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Ref. # 10CFR50.55(e)

William G. Council  
Executive Vice President

September 14, 1988

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)  
DOCKET NOS. 50-445 AND 50-446  
ANCHOR BOLTS SUPPLIED BY HILTI  
SDAR: CP-86-51 (SUPPLEMENTAL REPORT)

Gentlemen:

On February 4, 1988, our letter logged TXX-88195 provided notification that the issue involving anchor bolts supplied by Hilti was reportable under the provisions of 10CFR50.55(e). On June 23, 1988, we notified you by our letter logged TXX-88533 of the expansion in scope for SDAR CP-86-51 to include evaluation of 3/4 inch diameter Hilti Kwik bolts. We are conservatively reporting the 3/4 inch diameter Hilti Kwik bolt issue under the provisions of 10CFR50.55(e). This report supersedes our report logged TXX-88195, dated February 4, 1988.

Description

At another nuclear facility, conditions were identified wherein the anchor bolts supplied by Hilti did not meet average ultimate tensile loads in certain sizes as published by the supplier. Extensive evaluation of the problem by Hilti resulted in the concern being limited to 1/2 inch diameter Hilti Kwik Bolts with design embedments of 3-1/2 inches and larger. This evaluation resulted in the issuance of IE Information Notice No. 86-94, "Hilti Concrete Expansion Anchor Bolts," reporting a reduction in ultimate tensile capacity values for the 1/2 inch diameter Hilti Kwik Bolts. After Information Notice No. 86-94 was issued, tensile strength testing of the 1/2 inch diameter Hilti Kwik bolts in concrete at CPSES resulted in the concern being limited to 1/2 inch diameter kwik bolts with design embedments greater than 4-1/2 inches.

During self-initiated Confirmatory testing of other Hilti bolt sizes, a similar deficiency was discovered for 3/4 inch diameter Hilti Kwik bolts wherein the bolts did not meet average ultimate tensile loads as published by the supplier.

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The reduction in ultimate tensile capacity for 1/2 inch diameter bolts is 10.6% and 21.6% for bolts embedded 5-1/2 inches and 6 inches respectively. The reduction in ultimate tensile capacity for 3/4 inch diameter bolts is 48% and 63% for bolts embedded 8 inches and 9 inches respectively.

This deficiency extends to 1/2 inch Hilti Kwik bolt installations with design embedments greater than 4-1/2 inches and 3/4 inch Hilti Kwik bolt installations with design embedments greater than 7 inches.

#### Safety Implications

Reduction of the tensile load capacity for Hilti Kwik bolts could result in failure of these bolts to adequately anchor safety related equipment during a seismic event.

This issue is conservatively deemed reportable under the provisions of 10CFR50.55(e) due to the extensive evaluation required to establish the adequacy of existing Hilti Kwik bolt installations.

#### Corrective Action

To prevent recurrence of this deficiency, the applicable Design Basis Document has been revised to incorporate the reduction in ultimate tensile capacity for 1/2 inch and 3/4 inch Hilti Kwik bolts in the applicable sizes. The applicable Structural Specification will be revised to provide criteria for the installation of 1/2 inch and 3/4 inch diameter Hilti Kwik bolts with embedments greater than 4-1/2 inches and 7 inches, respectively.

As-built concrete embedment lengths will be obtained for 1/2 inch and 3/4 inch diameter Hilti Kwik bolts via a walkdown. The capacity of those bolts whose embedment depth is included in the scope of this SDAR will be compared to the design loads to determine the acceptability of the existing installation. Any installations found to be unacceptable will be corrected in accordance with applicable project procedures. Unit 1 corrective actions are currently scheduled for completion by April 5, 1989. Unit 2 corrective actions will be implemented prior to Unit 2 fuel loading.

Very truly yours,

W. G. Council

By: John W. Beck

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Vice President,  
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GLB/mlh

c - Mr. R. D. Martin, Region IV  
Resident Inspectors, CPSES (3)