945

September 19, 1984

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 ELECTRIC COMPANY, et al.	)	50-446 OL
	)	
	)	(Application for
(Comanche Peak Steam Electric Station, Units 1 and 2)	)	Operating Licenses)
	)	

APPLICANTS' REPLY TO CASE'S ANSWER TO APPLICANTS' MOTION FOR SUMMARY DISPOSITION REGARDING CONSIDERATION OF FRICTION FORCES

I. INTRODUCTION

Texas Utilities Electric Company, et al. ("Applicants") hereby submit their reply to "CASE's Answer to Applicants' Motion for Summary Disposition Regarding Consideration of Friction Forces in the Design of Pipe Supports with Small Thermal Movements," ("Answer") filed August 6, 1984. The Board authorized Applicants to submit replies to CASE's answers to Applicants' motions for summary disposition in the August 22, 1984, conference call (Tr. 13,995). As demonstrated below, CASE has failed to demonstrate the existence of a genuine issue regarding the material facts set forth in Applicants' motion. Accordingly, the Board should render the decision sought by Applicants.

D503

II. APPLICANTS' REPLY TO CASE'S MOTION

A. General

CASE's answer to Applicants' motion fails to demonstrate the existence of a genuine issue regarding any of the material facts set forth in Applicants' motion. Thus, under the usual standard for granting summary disposition Applicants would be entitled to judgment as a matter of law (see 10 C.F.R. §2.749(d)).[1]

The Board has, however, established a more lenient standard in this phase of the proceeding for granting summary disposition. As the Board noted in its June 29, 1984, Memorandum and Order[2], the Board intends to ask questions, request briefs or otherwise seek to clarify matters so as to determine whether sufficient information is available to make a "reasoned decision". Accordingly, we address below each of CASE's assertions with respect to Applicants' statement of material facts which we perceive to require clarification and/or rebuttal to assist the Board in reaching a sound decision. We believe there clearly is sufficient information before the Board for it to reach a reasoned decision on this issue.

---

1 We note that CASE has failed to file a statement of material facts as to which it contends there is a genuine issue to be heard, as required by 10 C.F.R. § 2.749(a). We do not stand on this technicality, however, but note that this failure makes it all the more difficult to discern precisely what CASE's assertions are.

2 Memorandum and Order (Written-Filing Decisions # 1; Some AWS-ASME Issues) (June 29, 1984) at 2-3 ("Memorandum and Order").

Before responding to CASE's answer, we feel compelled to comment on CASE's inability to focus its pleadings on the issues in dispute. CASE fails in many instances to adhere to the Board's admonition in its Memorandum and Order that CASE demonstrate why its objections are relevant to the issues.[3] Further, CASE also fails to demonstrate the existence of important issues that affect the public safety.[4] CASE pursues many arguments without reaching a conclusion at all. In short, CASE's answer makes it extremely difficult to discern what information need be provided to assist the Board in reaching a decision. Accordingly, we ask the Board to again admonish CASE to focus its answers on the genuine issues. Further, the Board should caution CASE that failure to address clearly relevant issues works to the detriment of rational decisionmaking and will not be viewed with favor by the Board.

B. Applicants' Reply to CASE's Arguments

Applicants focus below only on those arguments of CASE which are at least superficially relevant to the issues at hand. However, as already noted, CASE generally does not demonstrate why even those arguments should be considered to raise important safety questions. Thus, it is difficult to predict whether the Board might consider any of those particular arguments to raise

---

3 Memorandum and Order at 6.

4 Id. at 7.

important issues. Accordingly, we address each even potentially relevant issue below regardless of its apparent lack of safety significance.

1. Pipe Support Design Organizations' Practice

CASE argues with respect to Applicants' first material fact that Applicants should have (because Gibbs & Hill designs moment restraints), but did not, include Gibbs & Hill as a "pipe support design organization" (Affidavit at 1-2). Applicants will not spend time quibbling with CASE on this matter. Applicants have never contended that Gibbs & Hill did not design moment restraints (see CASE Exhibit 669B, Item 9Q-9S). In fact, we previously provided CASE with information regarding Gibbs & Hill's practice with respect to the consideration of friction for these restraints.[5] Thus, we fail to see CASE's purpose in addressing this, particularly because CASE does not dispute the technical validity of Gibbs & Hill's practice. Rather, CASE takes issue with certain tangential matters not directly material to the resolution of this issue. Nevertheless, we address these briefly below to assure a clear record for the Board to reach its decision.

CASE asserts that because Gibbs & Hill designed the upper lateral restraint, Applicants' statement that the only supports Gibbs & Hill designs are moment restraints is somehow in error.

---

5 See June 28, 1984, letter to CASE (Ellis) from Applicants (Horin).

Further, CASE argues that the STRUDL group "was under Gibbs & Hill's supervision," implying that the practice of that group, viz., to include friction effects only when instructed, was somehow inconsistent with Applicants' position in their motion. In the first instance, the upper lateral restraint is not a pipe support, it is a restraint for movement of the steam generator. Further, although the STRUDL group was under Gibbs & Hill supervision (i.e., the supervisor was a Gibbs & Hill employee) it was not a Gibbs & Hill organization. The STRUDL group performed analyses for each pipe support design organization and, thus, friction was included in those analyses consistent with each organizations' instructions. Each of these matters are fully consistent with Applicants' position throughout the proceeding. (Finneran Affidavit at 2.) (Applicants have attached the Affidavit of John C. Finneran, Jr. in support of their reply.) Accordingly, the Board should find that CASE provides no basis for disputing Applicants' first material fact.

2. Calculations of Friction Loads

CASE does not dispute Applicants' second and third statements of material fact (Affidavit at 2-3). Accordingly, Applicants have no comment on these portions of CASE's Answer.

3. Application of Procedure for Calculation of Friction Loads

CASE states that it disagrees with Applicants' fourth statement of material fact only "to a certain extent" (Affidavit at 3). However, Applicants are unable to discern to what extent CASE disagrees. CASE simply restates Applicants' position and draws no conclusion. Accordingly, CASE has not presented any justification for disputing Applicants' position. CASE also does not dispute Applicants' fifth statement of material fact (Affidavit at 5). CASE simply reasserts its basic position, to which Applicants' entire motion is directed. Accordingly, Applicants do not address these aspects of CASE's Answer.

4. CASE's Proposed Guideline

Applicants address in their sixth statement of material fact the need to consider a guideline such as Mr. Doyle suggested be used. CASE presents several arguments regarding this fact, none of which disprove Applicants' position (Affidavit at 5-10). CASE first argues Applicants misinterpreted Mr. Doyle's statements. A review of Mr. Doyle's testimony will demonstrate that Applicants have not misinterpreted that testimony.[6] In addition, CASE now

---

6 Applicants strongly object to CASE's characterization of our summary of Mr. Doyle's testimony as being "very misleading and either constitut[ing] or border[ing] on material false statements" (Answer at 2). We do not take lightly such charges. The Board has on many occasions cautioned that such unfounded attacks will not be countenanced. CASE, however, still seems to consider such charges to be the matter of course. Several of its "Answers" to Applicants' motions incorporate the identical attack on Applicants'

(footnote continued)

asserts that its concern on this issue is with the "survivability" of supports over the period of time the plant must operate. CASE does not attempt to relate this claim to or otherwise demonstrate a safety concern. Thus, this assertion gives no basis to question Applicants' sixth statement. We note, however, that this claim appears to conflict directly with CASE's position at the hearing. As Mr. Doyle testified, CASE was not concerned with repetitively applied loads (Tr. 6826), even where the stress ratios for normal allowables approached or slightly exceeded one (Tr. 6826-29). CASE's present assertion to the contrary affords no basis to question Applicants' sixth material fact.

CASE also contends (Affidavit at 7), that Applicants have misconstrued Section NF-3231.1 of the ASME Code. Applicants position is that if the effects of friction were included in the design of these supports, the allowables applicable to such loading combinations could be increased pursuant to NF-3231.1 (Finneran Affidavit attached to Applicants' Motion for Summary Disposition, at 4-5). CASE construes Applicants' position to be that friction effects can be included in all analyses in order to obtain a general increase in allowables for all loading

---

(footnote continued from previous page)
motions. As we demonstrate here and will demonstrate in our other replies, CASE's assertions are unfounded. Accordingly, the Board should strike each of these charges from CASE's answers and admonish CASE for making such baseless claims. The Board should also put CASE on notice that similar unfounded attacks in the future could result in more severe sanctions, including striking CASE's entire pleading.

combinations. To the contrary, mechanical loading combinations must satisfy applicable allowables, without any increase. If friction effects are included, those loading combinations may utilize the increased allowable (Finneran Affidavit at 3).[7] CASE apparently misunderstands Applicants' position.

CASE next asserts that when the effects of friction alone are considered, the stress ratios are of such magnitude that inclusion of mechanical loads would create an overstressed condition (Affidavit at 7). To illustrate its point CASE evaluates a calculation Applicants prepared for the NRC Staff which showed that when the effects of friction alone are calculated for a particular support the stress ratio was determined to be .775. CASE erroneously contends that this leaves only .225 of the ratio for mechanical loads. CASE does not acknowledge that (as stated by Mr. Finneran in his statement to the NRC which is referenced by CASE) friction forces do not act alone, and that when the normal load (which gives rise to the friction force) is included in the calculation it tends to offset the effect of the friction force. In this instance, when friction and the normal load are combined for the above support, the stress ratio actually drops from that calculated for friction alone to .46. (Finneran Affidavit at 4.) Thus, CASE's assertion simply is invalid.

---

7 We note that Applicants' standard practice is not to take advantage of this increase in allowables, even when friction is included. (Finneran Affidavit at 3.)

CASE's next claim concerns Applicants' use of a 5:1 safety factor for Hilti bolts (Affidavit at 8). CASE notes that a list of Hilti allowables using a factor of safety of 4:1 is included in the PSE design manual. CASE says nothing more, but leaves the impression that Applicants incorrectly stated the safety factors they employ for Hilti bolts. CASE fails to point out that the list CASE refers to is simply a letter from Hilti, Inc., furnished by NPSI, containing load capacity data. (Hilti recommends therein the use of a 4:1 safety factor.) This information is for use by organizations which order Hilti bolts from NPSI (which Applicants do not) and is included in Section XII of the manual simply for general information. The actual design requirements for Hilti bolts, using a 5:1 safety factor, are reflected in Section V of the PSE manual. In fact, CASE itself uses the data from Section V only two pages later (Affidavit at 10) in its own illustration of these effects. (Finneran Affidavit at 5-6.)

CASE next attempts to demonstrate, using a hypothetical support, that the effects of friction are significant and that failure to consider these effects could result in failure of anchor bolts (Affidavit at 9-10). CASE's hypothetical is premised on the same fundamental misunderstanding of friction loads discussed above with respect to stress ratios. CASE either misunderstands, or chooses to ignore, that a friction load does not act alone. A friction load must act with the normal load from which it results. In CASE's hypothetical the normal load

has simply been neglected. As demonstrated in Mr. Finneran's Affidavit (at 6-7), consideration of the normal load in this example shows that the bolt which CASE claims would pull out cannot even be put in tension. In short, CASE's hypothetical is simply invalid.

We are deeply troubled by CASE's handling of these last few assertions. The fallacy of using data calculated with only friction loads for the purposes CASE used them should be immediately obvious to CASE. Even if this error was not immediately realized, Mr. Finneran's reply (to which CASE refers) cautioned against such usage and CASE should have so recognized the error of its approach. Further, Applicants informed CASE of the purpose of the Hilti allowables in Section XII of their manual during the June 6, 1984 conference call (Tr. 41). That CASE would include in any filing before the Board, let alone a sworn affidavit, a statement which, although not false in and of itself, creates an impression in any reader's mind which CASE should know to be false, is disengenuous, at best. The Board and parties are faced with resolving many issues. To waste others' time in addressing this type of claim suggests a desire simply to cause delay rather than to reach the truth. Indeed, Applicants seriously question whether other statements by CASE as to which providing a few additional basic facts (which we would expect CASE to know) would clarify the point and demonstrate that no valid concern exists are not also intentional. Such a practice

should not be countenanced by the Board. Accordingly, we urge the Board to caution CASE that such tactics will result in prompt sanctions.[8]

5. Evaluation of CASE Support

Applicants' seventh material fact addresses the evaluation of the support referenced by CASE in its proposed findings. CASE disagrees with Applicants' conclusion that even with consideration of friction forces the stresses are all within applicable allowables.

CASE first contends that Applicants employed an incorrect moment arm in the evaluation of this support. CASE argues that use of the correct moment arm would result in "a 37% increase of all tabulated values." (Affidavit at 11.) CASE is correct in its calculation of the moment arm. However, CASE incorrectly asserts that the increase would be applied to "all" values. That increase actually applies only to one moment term (My). Correctly including this revised moment arm in the calculation demonstrates that the stress remains below the applicable allowable. (Finneran Affidavit at 7-8.)

CASE also contends that the increased moment arm would cause the stress ratio for the anchor bolts to exceed one (Affidavit at 11). However, as already noted, the increase in moment arm only affects the moment about one axis. Contrary to CASE's assertion,

---

8 See note 6, supra.

the stress ratio for the anchor bolt only changes from .81 to .89, which indicates the anchor bolts are not overstressed. (Finneran Affidavit at 8.)

CASE also questions the dimensions employed in Applicants' calculation (Affidavit at 11-12). Although CASE does not suggest the discussion is relevant to the issue at hand, we nonetheless note that the dimensions Applicants employed are correct. CASE simply misread the drawing. (Finneran Affidavit at 8.)

CASE next contends that Applicants utilized an incorrect allowable in assessing the shear yield stress (Affidavit at 12). CASE apparently does not understand the nature of the shear yield stress check employed in the subject calculation. That check utilized a formula from the AISC Code and was performed simply to provide added assurance of the adequacy of the weld.[9] As Mr. Finneran demonstrates in his affidavit, that method yields an allowable which is equivalent to that which CASE argues should be employed. In any event, CASE's claim is premised on an interpretation of Regulatory Guide 1.124. Without addressing the validity of CASE's interpretation we note that this Regulatory Guide applies only to class 1 supports. The subject support is a class 3 support (Finneran Affidavit at 9).

---

9 Contrary to CASE's claim (Affidavit at 13), Applicants are not "committed" to any edition of the AISC Code for weld design. Applicants do not reference the AISC Code in their specifications for the purpose of establishing weld design criteria for ASME supports. (Finneran Affidavit at 9, n.4.)

In sum, none of CASE's arguments regarding Applicants' seventh material fact are valid. Accordingly, the Board should accept Applicants' position.

6. Evaluation of sample supports

CASE challenges Applicants' eighth statement of material fact in two respects. First, CASE suggests that Applicants' sample of supports was not "random". Second, CASE argues that Applicants' calculations of friction effects for these supports was inadequate. Both of CASE assertions are unfounded.

CASE claims that it does not know "how random Applicants' sample was or the criteria used for their selection (Affidavit at 14)." As discussed in Mr. Finneran's affidavit attached to Applicants' motion for summary disposition (at 5-6), Applicants' sample of supports was selected by applying two criteria which assured the supports were of the "worst case" type and for which friction would not have been previously considered. To identify supports which satisfied these criteria, Mr. Finneran simply requested that his engineers review support drawings at random to identify these supports. The resulting supports were, therefore, randomly selected in accordance with the established criteria. (Finneran Affidavit at 9-10.)

To discredit Applicants' calculations regarding the sample supports CASE selects one such support for examination and contends that it "will illustrate the shortsightedness of neglecting assumed minor effects" (Affidavit at 14-15). As demonstrated below, CASE fails to do so.

CASE first asserts (Affidavit at 15, paragraph (2)) that the stress ratio calculated with the effects of friction included was "almost four times as high" as that without friction. However, given the initially low stress ratio for this support, even with the increase due to friction the stress ratio remains well within the acceptable range. Thus, there is no significance to the percentage increase in stress ratio. CASE also neglects to point out that the allowable when friction was included could have been, but was not, increased above the normal allowable. (Finneran Affidavit at 10.).

CASE also claims (Affidavit at 15, paragraph (3)) that inclusion of the effects of friction increases the level A stress ratio in the weld from .25 to .96. CASE believes that this demonstrates the weld would not be able to take much increase in load before it exceeds allowables. (CASE asserts that such a load increase "could" be caused by several effects, but does not quantify its argument.) Contrary to CASE's assertion, the weld stress ratio increases only to .46 when the effects of friction are included. In addition, the stress ratios are premised on the

normal allowable without taking advantage of the permitted increase. Thus, ample margin to allowable remains even when friction effects are included. (Finneran Affidavit at 10-11.)

CASE fails to demonstrate either the relevance or significance of its next two arguments to Applicants' motion (Affidavit at 16, paragraphs (4) and (5)). Nonetheless, we make the following points. First, with respect to paragraph (4), Applicants note that there is a rigid support less than three feet from the subject support which prevents additional side load from being imparted to this support. Thus, CASE's concern regarding the potential effect of additional side load is unfounded. (Finneran affidavit at 11). Further, with respect to paragraph (5), the note to which CASE refers is only a rough approximation of the friction load which would be imparted if the pipe were to move into at the curvature of the U-bolt. This calculation was performed merely to confirm that the controlling friction load occurs when the pipe is against the backing plate. Further, it is not appropriate to characterize this rough approximation as indicating the U-bolt stiffness. Applicants have utilized actual test data for these values in their motions for summary disposition. (Finneran Affidavit at 11-12.)

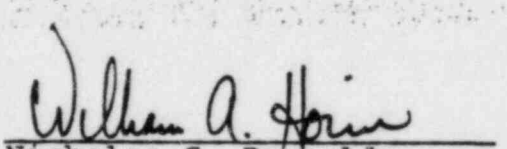
Finally, CASE disputes a statement made in the Cygna Phase III Report, attributed to Mr. Finneran's original affidavit, regarding the consideration of friction in the upset loading condition (Affidavit at 16-17). The statement in the Cygna Report is not, however, derived from Mr. Finneran's affidavit.

In fact, the statement does not relate at all to the issue at hand, viz., friction effects for small pipe movements for which friction was not considered under any loading condition. (Finneran Affidavit at 12.) Thus, CASE's comments are not relevant to the disposition of this issue.

III. CONCLUSION

For the foregoing reasons, the Board should find that there is sufficient evidence before it to reach a reasoned decision on CASE's allegations regarding friction effects and that evidence demonstrates that Applicants' practice is appropriate and based on sound engineering principles.

Respectfully submitted,



Nicholas S. Reynolds
William A. Horin

BISHOP, LIBERMAN, COOK,
PURCELL & REYNOLDS
1200 Seventeenth Street, N.W.
Washington, D.C. 20036
(202) 857-9800

Counsel for Applicants

September 19, 1984