UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF JOHN C. FINNERAN, JR.
REGARDING ANALYSIS OF STIFF PIPE CLAMPS
ADDRESSED IN BOARD NOTIFICATION 82-105A

I, John C. Finneran, Jr., being first duly sworn, do depose and state as follows: I am employed by Texas Utilities Services, Inc., as Pipe Support Engineer for Comanche Peak. As such, I am familiar with Applicants' response to Board Notification 82-105A regarding high-energy pipe clamps employed on ASME Code Class I Piping. A statement of my educational and professional qualifications was admitted into evidence in this proceeding as Applicants' Exhibit 142B. This affidavit provides information in response to the Board's Memorandum (Briefs on Board Notification 82-105A), dated October 12, 1983.

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BOARD NOTIFICATION 82-105A
REGARDING STIFF PIPE CLAMPS

Board Notification ("BN") 82-105A, "NRC Staff Evaluation Regarding Allegations of Potential Design Deficiencies In Class I Piping," September 29, 1983, concerns an alleged design deficiency in the consideration of stresses arising from the use of certain stiff pipe clamps on ASME Code Class I Piping. Specifically, the stresses which are of concern in BN 82-105A are local pipe wall stresses induced by (1) preloading of U-bolts (or other attachments) around the pipe, (2) dynamic loading events and (3) differential radial thermal expansion when the pipe and clamp are made of different materials (BN 82-105A at p. VI-1). The Board requests in its October 12, 1983, Memorandum that the parties address the relationship of these concerns to this proceeding and particularly to the SIT Report discussion of U-bolts in pipe support design (SIT Report at 29-34).

As I described in my May 5, 1983, affidavit, Applicants have reviewed their pipe clamp designs and have determined that only three clamps of the type discussed in BN 82-105A have been utilized on Class I piping at Comanche Peak. These clamps are located on a 12-inch line in the Residual Heat Removal System. The piping on which these clamps are located is within the responsibility of Westinghouse design analysis. Therefore, in response to BN 82-105, "Alleged Design Deficiency" (November 24, 1982), Westinghouse began an evaluation of each of the three clamps to assess the preloading stresses induced in the pipe and

the pipe-to-clamp load transfer stresses, arising from both dynamic effects and differential thermal expansion (See BN 82-105A, at VI-1).

The Westinghouse evaluation has now been completed. Westinghouse has determined, and Applicants have confirmed by review of that evaluation, that the stresses which may arise by use of these clamps are within applicable ASME Code stress limits. Specifically, Westinghouse utilized three separate conservative calculational techniques in its evaluation. To compare the calculated stresses with the ASME Code stress limits, the highest stresses calculated by these three techniques was employed. Further, Westinghouse analyzed all stresses to determine whether the primary stress intensities, including the local pipe stresses which are induced by the clamps, satisfied Code stress limits. In no case were these stress limits exceeded. In addition, none of the clamps evaluated by Westinghouse are used on thin-walled piping, welds, or elbows, which are the areas of particular concern to the NRC (See BN 82-105A at VI-2).

In addition, although BN 82-105A does not address the use of stiff pipe clamps on other than Class I piping, Applicants have determined that some of these clamps are utilized at Comanche Peak on Class 2 piping on the Feedwater System. Applicants intend to work with the NRC Staff to provide adequate assurance that the use of these clamps on Class 2 piping presents no safety concern.

RELEVANCE OF BN 82-105A TO SIT REPORT

The concerns expressed in BN-105A regarding the local pipe stresses induced by stiff pipe clamps do not relate to the use of conventional U-bolt clamping systems discussed in the SIT Report. BN 82-105A is concerned strictly with the relatively new "stiff" pipe clamps which utilize extremely high clamp preloads. In BN 82-105A, the Staff clearly states that its concern is not with the conventional pipe clamps where "low magnitude stresses" do not require special analysis, but rather with the "relatively new type of pipe clamp commonly referred to as a 'stiff' pipe clamp . . . which could induce large loadings into the piping that are assumed to be insignificant." (See, e.g., BN 82-105A at VI-1 and Enclosure 2 at 1-2.)

The allegations addressed in the SIT Report regarding the consideration of U-bolts involve conventional pipe clamp systems. Although some stiff pipe clamps do utilize U-bolts in their configuration, the concern expressed in BN 82-105A is not with the fact that U-bolts are used, but rather with the high preloading and other stresses which are induced by the new stiff pipe clamps (whether or not by U-bolts),

to assure maximum clamp stiffness. (See BN-82-105A at IV-5). The SIT Report has thoroughly assessed the use of conventional U-bolt clamping systems, and its analysis is fully consistent with BN 82-105A.

John C. Finneran, Jr.

County of Somervell)
State of Texas)

Subscribed and sworn to before me this 4th day of November, 1983

Notary Public

This is a telecopy facsimile. The original will be transmitted under separate cover

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	)	
(Comanche Peak Steam Electric Station, Units 1 and 2)	)	(Application for Operating Licenses)

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "Applicants' Brief Regarding Relevance of BN 82-105A" in the above-captioned matter were served upon the following persons by deposit in the United States mail on the 4th of November, 1983.

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