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June 27, 1984  
84042.009

Mr. R. E. Ballard  
Project Manager  
Gibbs & Hill, Inc.  
11 Penn Plaza  
New York, New York 10001

Subject: Pipe Stress Review - Break Exclusion Areas  
Comanche Peak Steam Electric Station  
Independent Assessment Program - Phase 3  
Texas Utilities Generating Company  
Job No. 84042

Reference: 1. Mr. R.E. Ballard (G&H) letter to Mr. J.B. George (TUGCO),  
GTN-69098, June 11, 1984; Texas Utilities Generating Company,  
Comanche Peak Steam Electric Station Followup Information from  
G&H, Ref. Cygna Communications Report of 5/24/84.

2. Communications report between H. Mentel (G&H), N. Williams  
(Cygna) and L. Weingart (Cygna), June 20, 1984

Dear Mr. Ballard:

Cygna has received and reviewed Gibbs & Hill's response concerning welded attachment stresses in break exclusion zones (Reference 1). As noted in the response, only the membrane portion of the local stress was included in the G&H re-evaluation of those attachments located in break exclusion zones. It is Cygna's position that local bending stresses should be included as well. The basis for this position is as follows:

The Class 2 criteria in MEB 3-1 permit break exclusion zones if the primary (equation 9) and secondary (equation 10) pipe stresses meet certain limits. The fact that MEB 3-1 does include the primary, secondary and fatigue effects to be considered is evident by reviewing the Class 1 criteria. For Class 1, MEB 3-1 limits the equation 10 (primary plus secondary) pipe stress to  $2.4 S_M$  and the fatigue usage factor to 0.1. Stresses above these limits require break postulation. The intent of MEB 3-1 is, therefore, to limit the potential for crack formation (i.e., limit fatigue). To determine fatigue stresses, one must consider the total stress at a point, not just the primary effects. This is apparent from the Class 1 break

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criteria. Finally, MEB 3-1 has effectively stated that secondary/fatigue effects should be considered for Class 2 by including equation 10, which limits both secondary and fatigue stresses for Class 2. Therefore, when welded attachments are present, the total stress (local membrane plus bending) should be considered in order to meet the intent of MEB 3-1.

We would like to discuss this interpretation with you as soon as possible. Please call when you have completed your review.

Very truly yours,

A handwritten signature in cursive script, appearing to read "N. H. Williams".

N. H. Williams  
Project Manager

cc: Mrs. J. Ellis (CASE)  
Mr. S. Treby (NRC)  
Ms. S. Burwell (NRC) → D. TERAQ, J. FAIR, D. LANDERS, P. CHEN  
Mr. D. Wade (TUGCO)  
Mr. G. Grace (TUGCO/BASCO)  
Mr. D. Pigott (Orrick, Herrington & Sutcliffe)  
Mr. H. Mentel (Gibbs & Hill)