



101 California Street, Suite 1000, San Francisco, CA 94111-5894

415/397-5600

March 7, 1984  
84042.03

Mrs. Juanita Ellis, President  
Citizens Association for Sound Energy  
1426 South Polk  
Dallas, Texas 75224

50-445/446

Subject: Comanche Peak Steam Electric Station Independent Assessment Program -  
Response to CASE Questions

Reference: (1) Brief Summary of Generic Problems from CASE Witness  
Jack Doyle, 2/22/84.

(2) Brief Summary of Cross-examination Questions from CASE Witness  
Mark Walsh, 2/22/84.

Dear Mrs. Ellis:

Enclosed please find our responses to reference (1) items 13 and 17, and reference (2) items 4 and 6. We are continuing to complete the remaining responses and anticipate sending another partial set next week.

Very truly yours,

*Ted T. Whitting*  
*for*

Nancy H. Williams  
Project Manager

NHW:eam

Enclosures: Attachment A, Partial Responses to  
CASE Questions

cc: See attachment

8404160035 840307  
PDR ADOCK 05000445  
A PDR

13001  
1/1



Mrs. J. Ellis  
Response to CASE Questions

March 6, 1984  
Attachment

Nicholas S. Reynolds, Esq.  
Bishop, Liberman, Cook, Purcell & Reynolds  
1200 Seventeenth Street, N.W.  
Washington, D.C. 20036

Robert Wooldridge, Esq.  
Worsham, Forsythe & Sampels  
2001 Bryan Tower  
Dallas, Texas 75201

Mr. Homer C. Schmidt  
Manager - Nuclear Services  
Texas Utilities Generating Company  
2001 Bryan Tower  
Dallas, Texas 75201

Mr. H. R. Rock  
Gibbs & Hill, Inc.  
393 Seventh Avenue  
New York, New York 10001

Mr. A. T. Parker  
Westinghouse Electric Corporation  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230

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

Mr. James E. Cummins  
Resident Inspector/Comanche Peak Nuclear  
Power Station  
c/o U.S. Nuclear Regulatory Commission  
P.O. Box 38  
Glen Rose, Texas 76043

Mrs. S. Burwell  
Licensing Project Manager  
U.S. Nuclear Regulatory Commission  
7920 Norfolk Avenue  
Bethesda, Maryland 20014

Mr. H. Schmidt  
c/o Westinghouse  
4901 Fairmont Avenue  
Bethesda, Maryland 20814

Mr. John T. Collins  
U.S. NRC, Region IV  
611 Ryan Plaza Drive  
Suite 1000  
Arlington, Texas 76011

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

B. R. Clements  
Vice President Nuclear  
Texas Utilities Generating Company  
Skyway Tower  
400 North Olive Street  
L.B. 81  
Dallas, Texas 75201

Peter B. Bloch, Esq.  
Chairman, Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
4350 East/West Highway, 4th Floor  
Washington, D.C. 20814

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

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

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

Mr. J. B. George  
Texas Utilities Generating Company  
Comanche Peak Steam Electric Station  
Highway FM 201  
Glen Rose, Texas 76043

Mr. David H. Wade  
Texas Utilities Generating Company  
2001 Bryan Tower  
Dallas, Texas 75201

Mr. David R. Pigott  
Orrick, Herrington, & Sutcliffe  
600 Montgomery Street  
San Francisco, California 94111

### 1.0 CASE Question

In Note 2 following pages PS-01-4 of 4 , Cygna decided to eliminate their stiffness criteria based on their knowledge that a report existed to address the problem (but without personal knowledge of what was contained in the document in detail). Why didn't Cygna consult with their experts -- for example Eric van Stijgeren (who was the editor on a paper by T.Y. Chow, C.H. Chen and O. Bilgen) -- in reference to deviations from generic stiffnesses in pipe supports and the effects on piping systems.

- o Third paragraph introduction et. seq. (CASE Ex. 884).

### 2.0 Cygna Interpretation

Did Cygna evaluate the effects of support stiffnesses on the piping analyses?

### 3.0 Response

In the IAP Draft Report, Cygna questioned the pipe support stiffnesses utilized on Comanche Peak. Note 2 to Checklist PS-01 states

#### "Pipe Support Stiffnesses

"The NRC SIT raised the issue of support stiffness in item 3.j of the above referenced reports. Gibbs & Hill has performed a generic study for review by an NRC consultant. The study shows that using 1/16" deflection criteria on support design provides acceptable stiffnesses for the piping analysis (changes in support stiffness do not greatly affect piping results). The NRC review results were not available at the time of the Cygna review."

Since the IAP was performed for the NRC Staff, further evaluation of an issue already identified and reviewed by the Staff would have been redundant. Accordingly, Cygna recorded the potential deficiency on the appropriate checklist and deferred to the Staff evaluation.



Comanche Peak ASLB Hearings  
Response to CASE Questions  
Question No. Doyle #17  
Exhibit No. None

### **1.0 CASE Question**

Has Cygna verified the statement: "No 2-inch topping"?

- o This affects the calculation for Hiltis relative to embedment, since a non-monolithic shear plane has been established.

### **2.0 Cygna Interpretation**

Three support drawings within Cygna's scope of review contain a note regarding the 2" topping. These are:

- o RH-I-010-002-S22S, Rev. 5
- o RH-I-024-011-S22A, Rev. 1
- o SI-I-038-013-S22A, Rev. 2

On the first two drawings, the note states "No 2-inch topping". On the other drawing, 2 inches of topping is specified.

What credit was taken for this topping in the calculation of minimum expansion anchor embedment?

### **3.0 Response**

To verify the adequacy of expansion anchor embedment lengths, Comanche Peak began with the full length of the anchor and then subtracted items such as the plate thickness, thread length, grouting and topping. Therefore, in calculating minimum embedment length, no credit was taken for the strength of the topping.





Comanche Peak ASLB Hearings  
Response to CASE Questions  
Question No. Walsh #/4  
Exhibit No. None

### **1.0 CASE Question**

PI-02 Is there an error in the table shown?

### **2.0 Cygna Interpretation**

Referring to Observation PI-02-03, Attachment A, is there an error in the calculated table?

### **3.0 Response**

There is a typographical error in the calculated table. The allowable for restraint RH-I-064-007-S22R should be "44000", rather than "4400".

As shown on the attached Table, Enclosure W4-1, this correction puts the allowable for the aforementioned restraint into line with the other restraints tabulated.





ENCLOSURE W4-1

# Observation Record Review Attachment A

Checklist No. PI-02

Revision No. 0

Observation No. PI-02-03

Sheet 1 of 1

	Yes	No
Valid Observation	X	
Closed	X	
Comments		

## 1.0 Root Cause

Possible misunderstanding of the Gibbs and Hill procedure

## 2.0 Resolution

Using the range for the 3 rigid restraints, Cygna calculated the following:

Support	Load Range	CYLNCZ Stress	General Stress	Total	Allow
SI-1-032-003-S32R	2700	10362	6763	17125	45000
RH-1-064-007-S22R	1300	5172	5128	10300	<u>4400</u> 44000
RH-1-016-001-S32R	8615	11225	9328	20555	44000

The remaining 4 restraints are springs or snubbers and have no thermal load. Thus, there is no increase in stress above allowables.

Cygna also noted that the correct method was used for the welded attachments in anchors of Problem 1-70 and in all supports in Problem 1-69. Based on this, Cygna considers the error isolated. In addition, the RHR system will probably show the largest percentage difference (between maximum load and range), since it has many modes of operation. Thus, Cygna expects the error would have the most impact on this system. As the new calculations show, the impact on design is negligible and the observation is closed.

## Approvals

Originator	<i>M.K. Mani</i>	Date	<i>11/1/83</i>
Project Engineer	<i>John C. Ummechello</i>	Date	<i>11/5/83</i>
Project Manager	<i>M.A. Williams</i>	Date	<i>11/5/83</i>
Senior Review Team	<i>Darryl Starnes</i>	Date	<i>11/5/83</i>

Texas Utilities Services, Inc.  
Independent Assessment Program; 83090

Comanche Peak ASLB Hearings  
Response to CASE Questions  
Question No. Walsh #6  
Exhibit No. None

### 1.0 CASE Question

CTS-00-006 What is the "significant design margin" as shown in the resolution?

### 2.0 Cygna Interpretation

Observation CTS-00-06 states that "... further analyses by Gibbs & Hill (see Cygna Technical File 11.2.1.50, pp. 31-69), incorporating Cygna's comments, revealed that sufficient design margin existed to compensate for the increased stress levels." The "increased stress levels" refer to the potential increase in stress levels due to the items noted in the observation.

Please quantify the design margins.

### 3.0 Response

To demonstrate the adequacy of the relevant design details, Gibbs & Hill performed a refined analysis using the NASTRAN Code. Their analysis showed that more than a 6% design margin existed. Considered alone, a 6% design margin is certainly "sufficient." In addition, it is important to note that the refined analysis was performed using tray weights of 35 lbs./ft.<sup>2</sup>, whereas the actual tray weight is 28 lbs./ft.<sup>2</sup>. That represents a 25% margin in the applied tray weight.

In total, there is clearly sufficient evidence to conclude that the design is adequate.

