



Log # TXX-6327
File # 10110
903.9
Ref. # 10CFR50.55(e)

William G. Counsil
Executive Vice President

March 19, 1987

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
PRE-OPERATIONAL VIBRATIONAL TEST CRITERIA
SDAR: CP-86-67 (INTERIM REPORT)

Gentlemen:

On September 26, 1986, we verbally notified your Mr. Ian Barnes of a potential deficiency regarding the design calculations and tests used to qualify the Pre-Operational Piping Vibration Program. Our last report was logged TXX-6290, dated February 19, 1987.

We have concluded that the deficiency identified above is reportable under the provisions of 10CFR50.55(e).

DESCRIPTION OF PROBLEM

A review of the CPSES criteria document "Pre-Operational Vibration Test Program", Issue 1, June 1980, indicated that the mathematical formulas used to determine stress endurance limits, allowable deflections, and flexibility characteristics of certain piping systems may not have been accurate. All vibration calculations and test results were evaluated to determine the validity of the original calculations in accordance with established CPSES procedures.

The evaluation has yielded the following results:

1. Two test data points (from a total of 21 system tests) were found to exceed the allowable deflection limits.
2. The measured direction of deflection movement was not clearly identified in all instances.
3. The test deflections were measured in only one direction in some cases.

Deficiency 1 was the result of an inadequate design review to verify the accuracy of mathematical formulas used to determine allowable deflection limits.

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Deficiencies 2 and 3 were the result of a failure to adequately incorporate documentation requirements into the vibration test procedures.

SAFETY IMPLICATION

In order to evaluate the safety significance of item 1 above, a rigorous analysis would have to be conducted to determine the stresses induced in the piping and pipe supports by the excessive deflections. However, as a result of items 2 and 3 above, the extent of any additional test data which exceed allowable deflection limits is indeterminate. This information could only be retrieved by returning the piping systems to their original 1980 configuration and repeating the vibration test. This is neither practical nor useful.

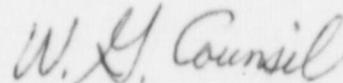
We have no reason to believe that any of the undocumented vibration test data exceeded the allowable deflection limits. However, it is conservatively assumed that had this condition remained undetected, the integrity of affected piping systems may not have been assured.

CORRECTIVE ACTION

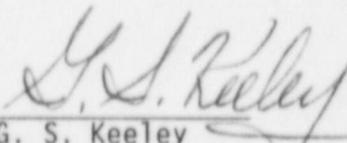
As a result of ongoing work and/or modifications to the piping systems as part of the piping and pipe support systems requalification program, it is necessary to repeat the steady state vibration testing. The re-test will resolve all the above concerns.

To prevent recurrence of items 1, 2 and 3, a new vibration test procedure has been issued for Unit 1. The start of testing is scheduled for September 1987. Our next report will be issued no later than October 22, 1987.

Very truly yours,



W. G. Council

By: 

G. S. Keeley
Manager, Nuclear Licensing

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- Mr. D. L. Kelley, RI - Region IV
- Mr. H. S. Phillips, RI - Region IV