Attachment

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)	)	
	)	

AFFIDAVIT OF JOHN C. FINNERAN, JR.
REGARDING INFORMATION RELATED
TO SECTION PROPERTY VALUES

I, John C. Finneran, Jr., being first duly sworn, hereby depose and state as follows:

I am the Pipe Support Engineer for the Pipe Support Engineering Group at Comanche Peak Steam Electric Station. In this position, I oversee the design work of all pipe design organizations for Comanche Peak. I have previously provided testimony in this proceeding. A statement of my professional and educational qualifications was received into evidence as Applicants Exhibit 142B.

The purpose of this Affidavit is to respond to CASE's Answer to Applicants' motion concerning property values.

In its answer, CASE relies heavily on two positions, i.e., because one segment of Applicants' design organization changed, the property values used for its cold formed steel, (1) the cold formed steel changed and (2) the values did not apply to the cold formed steel. While there are numerous errors in CASE's Answer, as discussed in part below, CASE's misconception regarding these two positions are significant.

The cold formed tube steel used at CPSES has not changed over the years, i.e., the fabrication process and tolerances set for that fabrication have remained unchanged. One need only contact the fabricators who have supplied the cold formed steel at CPSES to verify this information, e.g. Welded Tube Co. of America and Regal Tube Co., who supplied virtually all of the cold formed tube steel used at CPSES.

The three sets of property values used which are at issue here (i.e., property values in the 7th and 8th Editions of the American Institute of Steel Construction ("AISC") Manual and the 1974 Welded Steel Tube Institute, Inc. ("WSTI") Manual of Cold Formed Welded Structural Steel Tubing) are different not because the material changed, but due to what material was considered in developing the values. As stated in Applicants' motion for summary disposition on this issue, while the 7th Edition property values were based on considerations of both hot rolled and cold formed steel, these values were more closely aligned to hot rolled steel and were thus, conservative for cold formed steel. (All tube steel at CPSES is cold formed.) All of Applicants' design organizations used these values until January 1981 when PSE decided to change to the property values in the 1974 WSTI Manual of Cold Formed Welded Structural Steel Tubing because such property values were for cold formed steel only and not a combination of cold formed and hot rolled steel. Subsequently, WSTI revised its values to be consistent with the 8th Edition property values of the AISC Manual which had changed from the 7th Edition. (While the 8th Edition values still applied to both hot rolled and cold formed steel, the values had been revised to more closely reflect cold formed steel property values.)

Significantly, each set of property values used were issued by nationally recognized professional organizations after thorough study and review. Further, these values have been used and recognized by engineers across the nation as acceptable values for design purposes. In short, use of any of these values for the cold formed steel at CPSES was acceptable and would not have resulted in inadequate designs. CASE has not, and cannot, point to any specific design calculation involving these values that would have resulted in defective designs. Accordingly, absent a <u>strong</u> showing by CASE that these nationally recognized property values would have resulted in unacceptable designs, not shown here, CASE has failed to sustain its burden and the Board should find in favor of Applicants regarding this issue.

In any event, I address below each of CASE's arguments presented in its Answer which are even potentially relevant to the issue at hand. In addressing each argument, I follow the numbering format set forth in the Affidavit of Mark Walsh ("Walsh Affidavit") attached to and forming the core of CASE's Answer.

1. <u>Statement of Material Fact 1</u>:

> The NRC Staff testified that the 7th Edition's section property values are more conservative than the 8th Edition, and therefore the use of these values do not represent a safety concern (Tr. 6867-70).

Although CASE agrees that the Staff made this statement, CASE believes that the statement is not valid because the Staff failed to consider the differences in corner radius property values between the 7th Edition of the AISC Manual (allegedly three times the thickness of the steel) and 8th Edition (two times the thickness of the steel) on the calculation of effective throats for flare bevel welds. CASE's position is in error because the 7th Edition did not list as a property value the corner radius as CASE implies. In any event, the point is moot in that Applicants have never used a corner radius value in excess of two times the thickness of the steel in its design calculations. CASE has not, and indeed cannot state otherwise.

2. <u>Statement of Material Fact 2</u>:

> Prior to January, 1981, ITT, NPSI and PSE all used tube steel properties from the AISC Manual of Steel Construction, 7th Edition. The AISC included one set of values to cover both hot rolled and cold formed steel. However, the values listed conformed mostly to the hot rolled steel. In January [1981], PSE elected to use properties from the 1974 Welded Structural Tube Institute Manual of Cold Formed Welded Structural Steel Tubing. PSE used these values from January 1981 to January 1982. During this time, the Welded Structural Tube Institute ("WSTI") revised and reissued its manual, lowering the member properties to agree precisely with the values listed in the 8th Edition of the AISC Manual of Steel Construction. (The 8th Edition of the AISC Manual had increased the member properties from the 7th Edition.) PSE adopted these values in January 1982. (Affidavit of J.C. Finneran and R.C. Iotti Regarding CASE's Allegations Involving Section Property Values ("Applicants' Affidavit") (attached to Applicants' Motion) at 2-3.)

The only part of this material fact with which CASE takes issue is whether PSE did in fact switch to the WSTI property values. CASE states that despite a request made in a June 6, 1984 conference call (Tr. 60-61), no documentation has been provided which reflects that PSE was using the WSTI values. At the outset, I note that CASE apparently overlooked Tr. 64 where CASE appears to agree that statements currently in the record are adequate to answer the request. In any event, attached to this Affidavit is a manual revision change form dated January 6, 1981 requiring holders of pipe support design guidelines to change pages 1-15 of Section 2. Significantly, pages 2-13 and 2-14 (also attached) were WSTI property values to be used for cold formed steel.

While not directly relevant to this material fact CASE correctly notes that there are differences between the 7th Edition and WSTI property values. See e.g., the Affidavit attached to Applicants' Motion at Table A. However, CASE believes that the nationally recognized property values are inapplicable to the cold formed steel used at CPSES. As previously noted, CASE is incorrect. In this regard, while CASE notes a difference between the property values, CASE does not, and indeed cannot, point to a specific design where such differences would have resulted in an unsafe condition.

3. Statement of Material Fact 3:

> All tube steel at CPSES is [A]500 Grade B, which conforms to the AISC 8th Edition values (Applicants' Affidavit at 3).

CASE presents nothing to refute this fact. However, CASE still questions the statement on the apparent misconception that the actual steel used at CPSES changed when PSE changed the references used to obtain section property values. As previously noted, the actual configuration and properties of the steel did not change. As previously stated, property values from each of the three nationally recognized references at issue would be acceptable for design purposes. CASE has presented nothing which shows that use of any of the references did or would have resulted in unsafe designs.

4. Statement of Material Fact 4:

> The most important property value is the moment of inertia (Applicants' Affidavit at 3).

This material fact was presented in conjunction with material fact 5 to show that the difference between WSTI and 8th Edition property values for the most important property (moment of inertia) was, in any event, very small. CASE disagrees with this statement. As the basis for its disagreement CASE provides three alleged examples where the moment of inertia is not the most important property value, i.e., (1) in a bending member, section modulus may be most important; (2) in an axially loaded member, cross-sectional area or radius of gyration may be most important; and (3) in a flare bevel weld, corner radius may be most important. (Walsh Affidavit at 8.) As noted below, on each point CASE is in error.

With regard to CASE's example related to a high stress in members due to bending, I would note that the highest stress in tube steel members as used at CPSES is almost always caused by bending. CASE states that in some situations regarding high bending stresses the section modulus may be more important than the moment of inertia (Walsh Affidavit at 8). The section modulus is equal to the moment of inertia divided by c. Since c is the same for both WSTI and 8th Edition property values, the moment of inertia and the section modulus would vary by the same percentage, and accordingly, CASE's position is meaningless.

With regard to CASE's example concerning an axially loaded member, I would note that the percent differences between the WSTI and 8th Edition property values for both cross-sectional area and radius of gyration are less than the percent differences regarding moment of inertia.

Finally, regarding CASE's example of in some cases a large corner radius may be required and this would become the most significant value, as previously stated, Applicants never used large corner radius values in design -- the values used were always two times the thickness or less. In any event, for calculation of effective throat for flare bevel welds, the WSTI values of corner radius are more conservative than 8th Edition values. Accordingly, CASE's position is moot.

5. <u>Statement of Material Fact 5:</u>

> An analysis of the difference between the WSTI (1974) values for the moment of inertia and those of the 8th Edition of AISC for the tube steel of concern reflects a range from 4.4 percent to 11.4 percent, with the average being 6.3 percent (Applicants' Affidavit at 3).

CASE agrees with the material fact.

I object to CASE's implication that we were attempting to hide the difference between the moment of inertia values for the 7th Edition and the WSTI. These differences are clearly reflected in Table A of the Affidavit attached to Applicants' motion for summary disposition on this issue.

6. Statement of Material Fact 6:

> Applicants have committed to conduct a complete reanalysis of all small bore Class I and large bore support designs to the 8th Edition AISC values (Applicants Exhibit 142 at 29).

CASE states that this material fact is misleading in that it implies that all design organizations will conduct a reanalysis of designs to 8th Edition values. A fair reading of either the motion associated with the statement of material facts (at 4-5) or Applicants Exhibit 142 at 29 referenced in the material fact (quoted below) clearly reflects that Applicants were not seeking to mislead the Board or anyone regarding Applicants intentions.

> Because of property differences between these documents, the PSE Large Bore and Class 1 Small Bore Designs prior to January 1982 are all being reexamined using the current specified member properties. This reexamination was initiated in January 1982. For Small Bore Class 2 and 3 pipe supports, a decision was made by PSE that the difference in member properties between the 1974 Welded Steel Tube Institute Manual and the 8th edition of AISC values is insignificant in that the original design stresses for small bore supports are extremely low. Accordingly, no reexamination of Small Bore Class 2 and 3 pipe supports is necessary.

Applicants have previously addressed CASE's concern regarding whether the cold formed steel used at CPSES changed over the years.

John C. Finneran, Jr.

John C. Finneran, Jr.

STATE OF TEXAS
COUNTY OF SOMERVELL

Subscribed and sworn to before me this 9th day of November, 1984.

Bill J. Hodges

Notary Public BILL J. HODGES
MY COMMISSION EXPIRES MARCH 28, 1988

TO: PIPE HANGER ENGINEERS

FROM: LOU MONTANARO

This is concerning an addition/revision to the design manual.

This material contains information pertaining to:

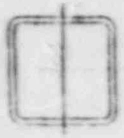
SECTION II: ENGINEERING GUIDELINES-PIPE SUPPORT DESIGN

Please add replace this in Book No. 2

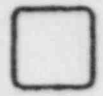
as pages 1-15, REV. 1

__ Please replace the old table of contents with the new [illegible]

MANUAL NO.	RECEIVED BY	DATE
2	[signature]	1 6 81



STRUCTURAL TUBING



SQUARE

Dimensions and Properties

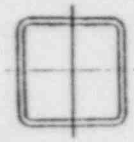
DIMENSIONS				PROPERTIES			
Nominal* Size	Wall Thickness		Weight per Foot	Area	I	S	r
In.	In.		Lb.	In.^{2}	In.^{4}	In.^{3}	In.
16 x 16	.5000	1/2	†104.03	30.6	1220.	152.	6.31
	.3750	3/8	†78.53	23.1	934.	117.	6.36
	.3125	5/16	†65.61	19.3	787	98.4	6.38
14 x 14	.5000	1/2	90.77	26.7	807.	115.	5.50
	.3750	3/8	†68.67	20.2	620.	88.6	5.54
	.3125	5/16	†57.45	16.9	521.	74.7	5.57
12 x 12	.5000	1/2	77.51	22.8	500.	83.3	4.69
	.3750	3/8	†58.47	17.2	386.	64.3	4.73
	.3125	5/16	†48.95	14.4	326.	54.4	4.76
	.2500	1/4	†39.44	11.6	265.	44.1	4.78
10 x 10	.5000	1/2	63.91	18.8	281.	56.2	3.87
	.3750	3/8	48.61	14.3	220.	43.9	3.92
	.3125	5/16	†40.80	12.0	186.	37.2	3.94
	.2500	1/4	†32.70	9.62	151.	30.3	3.97
	.1875	3/16	†23.65	7.25	116.	23.1	3.99
9 x 9	.5000	1/2	57.11	16.8	201.	44.6	3.46
	.3750	3/8	41.51	12.8	159.	35.3	3.51
	.3125	5/16	36.38	10.7	134	29.9	3.54
	.2500	1/4	†29.37	8.64	110.	24.3	3.56
	.1875	3/16	†22.37	6.52	83.7	18.6	3.58
8 x 8	.5000	1/2	50.31	14.8	138	34.4	3.05
	.3750	3/8	38.47	11.3	109	27.2	3.11
	.3125	5/16	32.33	9.54	93.3	23.3	3.13
	.2500	1/4	†25.04	7.66	76.2	19.1	3.16
	.1875	3/16	†19.65	5.78	58.4	14.6	3.18
7 x 7	.5000	1/2	43.51	12.8	89.3	25.5	2.65
	.3750	3/8	33.32	9.80	71.3	20.4	2.70
	.3125	5/16	28.08	8.26	61.3	17.5	2.72
	.2500	1/4	22.73	6.68	50.5	14.4	2.75
	.1875	3/16	†17.13	5.04	38.8	11.1	2.77
6 x 6	.5000	1/2	36.72	10.8	53.9	18.0	2.24
	.3750	3/8	28.22	8.30	41.5	14.5	2.29
	.3125	5/16	23.83	7.03	37.6	12.5	2.32
	.2500	1/4	19.41	5.68	31.2	10.4	2.34
	.1875	3/16	†14.55	4.31	24.1	8.04	2.37

* Outside dimensions across flat sides.

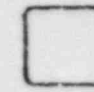
† Non-compact section for F_y = 46 ksi and F_y = 50 ksi, bending only

Sections subjected to axial compression or compression due to bending should be checked for compliance with Specification Sect. 1.9.2.2, of the AISC Manual of Steel Construction.

WELDED STEEL TUBE INSTITUTE



STRUCTURAL TUBING



SQUARE

Dimensions and Properties

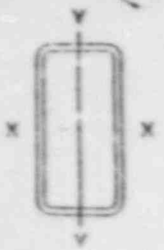
DIMENSIONS				PROPERTIES			
Nominal* Size	Wall Thickness		Weight per Foot	Area	I	S	r
In.	In.		Lb.	In.^{2}	In.^{4}	In.^{3}	In.
5½ x 5½	.3750	3/8	25.67	7.55	32.8	11.9	2.09
	.3125	5/16	21.69	6.38	28.5	10.4	2.11
	.2500	1/4	17.61	5.18	23.7	8.61	2.14
	.1875	3/16	13.39	3.94	18.4	6.70	2.16
5 x 5	.5000	1/2	29.78	8.76	29.4	11.8	1.83
	.3750	3/8	23.12	6.80	24.1	9.63	1.88
	.3125	5/16	19.58	5.76	21.0	8.39	1.91
	.2500	1/4	15.91	4.68	17.5	7.01	1.93
	.1875	3/16	12.14	3.57	13.7	5.49	1.96
4½ x 4½	.2500	1/4	14.21	4.18	12.5	5.56	1.73
	.1875	3/16	10.84	3.19	9.85	4.38	1.76
4 x 4	.5000	1/2	22.98	6.76	13.7	6.86	1.43
	.3750	3/8	18.02	5.30	11.5	5.76	1.47
	.3125	5/16	15.33	4.51	10.1	5.07	1.50
	.2500	1/4	12.51	3.68	8.58	4.29	1.53
	.1875	3/16	9.59	2.82	6.79	3.40	1.55
	.1250	1/8	6.53	1.92	4.77	2.38	1.58
3½ x 3½	.3125	5/16	13.19	3.88	6.53	3.73	1.30
	.2500	1/4	10.81	3.18	5.56	3.18	1.32
	.1875	3/16	8.30	2.44	4.44	2.54	1.35
	.1250	1/8	5.68	1.67	3.15	1.80	1.37
3 x 3	.3125	5/16	11.08	3.26	3.89	2.60	1.09
	.2500	1/4	9.11	2.68	3.36	2.24	1.12
	.1875	3/16	7.04	2.07	2.71	1.81	1.14
	.1250	1/8	4.83	1.42	1.94	1.29	1.17
2½ x 2½	.2500	1/4	7.41	2.18	1.53	1.36	.915
	.1875	3/16	5.75	1.69	1.50	1.20	.940
	.1250	1/8	3.98	1.17	1.09	.872	.966
2 x 2	.2500	1/4	5.71	1.68	.852	.852	.712
	.1875	3/16	4.49	1.32	.716	.716	.737
	.1250	1/8	3.12	.917	.533	.533	.762

* Outside dimensions across flat sides.

Sections subjected to axial compression or compression due to bending should be checked for compliance with Specification Sect. 1.9.2.2, of the AISC Manual of Steel Construction.

FIG. 5

WELDED STEEL TUBE INSTITUTE



STRUCTURAL TUBING

RECTANGULAR

Dimensions and Properties

DIMENSIONS				PROPERTIES						
					X-X AXIS			Y-Y AXIS		
Nominal* Size	Wall Thickness		Weight per Foot	Area	I_x	S_x	r_x	I_y	S_y	r_y
In.	In.		Lb.	In.²	In.⁴	In.³	In.	In.⁴	In.³	In.
10 x 6	.5000	½	50.31	14.8	190.	38.1	3.59	81.2	28.1	2.39
	.3750	⅜	38.42	11.3	150.	30.1	3.65	67.3	22.4	2.44
	.3125	5/16	32.33	9.51	178.	25.7	3.68	57.8	19.3	2.47
	.2500	¼	‡26.04	7.66	105.	21.0	3.70	47.5	15.8	2.49
	.1875	3/16	‡19.65	5.78	80.1	16.0	3.72	36.6	12.2	2.51
10 x 5	.3125	5/16	30.19	8.88	114.	22.8	3.58	38.2	15.3	2.07
	.2500	¼	‡24.38	7.17	93.1	18.6	3.60	31.5	12.6	2.10
	.1875	3/16	‡18.39	5.41	71.2	14.2	3.63	24.4	9.75	2.12
10 x 4	.5000	½	43.51	12.8	145.	29.1	3.38	32.2	16.1	1.59
	.3750	⅜	33.32	9.80	116.	23.1	3.43	26.4	13.2	1.64
	.3125	5/16	28.08	8.26	99.2	19.8	3.47	22.9	11.5	1.67
	.2500	¼	‡22.71	6.68	81.5	16.3	3.49	19.1	9.56	1.69
	.1875	3/16	‡17.13	5.04	62.4	12.5	3.52	14.9	7.44	1.72
10 x 3	.3125	5/16	25.94	7.63	84.5	16.9	3.33	11.8	7.89	1.24
	.2500	¼	‡21.01	6.18	69.7	13.9	3.36	9.99	6.66	1.27
	.1875	3/16	‡15.91	4.68	54.5	10.7	3.38	7.87	5.24	1.30
10 x 2	.3750	⅜	28.22	8.30	80.8	16.2	3.12	5.04	5.04	.780
	.31.5	5/16	23.83	7.01	69.8	14.0	3.16	4.55	4.55	.806
	.2500	¼	‡19.31	5.68	57.9	11.6	3.19	3.94	3.94	.832
	.1875	3/16	‡14.65	4.31	44.7	8.93	3.22	3.18	3.18	.859
9 x 7	.5000	½	50.31	14.8	165.	36.6	3.34	110.	31.6	2.74
	.3750	⅜	38.42	11.3	130.	28.9	3.39	87.8	25.1	2.79
	.3125	5/16	32.33	9.51	111	24.7	3.42	75.3	21.5	2.81
	.2500	¼	26.04	7.66	90.8	20.2	3.44	61.6	17.6	2.84
	.1875	3/16	‡19.65	5.78	69.5	15.4	3.47	47.3	13.5	2.86
9 x 6	.3125	5/16	30.19	8.88	99.4	22.1	3.35	52.8	17.6	2.44
	.2500	¼	24.38	7.17	81.4	18.1	3.37	43.4	14.5	2.46
	.1875	3/16	‡18.39	5.41	62.3	13.8	3.39	33.4	11.1	2.49

* Outside dimensions across flat sides.

‡ Non-compact section for F_y = 46 ksi and F_y = 50 ksi, when bending occurs about X-X axis.

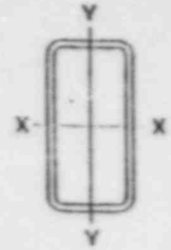
‡ Non-compact section for F_y = 50 ksi, when bending occurs about X-X axis.

Shapes subjected to combined axial load and bending may not be compact under Specification Sect. 1.5.1.4.1, of the AISC Manual of Steel Construction. Check all shapes for compliance with this section.

Shapes subjected to axial compression or compression due to bending should be checked for compliance with Specification Sect. 1.9.2.2, of the AISC Manual of Steel Construction.

Shapes subjected to bending about the Y-Y axis may not be compact under Specification Sect. 1.5.1.4.1, of the AISC Manual of Steel Construction.

WELDED STEEL TUBE INSTITUTE



STRUCTURAL TUBING

RECTANGULAR

Dimensions and Properties

DIMENSIONS				PROPERTIES						
					X-X AXIS			Y-Y AXIS		
Nominal* Size	Wall Thickness		Weight per Foot	Area	I_x	S_x	r_x	I_y	S_y	r_y
In.	In.		Lb.	In.²	In.⁴	In.³	In.	In.⁴	In.³	In.
9 x 5	.5000	½	43.51	12.8	128.	28.5	3.17	49.7	19.9	1.97
	.3750	⅜	33.32	9.80	102.	22.7	3.23	40.2	16.1	2.02
	.3125	5/16	28.08	8.26	87.6	19.5	3.26	34.7	13.9	2.05
	.2500	¼	22.71	6.68	72.0	16.0	3.28	28.8	11.5	2.08
	.1875	3/16	†17.13	5.04	55.2	12.3	3.31	22.2	8.90	2.10
9 x 3	.5000	½	36.72	10.8	92.3	20.5	2.93	14.5	9.64	1.16
	.3750	⅜	28.22	8.30	74.2	16.5	2.99	12.1	8.09	1.21
	.3125	5/16	23.83	7.01	64.0	14.2	3.02	10.7	7.13	1.24
	.2500	¼	19.31	5.68	53.0	11.8	3.05	9.04	6.03	1.26
	.1875	3/16	†14.65	4.31	40.9	9.08	3.08	7.14	4.76	1.29
8 x 7	.3125	5/16	30.19	8.88	84.0	21.0	3.08	68.3	19.5	2.77
	.2500	¼	24.38	7.17	68.9	17.2	3.10	56.0	16.0	2.80
	.1875	3/16	†18.39	5.41	52.8	13.2	3.12	43.0	12.3	2.82
8 x 6	.5000	½	43.51	12.8	109.	27.4	2.93	69.1	23.0	2.33
	.3750	⅜	33.32	9.80	87.1	21.8	2.98	55.4	18.5	2.38
	.3125	5/16	28.08	8.26	74.8	18.7	3.01	47.7	15.9	2.40
	.2500	¼	22.71	6.68	61.5	15.4	3.04	39.4	13.1	2.43
	.1875	3/16	†17.13	5.04	47.2	11.8	3.06	30.3	10.1	2.45
8 x 5	.3125	5/16	25.94	7.63	65.5	16.4	2.93	31.3	12.5	2.02
	.2500	¼	21.01	6.18	54.1	13.5	2.96	26.0	10.4	2.05
	.1875	3/16	15.91	4.68	41.6	10.4	2.98	20.1	8.05	2.07
8 x 4	.5000	½	36.72	10.8	81.3	20.3	2.75	26.1	13.0	1.56
	.3750	⅜	28.22	8.30	65.3	16.3	2.81	21.4	10.7	1.61
	.3125	5/16	23.83	7.01	56.3	14.1	2.83	18.7	9.33	1.63
	.2500	¼	19.31	5.68	46.6	11.6	2.86	15.6	7.81	1.66
	.1875	3/16	†14.65	4.31	35.9	8.99	2.89	12.2	6.10	1.68
8 x 3	.5000	½	33.18	9.76	67.2	16.8	2.62	12.9	8.58	1.15
	.3750	⅜	25.67	7.55	54.4	13.6	2.68	10.8	7.22	1.20
	.3125	5/16	21.69	6.38	47.1	11.8	2.72	9.56	6.38	1.22
	.2500	¼	17.61	5.18	39.1	9.77	2.75	8.10	5.40	1.25
	.1875	3/16	†13.39	3.94	30.3	7.58	2.77	6.41	4.27	1.28

* Outside dimensions across flat sides.

† Non-compact section for F_y = 46 ksi and F_y = 50 ksi, when bending occurs about X-X axis.

Shapes subjected to combined axial load and bending may not be compact under Specification Sect. 1.5.1.4.1, of the AISC Manual of Steel Construction. Check all shapes for compliance with this section.

Shapes subjected to axial compression or compression due to bending should be checked for compliance with Specification Sect. 1.9.2.2, of the AISC Manual of Steel Construction.

Shapes subjected to bending about the Y-Y axis may not be compact under Specification Sect. 1.5.1.4.1, of the AISC Manual of Steel Construction.

FIG. 6

WELDED STEEL TUBE INSTITUTE

'84 NOV 13 A9:44

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Reply to CASE's Answer to Applicants' Motion for Summary Disposition Regarding Section Property Values" in the above-captioned matter were served upon the following persons by deposit in the United States mail, first class, postage prepaid, this 12th day of November, 1984.

Peter B. Bloch, Esq.
Chairman, Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Walter H. Jordan
881 West Outer Drive
Oak Ridge, Tennessee 37830

Dr. Kenneth A. McCollom
Dean, Division of Engineering Architecture and Technology
Oklahoma State University
Stillwater, Oklahoma 74074

Mr. Robert D. Martin
Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76011

Chairman, Atomic Safety and Licensing Appeal Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. William L. Clements
Docketing & Service Branch
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Stuart A. Treby, Esq.
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Chairman, Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Renea Hicks, Esq.
Assistant Attorney General
Environmental Protection
Division
P.O. Box 12548
Capitol Station
Austin, Texas 78711

Lanny A. Sinkin
114 W. 7th Street
Suite 220
Austin, Texas 78701

Mrs. Juanita Ellis
President, CASE
1426 South Polk Street
Dallas, Texas 75224

Elizabeth B. Johnson
Oak Ridge National Laboratory
Post Office Box X
Building 3500
Oak Ridge, Tennessee 37830

Malcolm H. Philips, Jr.

cc: John W. Beck
Robert Wooldridge, Esq.