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Ref. # 10CFR50.55(e)

William G. Council  
Executive Vice President

February 4, 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  
SEISMIC ANALYSIS OF SERVICE WATER INTAKE STRUCTURE  
SDAR: CP-87-115 (FINAL REPORT)

Gentlemen:

On October 21, 1987, we verbally notified your Mr. H. S. Phillips of a deficiency involving the seismic analysis of the Service Water Intake Structure. Our last interim report, logged TXX-6984 was submitted on November 18, 1987. We are reporting this issue under the provisions of 10CFR50.55(e). The required information follows.

#### DESCRIPTION

During the design validation of the seismic analysis of the Service Water Intake Structure (SWIS), it has been determined that the originally calculated natural frequencies of the soil-structure system are high and, in addition, there are discrepancies in the seismic model. Seismic loads and amplified response spectra were derived from this seismic analysis, thus errors in the seismic analysis would invalidate the seismic loads used in the design of the SWIS and the developed floor response spectra (FRS). These FRS were used in the qualification of equipment piping and other components. During our evaluation of this issue a similar modeling error was identified for the seismic Category I Concrete Tanks in the yard area.

The cause of this deficiency is due to underestimating the structural mass and overestimating the subgrade stiffness in the original seismic analysis model.

#### SAFETY IMPLICATIONS

Failure to correctly calculate the natural frequencies of the soil-structure system and discrepancies in the seismic model resulted in errors in the seismic analysis of the SWIS which could adversely affect safety. Since FRS are input parameters used in the qualification of equipment, piping systems and components inside the SWIS, errors in FRS could invalidate the design of such items and adversely affect safety. We are conservatively reporting this issue under the provisions of 10CFR50.55(e) due to the extensive evaluation required to establish the adequacy of the affected structure.

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CORRECTIVE ACTION

A new seismic analysis for the SWIS using the revised model with appropriate structural mass and subgrade stiffness has been performed. New FRS were developed and an assessment of the effects of the revised FRS on the qualification of equipment, piping systems, and components have been performed.

All remaining safety related concrete structures were reviewed for this deficiency and were found to be adequate except for the seismic Category I Concrete Tanks. A new seismic analysis was performed and the FRS have been developed for the seismic Category I Concrete Tanks. An assessment of the effects of the revised FRS on the qualification of appurtenances to the Seismic Category I Concrete Tanks is being performed. Further preventive actions are not required since all models have been evaluated and future models are not expected to be required.

Required corrective actions will be implemented to satisfy seismic qualification requirements. All Unit 1 corrective actions will be implemented by September 28, 1988. All Unit 2 corrective actions will be implemented prior to Unit 2 fuel loading.

Very truly yours,

W. G. Council

By: John W. Beck  
John W. Beck  
Vice President,  
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CBC/grr

c-Mr. R. D. Martin, Region IV  
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