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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES) - UNIT 2
DOCKET NO. 50-446
INSTRUMENT TUBING CLAMPS
SDAR: CP-88-021 (SUPPLEMENTAL REPORT)

- REF: 1) TU Electric letter logged TXX-88140 from W. G. Council to
NRC dated January 29, 1988
2) TU Electric letter logged TXX-88621 from W. G. Council to
NRC dated August 10, 1988

Gentlemen:

On January 21, 1988, TU Electric orally notified the NRC of a deficiency involving the use of J. C. White single bolt instrument tube clamps (model NC-2-375/500-3D) as 3 directional restraints. Reference 1 described the two applications for the single bolt tube clamps as those attached to concrete utilizing a Hilti Kwik Bolt (HKB) and those attached to Unistrut channels. Reference 2 indicated that the Unit 2 corrective action would be completed prior to fuel load. This letter addresses the Unit 2 corrective and preventive actions for this deficiency.

DESCRIPTION

The vendor-recommended torque value for J. C. White tube clamp NC-2-375/500-3D mounted with ASTM-A307 bolts is 32-34 inch-lbs. For attachments to concrete, an installation torque of 8 foot-lbs is required for a 1/4 inch diameter HKB to properly set the wedge in the concrete. When attached to a Unistrut channel, an installation torque of 6-7 foot-lbs is required for a 1/4 inch diameter bolt to set the spring nut. Using conservative statically determinate methods, the calculated clamp stresses resulting from these torque values are in excess of 43 ksi which exceeds the allowable stress of 22.5 ksi for the tube clamp material at 100 degrees F. These deficiencies were caused by the failure to recognize the individual torque requirements of the various components that comprise the restraint assembly.

TEST 1/0

CORRECTIVE AND PREVENTIVE ACTIONS

For Unit 1, a new three-bolt clamp was designed which met all installation requirements. Installation specifications and drawings were revised to clearly indicate the applicable tube clamps and corresponding torque values required for each application. The tube clamps requiring replacement were identified and corrected during the Post Construction Hardware Validation Program.

Consistent with the Unit 1 program, the new three bolt clamp is being used in Unit 2 as a three directional restraint. The installation drawing permits the three bolt clamp to be installed on structural steel members, Unistrut channels, or on concrete surfaces using HKBs.

For the single bolt clamp designs using Unistrut channels, additional test data obtained in late 1989 showed that tube clamp NC-2-375/500-3D can withstand a bolt torque of 7 foot-lbs with no material yielding. Accordingly, Unit 2 Engineering revised installation drawings to allow the use of this clamp on Unistrut channels for 3 dimensional restraint applications.

Unit 2 safety-related instrument tubing is being redesigned, replaced or verified to comply with the revised design drawings. The validated design drawings, installation drawings, and installation specifications serve as the basis for rework and Quality Control inspection. Unacceptable clamps will be replaced with suitable tubing clamps and inspected by Quality Control. These actions will be completed prior to Unit 2 fuel load.

Sincerely,



William J. Cahill Jr.

CBC/rjb

cc: Mr. R. D. Martin
Resident Inspectors, CPSES (2)
Mr. M. B. Fields, NRR