



Log # TXX-88063  
File # 10110  
908.3  
Ref. # 10CFR50.55(e)

William G. Council  
Executive Vice President

January 11, 1988

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

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION  
DOCKET NOS. 50-445 AND 50-446  
CLASS 1E CABLE ARRANGEMENT  
SDAR: CP-87-101 (FINAL REPORT)

Gentlemen:

On September 10, 1987, we verbally notified your Mr. H. S. Phillips of a deficiency involving Class 1E cable arrangement. Our latest report on this issue, logged TXX-7071, was submitted on December 11, 1987. After further evaluation, we have concluded this issue is reportable under the provisions of 10CFR50.55(e). The required information follows.

#### DESCRIPTION

During the preparation of Revision 3 of Electrical Specification 2323-ES-100, "Electrical Erection Specification," it was noted that Revision 2 of the specification specified conductor phase arrangement in raceways as "ABCABC" with no provision for transposing or derating the cables for this configuration. Also, Revision 2 made no provision for routing all 3-phase cables through the same steel sleeve/conduit/duct.

The "ABCABC" conductor phase arrangement could cause a current imbalance between conductors of the same phase and could result in overloading of one of the conductors. Failure to route all 3-phase conductors through the same raceway could induce heat in the steel sleeve causing localized overheating of the cable from the sleeve.

This deficiency was apparently caused by a failure to properly address the effects of cable phase arrangement on cable impedance and the effects of steel sleeve heat induction on 3-phase conductors in the original design of multiple single conductors per phase circuits. This deficiency is applicable to all Class 1E circuits utilizing multiple single conductors per phase.

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SAFETY IMPLICATIONS

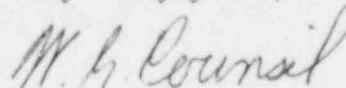
Failure to adequately address the effects of cable phase arrangement on cable impedance and also the effects of steel sleeve heat induction on 3-phase conductors could cause overheating and subsequent premature failure of the affected cables.

This issue represents a significant deficiency in final design as approved and released for construction such that the design does not meet the criteria stated in the FSAR.

CORRECTIVE ACTION

The design criteria for multiple single conductors per phase circuits has been established and documented in Design Basis Document DBD-EE-052, "Cable Philosophy and Sizing Criteria." In addition, Electrical Specification 2323-ES-100 will be revised no later than March 15, 1988 to require "ABCCBA" cable phase arrangement and to also require all 3 phases of a 3-phase circuit be routed through the same steel sleeve/conduit/duct. All multiple single conductors per phase circuits not in agreement with the revised specification requirements will be documented on Nonconformance Reports (NCRs) no later than August 11, 1988.

Very truly yours,



W. G. Council

WJH/grr

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