July 9, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket Nos. 50-445 and 50-446
TEXAS UTILITIES ELECTRIC COMPANY, ET AL.	)	
	)	(Application for Operating Licenses)
(Comanche Peak Steam Electric Station, Units 1 and 2)	)	

APPLICANTS' STATEMENT OF MATERIAL FACTS
AS TO WHICH THERE IS NO GENUINE ISSUE
REGARDING ALLEGATIONS CONCERNING CONSIDERATION
OF FORCE DISTRIBUTION IN AXIAL RESTRAINTS

1. Applicants' design approach for modelling trapeze type supports with trunnions is to model the support as a single support acting in the axial direction. (Affidavit at 3.)

2. Applicants' modelling technique is reasonable. The modelling technique urged by CASE would be very conservative and not necessarily a more realistic modelling technique. (Affidavit at 3-4.)

3. Applicants evaluated the significance of the effects CASE alleges should be considered by reanalyzing several piping stress problems utilizing the modelling assumptions CASE would have Applicants employ. These analyses demonstrated that Applicants' assumption of excluding the rotational restraint of the trapeze support from the analysis has virtually no effect on pipe stresses. (Affidavit at 4-5).

4. Applicants' analyses demonstrated that changes in loads on the supports on the reanalyzed stress problems occur only with respect to the trapeze supports themselves. This effect is expected in that modelling the rotational constraint of the support will produce an additional load on each side of the trapeze which had not been previously analyzed. These additional loads did not exceed applicable allowables. (Affidavit at 5-6.)
5. Applicants evaluated every Unit 1 and common double trunnion support employed at Comanche Peak for these effects. That analyses demonstrated that the total loads imposed on each side of the trapeze supports would be acceptable, i.e., in no case were Code allowables exceeded, when the additional loads were factored into the support design. (Affidavit at 6-8.)
6. With respect to lug-type restraints, it is neither necessary nor reasonable to expect that the lugs can be installed in a perfect circumferential plane with zero tolerance. The lugs have been installed within reasonable limits. (Affidavit at 10-11.)
7. The stresses which may occur in the pipe, lug or frame as a result of differential engagement of the lugs will be localized. These potential local deformations would be self-limiting and readily redistribute the load to other lugs. Only one other lug need be engaged to fully resist the entire load which may be imposed. (Affidavit at 10-11.)

8. It is assumed that loads will be transmitted to the lugs furthest from the support anchors, the frame deflection can be larger than initially assumed. However, both frame deflection and rotation of the pipe will act to close the gap to opposite or adjacent lugs. (Affidavit at 12.)

9. Two conditions may exist with respect to lug-type supports, viz., (1) the lugs may be stronger than the frame (and thus greater frame deflection will result) and (2) the frame may be stronger than the lugs (inducing small deformations in the lug until other lugs are engaged). (Affidavit at 12-13.)

10. For the case in which the frames are weaker than the lugs, Applicants performed a study of idealized frames loaded axially using the four lug arrangement. These cases represent the range of deflections which may occur in the field and, thus, provide evidence of the ability of the frame to deflect to permit engagement of additional lugs. Only in the second case was it found that a deflection which could (slightly) exceed Applicants' deflection guideline may be required to bring a second lug in contact with the frame. However, any excess loads would be self-limiting and thus when the load is shared by the second lug the deflection no longer increases for a given load. (Affidavit at 14-15.)

11. To assess the condition in which the frame is stronger than the lug and, thus, lug localized yielding may occur, Applicants analyzed the effect of the maximum localized yielding in the lug and the pipe surface which could occur

to bring the additional lugs in contact with the frame. This analysis was performed using a non-linear finite element technique and the computer program NASTRAN. The result of this analyses show that minimal plastic strains, entirely localized at the surface of the pipe and the welds permit a 1/16" deflection from the lugs with no adverse consequence to the lugs. With respect to the stresses on the pipe, Applicants' analysis demonstrates that they would also be acceptable. (Affidavit at 15, Attachment 2).