.9.b (page 5.0-13), it is stated that "When referring to a steam generator tube, the sleeve shall be considered as part of the tube if the tube has been repaired per Specification 5.5.9.e.1.n." Specification "5.5.9.e.1n" should be corrected to "5.5.9.e.1.n." for consistency.

   Response:

   The sentence which contained this typographical error has been removed, refer to Attachment 3 of this letter.

## II. Questions Related to WCAP-13698, Revision

1. In the spring of 2000, the NRC staff reviewed an amendment request from Kewaunee regarding its Westinghouse laser welded sleeves. In that review, the staff questioned whether the weld width of the laser welded sleeves is in compliance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). As a result of the NRC staff review, Westinghouse stated (in Reference 1) that it will revise its inspection and installation procedures for the laser welded sleeves to require that the average weld width be greater than 0.02 inch for the 7/8 inch inside diameter tubing. In Reference 2, Westinghouse stated that the field inspection procedure has been revised to verify that the average weld width of new sleeves is equal to and greater than 0.021 inch. It was staffs understanding that the 0.021 inch will be applicable to the 3/4 inch diameter tubing. However, in WCAP-13698, Revision 3, it is stated that the weld width limit is 0.015 inch. (1) Why is the weld width limit of 0.021 inch not implemented in WCAP-13698? (2) Will the weld width limit of 0.021 inch be implemented in the sleeve acceptance criteria and installation procedures at Comanche Peak? (3) Confirm how any weld having an average weld width of less than 0.021 inch will be dispositioned.

   Response:

   Responses to the specific questions are as follows:

   1) WCAP-13698, Revision 3, was issued in July 1998, whereas the staff requested additional information in spring of 2000. Revision 3 is the current revision.
   2) Yes, the weld width limit of 0.021 inch will be implemented at Comanche Peak Unit 1 via the site specific procedures.
   3) Any welds determined to have an average width of less than 0.021 inch will be subjected to an engineering disposition process, as indicated in the Westinghouse letter WPT-16094 dated March 20, 2000 (see Enclosure 2 to this letter). This letter has been added to 5.5.9e.1.n (see Enclosure 1), "Tube Repair".

2. In Section 7.3 of WCAP-13698, it is stated that the Cecco-5/bobbin probe provides baseline examination of the sleeves and tubes. In Section 7.4 of WCAP-13698, it is stated that Cecco-5 probes have been qualified to Electric Power Research Institute (EPRI) Appendix H requirements for detection in 3/4 and 7/8 inch diameter sleeved tubing. The staff understands that most licensees use the plus point probe to inspect the sleeves. If the Cecco-5 probe is used, the staff requests the following information regarding the Cecco-5 probe: Flaws in the qualification data set, noise level and signal-to-noise ratio in the qualification data set, comparison of the noise level and signal to noise expected from sleeves installed in the plant, and examination technique

specifications sheet (ETSS). In addition, clarify what eddy current probes will be used in the in-service inspection of sleeves in the future refueling outages?

Response:

TXU Electric will not use Cecco-5/bobbin probe, and will use plus point probe to inspect the sleeves during the pre-service and inservice inspections.

3. In Section 7.1 of WCAP-13698, it is stated that the sleeve welds will be inspected ultrasonically to verify the minimum required weld width. In Table 6.1, it is stated that the sleeves will be inspected ultrasonically on a sample plan. (1) Discuss the sample plan. (2) If all sleeve welds will not be inspected ultrasonically because of the sample plan, what measures will be taken to assure the acceptability of the width and condition of all welds? (3) What is the minimum required weld width referred to in Section 7.1?

Response:

TXU Electric will perform a 100% pre-service inspection of sleeves. The inspection of the laser weld will be done ultrasonically. At this time no sampling plan is being discussed at CPSES. With respect to weld width, the limit will be 0.021 inch. (See the response to question number 1 above.)

4. In Section 7.5.3 of WCAP-13698, Westinghouse stated that other advanced examination techniques may be used to inspect the in-service sleeves as long as they can be shown to provide the same degree or greater of inspection rigor as the initial methods. (1) Clarify whether the advanced techniques would be qualified in accordance with EPRI guidelines, and (2) how would the licensee implement the advanced techniques at Comanche Peak?

Response:

Responses to the specific questions are as follows:

1) The advanced techniques will be qualified in accordance with EPRI appendix H requirements, and
2) These techniques will be incorporated and implemented via the approved site procedures, and under the auspices of 10CFR50.59 process if applicable.

## III. References

1. Letter dated February 23, 2000, from Mark L. Marchi of Wisconsin Public Service Corporation to NRC Document Control Desk, Subject: Additional Information for Proposed Amendment 158, "Plugging Limit Changes for Westinghouse Mechanical Hybrid Expansion Joint Sleeves and Laser Welded Sleeves."

2. Letter dated March 23, 2000, from H.A. Sepp of Westinghouse Electric Company to NRC Document Control Desk, Subject: Laser Welded Sleeves Licensing Information.

# Changes to the Technical Specifications (TS)

**TS Change:**

Section 5.5.9.b:
Added Table 5.5-3 in section. Removed sentence ~~"When referring to a steam generator tube, the sleeve shall be considered as part of the tube if the tube has been repaired per Specification 5.5.9e.1.n."~~ in section 5.5.9.b. Added sentence "Table 5.5-2 applies to all tubes except repaired tubes (Unit 1 only) which are covered by Table 5.5-3".

Removed sentence "~~When applying the exceptions of Specification 5.5.9b.1 through 5.5.9b.3, previous defects or imperfections in the area repaired by sleeving are not considered an area requiring reinspection.~~" Added references to TS Sections 5.5.9d, 5.5.9e and Table 5.5-2 for consistency.

Justification:

The table was added as requested by the NRC Staff for the repaired tube inspection. Since TXU Electric inserted the Table 5.5-3 this statement becomes moot, because the repaired tubes will be inspected to Table 5.5-3. Additionally, removed the second sentence to maintain consistency with the inserted Table 5.5-3.

**TS Change:**

Added Westinghouse letter WPT-16094 dated March 20, 2000 and WCAP-15090, Rev. 1.

Justification:

The Westinghouse letter is added for the inspection criteria of laser weld width. The Rev. 0 was changed to Rev. 1, the revision change is an editorial change.

**TS Change:**

Added Table 5.5-3

Justification:

The table was added as requested by the NRC Staff for the repaired tube inspection.

# ENCLOSURE 1 TO TXX-00219

**Technical Specification markup pages 3 Total**
**Technical Specification print ready pages 3 Total**

**(Total 6 pages)**

5.5 Programs and Manuals (continued)

5.5.9 Steam Generator (SG) Tube Surveillance Program

Each steam generator shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program.

The provisions of SR 3.0.2 are applicable to the SG Surveillance Program test frequencies.

a. Steam Generator Sample Selection and Inspection - Each steam generator shall be determined OPERABLE during shutdown by selecting and inspecting at least the minimum number of steam generators specified in Table 5.5-1.

b. Steam Generator Tube Sample Selection and Inspection - The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 5.5-2 or 5.5-3. Table 5.5-2 applies to all tubes except repaired tubes (Unit 1 only) which are covered by Table 5.5-3. ~~When referring to a steam generator tube, the sleeve shall be considered as part of the tube if the tube has been repaired per Specification 5.5.9c.1.n.~~ The inservice inspection of steam generator tubes shall be performed at the frequencies specified in Specification 5.5.9d., and the inspected tubes shall be verified acceptable per the acceptance criteria of Specification 5.5.9e. ~~When applying the exceptions of Specification 5.5.9b.1 through 5.5.9b.3, previous defects or imperfections in the area repaired by sleeving are not considered an area requiring reinspection.~~ The tubes selected for each inservice inspection per Table 5.5-2 shall include at least 3% of all the expanded tubes and at least 3% of the remaining number of tubes in all steam generators; the tubes selected for these inspections shall be selected on a random basis except:

1. Where experience in similar plants with similar water chemistry indicates critical areas to be inspected, then at least 50% of the tubes inspected shall be from these critical areas;

2. The first sample of tubes selected for each inservice inspection (subsequent to the preservice inspection) of each steam generator shall include:

   a) All nonplugged tubes that previously had detectable wall penetrations (greater than 20%),

   b) Tubes in those areas where experience has indicated potential problems, and

(continued)

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

4. Certain intersections as identified in WPT-15949 will be excluded from application of the voltage-based repair criteria as it is determined that these intersections may collapse or deform following a postulated LOCA + SSE event.

5. If an unscheduled mid-cycle inspection is performed, the following mid-cycle repair limits apply instead of the limits identified in 5.5.9e.1.m)1., 5.5.9e.1.m)2., and 5.5.9e.1.m)3. The midcycle repair limits are determined from the following equations:

$$V_{MURL} = \frac{V_{SL}}{1.0 + NDE + Gr\left(\frac{CL - \Delta t}{CL}\right)}$$

$$V_{MLRL} = V_{MURL} - (V_{URL} - V_{LRL})\left[\frac{CL - \Delta t}{CL}\right]$$

where:

| | | |
|---|---|---|
| $V_{URL}$ | = | upper voltage repair limit |
| $V_{LRL}$ | = | lower voltage repair limit |
| $V_{MURL}$ | = | mid-cycle upper voltage limit based on time into cycle |
| $V_{MLRL}$ | = | mid-cycle lower voltage repair limit based on $V_{MLRL}$ and time into cycle |
| $\Delta t$ | = | length of time since last scheduled inspection during which $V_{URL}$ and $V_{LRL}$ were implemented |
| CL | = | cycle length (the time between two scheduled steam generator inspections) |
| $V_{SL}$ | = | structural limit voltage |
| Gr | = | average growth per cycle |
| NDE | = | 95-percent cumulative probability allowance for nondestructive examination uncertainty (i.e., a value of 20-percent has been approved by the NRC) |

Implementation of these mid-cycle repair limits should follow the same approach as in TS 5.5.9e.1.m)1., 5.5.9e.1m)2., and 5.5.9e.1.m)3.

n. Tube Repair (for Unit 1 only) refers to a process that establishes tube serviceability. Acceptable tube repairs will be performed in accordance with the process described in Westinghouse WCAP-13698, Rev. 3 and Westinghouse letter WPT-16094 dated March 20, 2000 and WCAP-15090, Rev. 1.

(continued)

5.5 Programs and Manuals (continued)

TABLE 5.5-3

STEAM GENERATOR REPAIRED TUBE INSPECTION FOR UNIT 1 ONLY

| 1ST SAMPLE INSPECTION | | | 2ND SAMPLE INSPECTION | |
|---|---|---|---|---|
| Sample Size | Result | Action Required | Result | Action Required |
| A minimum of 20% of repaired tubes (1) | C-1 | None | N.A. | N.A. |
| | C-2 | Plug defective repaired tubes and inspect 100% of the repaired tubes in this S.G. | C-1 | None |
| | | | C-2 | Plug defective repaired tubes |
| | | | C-3 | Perform action for C-3 result of first sample |
| | C-3 | Inspect all repaired tubes in this S.G., plug defective tubes and inspect 20% of the repaired tubes in each other S.G.<br><br>Notification to NRC pursuant to §50.72(b)(2) of 10 CFR Part 50 | All other S.G.s are C-1 | None |
| | | | Same S.G.s C-2 but no additional S.G. are C-3 | Perform action for C-2 result of first sample |
| | | | Additional S.G is C-3 | Inspect all repaired tubes in each S.G. and plug defective tubes. Notification to NRC pursuant to §50.72(b)(2) of 10 CFR Part 50 |

(1) Each repair method is considered a separate population for determination of initial inservice inspection and scope expansion.

5.5 Programs and Manuals (continued)

5.5.9 Steam Generator (SG) Tube Surveillance Program

Each steam generator shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program.

The provisions of SR 3.0.2 are applicable to the SG Surveillance Program test frequencies.

a. Steam Generator Sample Selection and Inspection - Each steam generator shall be determined OPERABLE during shutdown by selecting and inspecting at least the minimum number of steam generators specified in Table 5.5-1.

b. Steam Generator Tube Sample Selection and Inspection - The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 5.5-2 or 5.5-3. Table 5.5-2 applies to all tubes except repaired tubes (Unit 1 only) which are covered by Table 5.5-3. The inservice inspection of steam generator tubes shall be performed at the frequencies specified in Specification 5.5.9d., and the inspected tubes shall be verified acceptable per the acceptance criteria of Specification 5.5.9e. The tubes selected for each inservice inspection per Table 5.5-2 shall include at least 3% of all the expanded tubes and at least 3% of the remaining number of tubes in all steam generators; the tubes selected for these inspections shall be selected on a random basis except:

1. Where experience in similar plants with similar water chemistry indicates critical areas to be inspected, then at least 50% of the tubes inspected shall be from these critical areas;

2. The first sample of tubes selected for each inservice inspection (subsequent to the preservice inspection) of each steam generator shall include:

a) All nonplugged tubes that previously had detectable wall penetrations (greater than 20%),

b) Tubes in those areas where experience has indicated potential problems, and

(continued)

5.5 Programs and Manuals (continued)

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

4. Certain intersections as identified in WPT-15949 will be excluded from application of the voltage-based repair criteria as it is determined that these intersections may collapse or deform following a postulated LOCA + SSE event.

5. If an unscheduled mid-cycle inspection is performed, the following mid-cycle repair limits apply instead of the limits identified in 5.5.9e.1.m)1., 5.5.9e.1.m)2., and 5.5.9e.1.m)3. The midcycle repair limits are determined from the following equations:

$$V_{MURL} = \frac{V_{SL}}{1.0 + NDE + Gr\left(\frac{CL - \Delta t}{CL}\right)}$$

$$V_{MLRL} = V_{MURL} - (V_{URL} - V_{LRL})\left[\frac{CL - \Delta t}{CL}\right]$$

where:

| | | |
|---|---|---|
| $V_{URL}$ | = | upper voltage repair limit |
| $V_{LRL}$ | = | lower voltage repair limit |
| $V_{MURL}$ | = | mid-cycle upper voltage limit based on time into cycle |
| $V_{MLRL}$ | = | mid-cycle lower voltage repair limit based on $V_{MLRL}$ and time into cycle |
| $\Delta t$ | = | length of time since last scheduled inspection during which $V_{URL}$ and $V_{LRL}$ were implemented |
| CL | = | cycle length (the time between two scheduled steam generator inspections) |
| $V_{SL}$ | = | structural limit voltage |
| Gr | = | average growth per cycle |
| NDE | = | 95-percent cumulative probability allowance for nondestructive examination uncertainty (i.e., a value of 20-percent has been approved by the NRC) |

Implementation of these mid-cycle repair limits should follow the same approach as in TS 5.5.9e.1.m)1., 5.5.9e.1m)2., and 5.5.9e.1.m)3.

n. Tube Repair (for Unit 1 only) refers to a process that establishes tube serviceability. Acceptable tube repairs will be performed in accordance with the process described in Westinghouse WCAP-13698, Rev. 3 and Westinghouse letter WPT-16094 dated March 20, 2000 and WCAP-15090, Rev. 1.

(continued)

5.5 Programs and Manuals (continued)

TABLE 5.5-3

STEAM GENERATOR REPAIRED TUBE INSPECTION FOR UNIT 1 ONLY

| 1ST SAMPLE INSPECTION | | | 2ND SAMPLE INSPECTION | |
|---|---|---|---|---|
| Sample Size | Result | Action Required | Result | Action Required |
| A minimum of 20% of repaired tubes (1) | C-1 | None | N.A. | N.A. |
| | C-2 | Plug defective repaired tubes and inspect 100% of the repaired tubes in this S.G. | C-1 | None |
| | | | C-2 | Plug defective repaired tubes |
| | | | C-3 | Perform action for C-3 result of first sample |
| | C-3 | Inspect all repaired tubes in this S.G., plug defective tubes and inspect 20% of the repaired tubes in each other S.G.<br><br>Notification to NRC pursuant to §50.72(b)(2) of 10 CFR Part 50 | All other S.G.s are C-1 | None |
| | | | Same S.G.s C-2 but no additional S.G. are C-3 | Perform action for C-2 result of first sample |
| | | | Additional S.G is C-3 | Inspect all repaired tubes in each S.G. and plug defective tubes. Notification to NRC pursuant to §50.72(b)(2) of 10 CFR Part 50 |

(continued)

(1) Each repair method is considered a separate population for determination of initial inservice inspection and scope expansion.

# ENCLOSURE 2 TO TXX-00219

**Westinghouse letter WPT-16094 dated March 20, 2000**

Westinghouse
Electric Company LLC

Box 355
Pittsburgh Pennsylvania 15230-0355

WPT-16094

March 20, 2000

Mr. C. L. Terry, Senior Vice President
and Principal Nuclear Officer
Nuclear Production
TXU Electric Company
P.O. Box 1002
Glen Rose, Texas 76043

**NO RESPONSE REQUIRED**

Attention: B. Mays

TXU ELECTRIC COMPANY
COMANCHE PEAK STEAM ELECTRIC STATION
UNITS 1 & 2
**Steam Generator Laser Welded Sleeving**

Dear Mr. Terry:

The purpose of this correspondence is to describe the final path for resolution of the laser weld width issues associated with the Westinghouse steam generator tube sleeve repair methodology. As a result of extensive discussions with the NRC staff, Westinghouse has decided to change the post process ultrasonic test inspection program to ensure that the sleeve design remains in compliance with the ASME Code design-by-analysis requirements.

Westinghouse discovered a computer modeling error and informed each affected utility through the issuance of addenda to the generic WCAP LWS reports, or through a plant specific WCAP. The computer modeling error, which involved the determination of the shear stress in the weld, did not adversely impact the conclusions as stated in the technical support documentation. Based on the results from an analysis and testing program, Westinghouse concluded that the 15 mil weld width specified for the sleeve-to-tube-weld in the original technical support documentation for sleeve installation is acceptable and meets the requirements of Section III of the ASME Code for design-by-testing. It has subsequently been determined that an average weld width of 21 mils meets all of the design-by-analysis requirements (no required structural tests) of the Code for all currently available LWS sleeve and tube combinations.

The current understanding of the conclusions of these discussions with the NRC staff and actions to be taken to resolve the laser welded sleeve weld width issues are as follows:

1. There are no safety concerns regarding the structural adequacy or leak resistance of the welds, including existing welds.

2. Westinghouse committed to prepare a report documenting the width expectations for the existing welds. This information is attached and consists of calculations performed to characterize the statistical distribution of the test data reported in the WCAPs. It was recommended that this be a non-proprietary report.

3. Westinghouse committed to modify the inspection procedure for future welds to include a criterion for an average width of each weld in order to meet the requirements of Section III of the ASME Code for design-by-analysis. Any welds determined to have an average weld width of less than 21 mils will be subject to an engineering disposition process. Special considerations may then be made that result in infrequently accepting welds with average widths as small as, but not less than 19 mils.

4. Westinghouse has committed to send a letter to each utility holding licensing documentation to install laser welded sleeves recommending that they inform the NRC staff of their commitment to implement the new inspection procedure in 3) above. The NRC staff is expected to respond with a letter advising the utility that the transmittal has been received.

The attached report has been prepared to address the Westinghouse commitments made regarding the installed weld widths of existing laser sleeves and is provided for your information. This document has already been submitted to the NRC staff. It is concluded that it is unlikely that existing welds were made with average weld widths less than that needed to meet the ASME Code design-by-analysis requirements. Moreover, it is more unlikely that welds were made with failure strengths less than the burst strength of the installed sleeves, or for that matter, the tubes in which the sleeves were installed.

In fulfillment of item 4) above, it is requested that a letter be sent to the NRC staff advising them of your commitment to implement the revised inspection criterion on a forward-fit basis. The intent of the inspection is to screen the welding process results to further minimize the already low potential for producing welds, which have an average weld width less than 21 mils.

Please contact Gary Whiteman (412-374-5175) or Bob Keating (724-722-5086) if you have any questions or comments.

Very truly yours,
WESTINGHOUSE ELECTRIC COMPANY

J. S. Wyble, Manager
Comanche Peak Project