UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

'84 NOV 26 A10:15

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 an Operating License)

FOURTH ROUND RESPONSE

CASE'S ANSWER TO APPLICANTS' REPLY TO CASE'S ANSWER TO APPLICANTS' MOTION FOR SUMMARY DISPOSITION REGARDING THE UPPER LATERAL RESTRAINT BEAM

in the form of

AFFIDAVIT OF CASE WITNESS JACK DOYLE

Q: Is the material in this Affidavit in answer to new material introduced by Applicants?

A: Yes, with one exception which I would like to answer now (because the issue seems to come up again and again).

Q: And what is that exception?

A: The counsel for Applicants keeps stating that CASE fails to demonstrate that our answers constitute important issues that affect the public safety. I don't know what Applicants' attorney means by this statement. The mere fact that Applicants must justify a particular support, etc., indicates on face value that the adequacy of that item is critical to the health and safety of the public, or the Licensing Board would not entertain litigation of the subject.

8411270355 841120
PDR ADOCK 05000445
Q PDR

Perhaps counsel for Applicants intends that each answer to Applicants' Motions be developed through fault-tree procedures to postulate the end result of each failure to comply with engineering principles.

My answers are all based on the requirements of the codes (for example, ANSI N45.2.11) and the law (10 CFR Part 50, Appendix B, Criterion III, for example) which require accuracy (including calculations and assumptions). Any failure in this area is in violation of the law and therefore a de facto detriment to the health and safety of the public. It is beyond the scope of CASE's burden to show why accuracy is required by law for each item in a calculation.

Q: What new material have you found in reviewing Applicants' Reply to CASE's Answer to Applicants' Motion for Summary Disposition Regarding the Upper Lateral Restraint Beam?

A: Principally it is the deception intended by Applicants' quoting out of context.

Q: Can you offer any examples of this practice?

A: Yes, I can. In Item 1 (page 4) of Applicants' Reply, they argue that CASE (Messrs. Walsh and Doyle) "asserts that the 'primary purpose' of the upper lateral restraint is 'restraining the concrete walls'." This statement by Applicants exceeds the definition of erroneous by a wide margin. The statement is taken out of context, and our actual statement was (Doyle/Walsh Affidavit at page 1):

> "Although it may have been Applicants' original intent that the primary purpose be as stated above [to provide restraint to the steam generator during a design basis accident caused by postulated breaks in the primary coolant loop and the main steam

line], the upper lateral restraint will also be restraining the concrete walls, which may provide the largest stress within the member. Therefore, it could be argued that the primary purpose should be restraining the concrete walls; certainly this is a purpose which cannot be ignored."

We stand by that statement (see the drawing and comments which I have prepared which is Attachment A hereto). Applicants' analysis did not include the seismic effects on the plant acting 45 degrees to the wall and beam as shown on Attachment A.

The Applicants' second argument in Item 1 is also deceptive. CASE (Messrs. Walsh and Doyle) did not state that the reason for objecting to the inclusion of the lower lateral restraint was due solely to the fact that the lower restraint was not the subject of "concern and testimony," but rather because the Applicants could not prove that the upper lateral support was adequate by using the procedures selected by Applicants to initially design the support, which required the Applicants to introduce highly sophisticated procedures and altered assumptions to quality the support. See Doyle/Walsh Affidavit, page 2, first paragraph, which states, in part:

"We believe it [the lower lateral restraint] has been brought up now only as a red herring to distract the Board from the actual issue of concern to CASE. Applicants also used the lower lateral restraint to decrease the load due to thermal expansion, as will be discussed below. (They have deviated from their original approach and introduce sophisticated methodology relying on coupling of components rather than individual analysis.)"

Q: Are there similar discrepancies to be found in item 2 (pages 4 through 6) of Applicants' Reply?

A: Yes, there are. First, Applicants argue that the only reason for doing the more sophisticated analysis was "Only because the Board could not find that the design of the upper lateral restraint was adequate in the face of 'possibly conflicting' viewpoints . . ." But there were no conflicting viewponts in one regard: everyone agreed that Applicants' equation was in error (see NRC Staff Witness Dr. Chen at Tr. 6189, and Applicants' Witness Mr. Vivirito at Tr. 6193). The fact is, and was, that using Applicants' original procedure and doing it correctly, the upper lateral restraint failed; and in this, one must keep in mind that many items were not included in Applicants' calculations: for example, effects of self-weight excitation of walls and beam; component axial force induced in beam by snubber loads on wall (when Wall A, shown on Attachment A hereto, deflects, loads are reacted by the beam to the opposite wall) when seismic force is 45 degrees to wall and beam (steam generator having two horizontal components); mass of beam; correct stiffness of walls; etc.

The bottom line is that with the procedures developed by Applicants and using the provisions of their FSAR (since with the original analysis no time history was performed), Applicants' upper lateral restraint was inadequate. To justify the upper lateral restraint, Applicants expanded the area for analysis to include the wall, the upper and lower lateral restraints, etc. Beyond this, Applicants deviated from the FSAR formulas by doing a time history to eliminate the combined effects of jet impingement and LOCA. This particular procedure for the original design was previously discussed in the hearings when Mr. Vivirito stated that the combining of the LOCA and thermal effects was a self-imposed conservatism (see Tr. 6049). However, Mr. Vivirito conceded that the combined effects were required by Applicants' FSAR (see Tr. 6201).

At footnote 6 (page 5), Applicants make a big point about supplying us with the computer analysis that had been performed. The output without the input modelling information is far too cumbersome to decipher in our limited time span. We must have the inputs with the assumptions and justifications to have any meaningful material with which to judge what has transpired; raw numbers on a field is merely a cryptographic nightmare.

On page 5 of the Affidavit of Dr. Iotti, Applicants state "These analyses demonstrate not only the adequacy of the design but confirm the validity of the judgment employed in the original design." This again is a monumental deception, since no one except some of Applicants' people are certain of the input assumptions, and with computers, the output is equatable to the input. The only fact that is certain is that a new methodology of far greater complexity has been developed by Applicants to attempt justification for the upper lateral restraint.

For Applicants to state that any subsequent procedure can confirm the validity of equations which were rendered useless by errors is beyond belief. What has occurred (even assuming Applicants' current procedures to be correct) is that Applicants have lucked out, and this is not in the interest of the public safety.

Beyond that, if one were asked to design any simple beam similar to the upper lateral restraint and use the extensive finite methods used in Applicants' method to justify the support, he would be fired. The standard approach is simplified assumptions, even if slightly more steel is required than would be the case using the more precise (and load-dissipating ability) but extremely expensive finite methods.

I cannot believe that the U. S. Government procedures for determining the safety of nuclear power plants is hinged on the ability of huge staffs generating enough paper to confuse, cajole, overwhelm or otherwise bury the opposition without regards to the real world merits of allegations. If this were the case, then the future of nuclear power is in doubt, as is the public health, safety and resources.

At footnote 8 (page 6 of Applicants' Reply), Applicants state that CASE's argument of the necessity to report the design of the upper lateral restraint as deficient under 10 CFR 50.55(e) is without merit, because no deficiency in the design has ever been found. If the original design calculations are incorrect, as has been proven, and this results in the necessity to use new assumptions and a more sophisticated procedure, then the design is deficient. It makes absolutely no difference what calculations under the new procedures prove or do not prove. Beyond this, when a new approach is required to supplement a devient calculation, the procedure must first be approved by the NRC or the effort may be accomplished at Applicants' risk of an NRC rejection. Applicants would have the Licensing Board believe that regardless of how flawed the calculations for a support may be, it becomes irrelevant when later more sophisticated procedures, which are far less conservative (if at all), indicate that the support is acceptable.

Q: Do you have any comment on item 3 (pages 6 and 7) of Applicants' Reply?

A: The first paragraph in the reply by Applicants under item 3 is deceptive, where Applicants state "CASE apparently believes that Applicants meant that every individual assumption in their analysis was conservative" and that we were in error. We read Applicants' third statement of material facts, which stated: "The assumptions underlying the analyses were conservative. First . . . Second . . . Third . . . Fourth . . . Fifth . . ." This appears to us to be a clear indication on the part of Applicants that each of the First, Second, Third, Fourth, and Fifth assumptions identified by Applicants is conservative. In their material facts, Applicants did not state (as they now have in item 3) that "the overall analytical technique was conservative" (emphasis added). We believe it is safe to assume that, had CASE not challenged portions of Applicants' statements, the Licensing Board would have been left with the impression that each of Applicants' assumptions was conservative; thus, had the Board relied only on Applicants' statements, it would have been misled. In regards to the procedure to be used, CASE does not assume anything; we merely read it in the FSAR, which is where Applicants' first equation stated it would be found and was the method used to design the upper lateral support originally.

The second paragraph under item 3 (page 7) is equally deceptive. For example, we stated that Applicants' assuming that the temperatures for the lower and upper restraints occur simultaneously was not conservative. Applicants state, without documentation, that "the difference in timing of maximum temperatures of the two beams for the LOCA scenario is inconsequential" (emphasis added) -- not non-existent. Therefore, Applicants confirm our position on this minor point.

Applicants further state that the maximum temperature used for both beams was conservative. However, since the temperatures used by Applicants were derived from data which was developed to produce maximum pressure, Applicants must explain why maximum <u>pressure</u> and maximum <u>temperature</u> are coincident.

Q: Are there any areas of inconsistencies to be found in item 5 (page 8) of Applicants' Reply?

A: Yes, there are. Applicants continuously try to put the monkey on CASE's back to dispose of material which <u>Applicants</u> developed. The procedure used to design the support originally which requires the analysis of structures utilizing the LOCA effects and jet impingement simultaneously is Applicants' FSAR and not the desires of CASE for conservatism in design. See FSAR Section 3.8.3.3.2 (Attachment B hereto).

Q: In reference to item 6 (page 9) of Applicants' Reply, do you have any comments?

A: Yes, I do. For the most part, I have covered the point mentioned in item 6 during my coverage of points 1 through 5. However, one factor must be reinforced. This is in relation to Applicants' attempts to pass off this procedure as merely an extension of the original equation to "respond to specific unanswered questions."

The original equation and results would have, if properly executed, showed failure for the upper lateral restraint and therefore the status of the qualification of the restraint was indeterminate. Under these conditions, the beam was in violation of the provisions for correctness of 10 CFR Part 50, Appendix B, Criterion III.

The introduction of this new methodology is an attempt to justify yet another <u>fait accompli</u> by shaving away the margins established by the simplified approach initially used in conjunction with the procedures stated in the FSAR.

Q: Do you have any other comments in relation to Applicants' Reply?

A: A minor statement. When Applicants' failure to provide adequate calculations for structures which have been constructed, it should have been NRC Region IV which asked the questions relative to new and non-standard procedures (the usual procedure for designing a simple beam involves simplified procedures and the beam is designed accordingly even though the results are conservative) offered to justify the structure. CASE is not adverse to stepping in when the NRC is not prompt.

I must add that I find it appalling to continually have to correct statements which are taken out of context to deceive and confuse the Board. Beyond this, we have strayed from the intent that originated with the original allegations and are embarked on a second phase. The initial allegations stated that a number of errors existed. The Applicants, rather than address the allegations, have initiated a new phase in these hearings: originate new, more precise sophisticated procedures (of dubious worth) to justify, not their <u>original</u> rationale, but the resultant construction. Such approach, while it may address a specific allegation, does <u>not</u> address the effects of vast numbers of errors in the equations used by Applicants: their effects on areas not being litigated and the resultant potential for failures which will impact the health and safety of the public.

Applicants have developed to a science the devious pattern of sidestepping gross errors in their initial procedures which results in the construction now in place. They accomplished this in the past by two methods: (1) If they cannot by some means show that the support is adequate, they state that it is no problem because such error would have been caught i the normal design review (CASE proved that this was not true in CASE's First Motion for Summary Disposition); and (2) If Applicants can luck out by introducing more sophisticated procedures, then they state that there is no problem and that this proves that their initial judgement was correct.

Now Applicants are pressing a third approach on the Board and that is as follows: Take statements by CASE and its witnesses out of context, claim that they have a certain factual meaning which appears absurd, and then introduce Dr. Iotti who has been apotheosized by Applicants' counsel to deliver infallible commentary on the actual status of Applicants' stand.

In the final analysis, if a violation occurs, if a gross breakdown in QA/QC is rampant, or if erroneous fundamentals are used, there is no way to alter this fact by future gyrations regardless of their validity. The basic problem remains: how many supports are actually indeterminate due to engineering errors?

Q: And does that complete this Affidavit?

A: No. I have one final point. On at least three occasions, counsel for Applicants has varied from Dr. Iotti's characterization of our statements (i.e., incorrect, irrelevant, technically unsupportable, etc.) to <u>false</u>. The implication of the use of the word "false" makes me curious as to why Applicants' counsel does not pursue the possibilities under the provisions of 18 USC 1505? In fact, I think it's about time that the total record of these proceedings be reviewed with respect to that section of U. S. Codes.

Q: One last question. Do you have any comments on Applicants' use of the word "conservative"?

A: Yes. This is also a deception. My only answer is: conservative compared to what? Certainly not Applicants' original equation which was used to design the upper lateral restraint, etc. In this second round of hearings, the Applicants are relying on legal coups rather than the real world of standard procedures, and that is one of the reasons for this sophistication (finite element analysis) and the use (or overuse) of the word "conservative."

I have read the foregoing affidavit, which was prepared under my personal direction, and it is true and correct to the best of my knowledge and belief.

Jack Doyle

Date: Nov 5 1984

STATE OF New York

COUNTY OF Suffolk

On this, the 5th day of November, 1984, personally appeared before Irvin L. Lerner, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purposes therein expressed.

Subscribed and sworn before me on the 5th day of November, 1984.

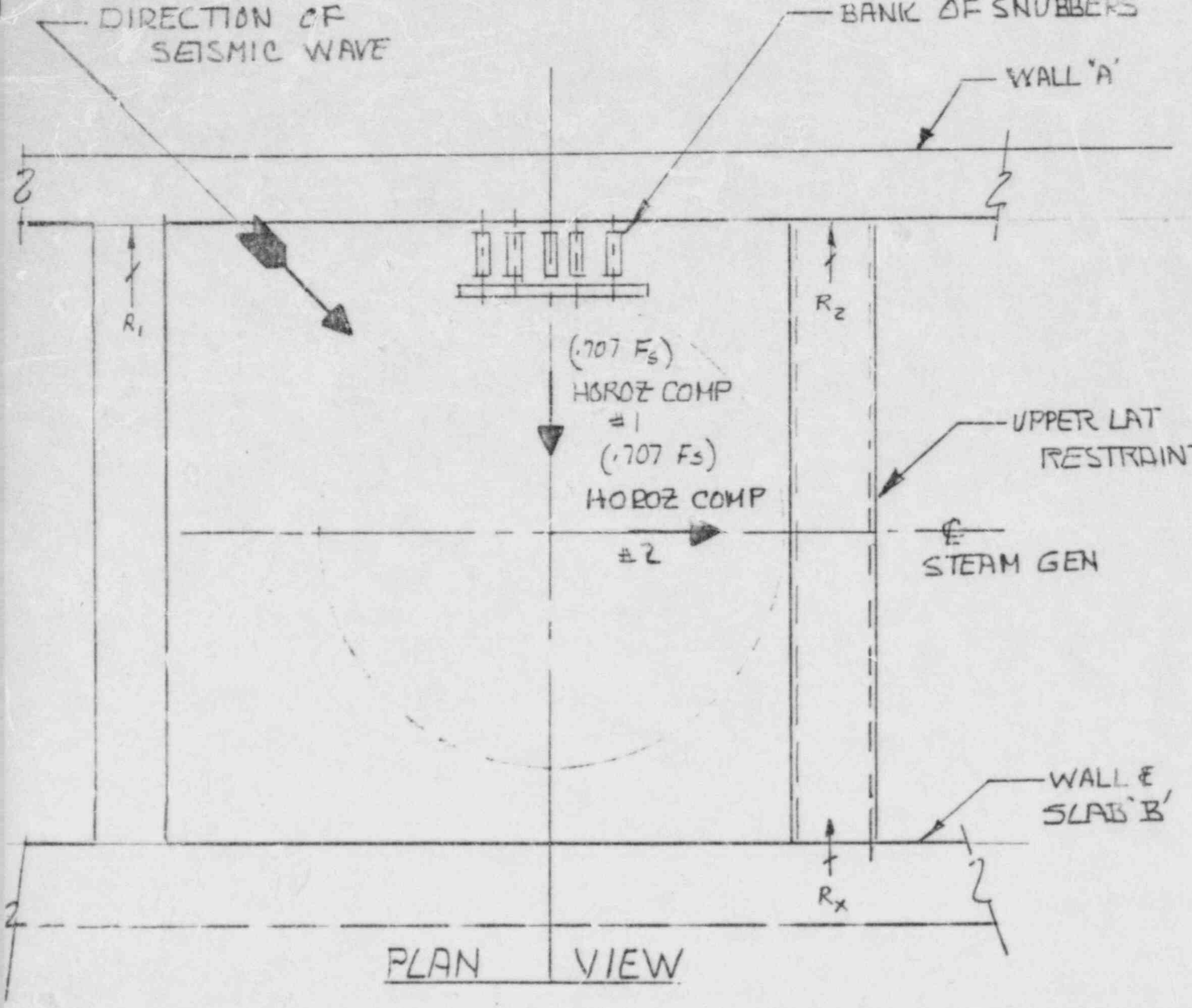
IRVIN L. LERNER
NOTARY PUBLIC, State of New York
No. 52-2315660
Qualified in Suffolk County
Commission Expires March 30, 1985

Irvin L. Lerner

Notary Public in and for the State of

My Commission Expires: March 30, 1985

ATTACHMENT 'A'



WHEN SEISMIC WAVE IS IN DIRECTION SHOWN STEAM GEN. DEVELOPES 2 HOROZONTAL COMPONENTS AS SHOWN. COMPONENT 1 IS REACTED AT WALL 'A' BY BANK OF SNUBBERS (IN TENSION). REACTION OF COMPONENT 1 AND SELF WT. EXCITATION OF WALL 'A' ARE THEN REACTED AT R_1, R_2, AND OTHER HARD PTS BY WALL 'A' ACTING AS CONTINUOUS BEAM (OR ULTIMATLY AS A VIERENDEEL). THIS DEVELOPMENT OF LOAD PATHS INDUCES FORCES & MOMENTS AT R_2 & R_x AND OTHER REACTING POINTS WHICH IN TURN ARE (DEPENDENT ON STIFFNESS) TRANSMITED TO WALL & SLAB 'B'. THEREFORE WHEN O.B.E. MECHANICAL AND THERMAL LOADS (REGARDLESS OF QUANTITATIVE VALUES DERIVED) ARE SIMULTANEOUSLY CONSIDERED UPPER LATERAL RESTRAINT ACTS AS A MEMBER OF A COMPLEX ('A SUPPORT FOR WALL 'A')

3.8.3.3 Loads and Load Combinations

3.8.3.3.1 Loads

The loads and load combinations for supports which are supplied by Westinghouse are provided in Section 3.9.1.4. The following loads are considered in the design of the internal structures of the Containment:

1. Normal Loads

   Normal loads are those loads which are encountered during normal plant operation and shutdown. They include the following:

   a. D = dead loads, including any permanent equipment loads, and their related moments and forces

   b. L = live loads, including any movable equipment loads and other loads which vary in intensity and occurrence such as soil and hydrostatic pressures, pressure differences caused by variation in heating, cooling, and outside atmospheric changes, and their related moments and forces

   c. To = thermal effects and loads during normal operating or shutdown conditions based on the most critical transient or steady-state condition

   d. Ro = pipe reactions during normal operating or shutdown conditions based on the most critical transient or steady-state condition

2. Severe Environmental Loads

   Severe environmental loads are those loads that could be encountered infrequently during the plant life. This category includes the following:

Feqo = loads generated by 1/2 the SSE
= OBE

3. Extreme Environmental Loads

Extreme environmental loads are those loads which are credible but highly improbable. They include the following:

Feqs = loads generated by the SSE

4. Abnormal Loads

Abnormal loads are loads generated by a postulated high energy pipe break accident within the Containment or compartment thereof. This category includes the following:

a. Pa = pressure equivalent static load within or across a compartment generated by the postulated break, including an appropriate dynamic factor to account for the dynamic nature of the load

b. Ta = thermal loads under thermal conditions generated by the postulated break, including To

c. Ra = pipe reactions under thermal conditions generated by the postulated break, including Ro

d. Yr = equivalent static load on the structure generated by the reaction on the broken high energy pipe during the postulated break, including an appropriate dynamic factor to account for the dynamic nature of the load

e. Yj = jet impingement equivalent static load on the structure generated by the postulated break, including an appropriate dynamic factor to account for the dynamic nature of the load

f. Ym = missile impact equivalent static load on the structure generated by or during the postulated break, such as pipe whipping, including an appropriate dynamic factor to account for the dynamic nature of the load

In determining an appropriate equivalent static load for Yr, Yj, and Ym, elastoplastic behavior is assumed with appropriate ductility ratios as long as excessive deflections do not result in loss of function. For concrete structures, the ductility ratios are described in Section 3.5.3.2.

5. Other Definitions

a. For structural steel, S is the required section strength based on the elastic design methods and the allowable stresses defined in AISC Code, Specification for the Design, Fabrication and Erection of Structural Steel for Buildings (1969).

A 33-percent increase in allowable stresses for concrete and steel because of seismic or wind loadings is not permitted.

b. For concrete structures, U is the section strength required to resist design loads and is based on methods described in ACI 318-71.

c. For structural steel, Y is the section strength required to resist design loads and is based on plastic design methods described in Part 2 of AISC Code, Specification for the Design, Fabrication and Erection of Structural Steel for Buildings (1969).

3.8.3.3.2 Load Combinations and Acceptance Criteria for Internal Concrete Structures of the Containment

1. Load Combinations for Service Load Conditions

a. U = 1.4 D + 1.7 L

b. U = 1.4 D + 1.7 L + 1.9 E

1 Q130.8 If thermal stresses due to To and Ro are present the following combinations also apply:

c. U = .75 (1.4 D + 1.7 L + 1.7 To + 1.7 Ro)

d. U = .75 (1.4 D + 1.7 L + 1.9 E + 1.7 To + 1.7 Ro)

L is considered for its full value or its complete absence.

2. Load Combinations for Factored Load Conditions

For conditions that represent extreme environmental, abnormal, abnormal/severe environmental, and abnormal/extreme environmental conditions, respectively, the following load combinations are satisfied:

a. U = D + L + To + Ro + Feqs

b. U = D + L + Ta + Ra + 1.5 Pa

c. U = D + L + Ta + Ra + 1.25 Pa + 1.0 (Yr + Yj + Ym) + 1.25 Feqo

d. U = D + L + Ta + Ra + 1.0 Pa + 1.0 (Yr + Yj + Ym) + 1.0 Feqs

In combinations b, c, and d, the maximum values of Pa, Ta, Ra, Yj, Yr, and Ym, including an appropriate dynamic factor, are used unless a time history analysis is performed to justify otherwise. For combinations c and d, local stresses caused by the concentrated loads Yr, Yj, and Ym exceed the allowables where there is no loss of function of any safety-related system.

L is considered for its full value or its complete absence.

3.8.3.3.3 Load Combinations and Acceptance Criteria for Internal Steel Structures of the Containment

1. Load Combinations for Service Load Conditions

Either the elastic working stress design methods of Part 1 of AISC Code or the plastic design methods of Part 2 of AISC Code are used.

a. When the elastic working stress design methods are used, the following apply:

1) S = D + L

2) S = D + L + Feqo

When thermal stresses caused by To and Ro are present and are secondary and self-limiting in nature, the following combinations are satisfied:

3) 1.5 S = D + L + To + Ro

4) 1.5 S = D + L + To + Ro + Feqo

L is considered for its full value or its complete absence.

b. When plastic design methods are used, the following apply:

1 Q130.18

1) $Y = 1.3 D + 1.3 L + 1.3 To + 1.3 Ro$

2) $Y = 1.3 D + 1.3 L + 1.3 To + 1.3 Ro + 1.3 Feqo$

L is considered for its full value or its complete absence.

2. Load Combinations for Factored Load Conditions

a. If elastic working stress design methods are used, the following load combinations are satisfied:

1) $1.6 S = D + L + To + Ro + Feqs$

2) $1.6 S = D + L + Ta + Ra + Pa$

3) $1.6 S = D + L + Ta + Ra + Pa + 1.0 (Yj + Yr + Ym) + Feqo$

1 Q130.18

4) $1.7 S = D + L + Ta + Ra + Pa + 1.0 (Yj + Yr + Ym) + Feqs$

b. If plastic design methods are used, the following load combinations are satisfied:

1) $.90 Y = D + L + To + Ro + Feqs$

2) $.90 Y = D + L + Ta + Ra + 1.5 Pa$

3) $.90 Y = D + L + Ta + Ra + 1.25 Pa + 1.0 (Yj + Yr + Ym) + 1.25 Feqo$

4) $.90\,Y = D + L + Ta + Ra + 1.0\,Pa + 1.0\,(Yj + Yr + Ym) + 1.0\,Feqs$

In these combinations, thermal loads are neglected when they are secondary and self-limiting in nature and when the material is ductile.

In combinations shown in Items 2.a.2), 3), and 4), and in Items 2.b.2) 3), and 4), the maximum values of Pa, Ta, Ra, Yj, Yr, and Ym, including an appropriate dynamic factor, are used unless a time history analysis is performed to justify otherwise.

In determining the equivalent static load for the differential pressure Pa, the impulsive nature of the load is taken into account by considering the time history of the applied pressure and the natural frequencies of the structures to which the pressure is applied (including the secondary shield walls and operating and intermediate floors). The steel is designed so that the maximum stress for any load combination, which includes differential pressure, is less than the yield stress, thus assuring elastic behavior.

For combinations shown in Subsection 3.8.3.3.3, Items 2.a.3) and 4), and in Subsection 3.8.3.3.3, Items 2.b.3) and 4), local stresses caused by the concentrated loads Yr, Yj, and Ym exceed the allowables when there is no loss of function of any safety-related system. Furthermore, in computing the required section strength, the plastic section modulus of steel shapes is used.

3.8.3.3.4 Variable Loads

For loads which vary, the values (within the possible range) which produce the most critical combination of loading are used in design.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

By my signature below, I hereby certify that true and correct copies of

FOURTH ROUND RESPONSE -- CASE'S ANSWER TO APPLICANTS' REPLY TO CASE'S ANSWER TO APPLICANTS' MOTION FOR SUMMARY DISPOSITION REGARDING THE UPPER LATERAL RESTRAINT BEAM

have been sent to the names listed below this 20th day of November, 1984, by: Express Mail where indicated by * and First Class Mail elsewhere.

* Administrative Judge Peter B. Bloch
U. S. Nuclear Regulatory Commission
4350 East/West Highway, 4th Floor
Bethesda, Maryland 20814

* Judge Elizabeth B. Johnson
Oak Ridge National Laboratory
P. O. Box X, Building 3500
Oak Ridge, Tennessee 37830

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

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

* Nicholas S. Reynolds, Esq.
Bishop, Liberman, Cook, Purcell & Reynolds
1200 - 17th St., N. W.
Washington, D.C. 20036

* Geary S. Mizuno, Esq.
Office of Executive Legal Director
U. S. Nuclear Regulatory Commission
Maryland National Bank Bldg. - Room 10105
7735 Old Georgetown Road
Bethesda, Maryland 20814

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

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

Renea Hicks, Esq.
Assistant Attorney General
Environmental Protection Division
Supreme Court Building
Austin, Texas 78711

John Collins
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Dr., Suite 1000
Arlington, Texas 76011

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

Dr. David H. Boltz
2012 S. Polk
Dallas, Texas 75224

Michael D. Spence, President
Texas Utilities Generating Company
Skyway Tower
400 North Olive St., L.B. 81
Dallas, Texas 75201

Docketing and Service Section
(3 copies)
Office of the Secretary
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Juanita Ellis

(Mrs.) Juanita Ellis, President
CASE (Citizens Association for Sound Energy)
1426 S. Polk
Dallas, Texas 75224
214/946-9446