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Ref. # 10CFR50.55(e)

William G. Council
Executive Vice President

January 29, 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
CABLE INSULATION RESISTANCE - LOOP ACCURACY
SDAR: CP-88-19 (FINAL REPORT)

Gentlemen:

On January 21, 1988, we verbally notified your Mr. H. S. Phillips of a deficiency involving instrument cable insulation inside containment not being suitable for post-accident environments. We are reporting this deficiency under the provisions of 10CFR50.55(e) and the required information follows.

DESCRIPTION

Installed instrument cable insulation inside the reactor containment may not be suitable for the postulated accident temperatures. This may result in unacceptable insulation resistance during temperature excursions inside containment following a postulated Loss of Coolant Accident or Main Steam Line Break (LOCA/MSLB), thus adversely affecting the accuracy of Class 1E instruments required for safe shutdown of the reactor.

The cause of this deficiency was the failure to consider thermal effects on cable insulation resistance and its subsequent effects on instrument loop accuracy. All Safety Class I instruments connected to cables exposed to LOCA/MSLB environments inside containment are potentially affected by this deficiency. In addition, selected areas outside containment may have instrumentation that is potentially affected by this deficiency.

SAFETY IMPLICATION

Inaccurate instrument readings could initiate incorrect actions or delay the initiation of actions necessary to safely shutdown the plant and/or mitigate the effects of the postulated accident. This constitutes a deficiency in final design as approved and released for construction such that the design does not conform to the criteria and bases stated in the FSAR. Had this condition remained uncorrected, it could have adversely affected the safety of plant operations.

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CORRECTIVE ACTIONS

- (1) A calculation was developed, for each instrument cable type and make, which establishes insulation resistance per linear foot of cable at elevated temperatures. This was performed in accordance with the design criteria as specified in Design Basis Document (DBD-ME-076, Rev. 1, "Postulated Environments for Equipment Qualifications").
- (2) Applicable installation drawings were revised to indicate the requirements for short instrument cable runs inside containment and in areas of high energy line breaks outside containment.
- (3) Design Basis Document (DBD-EE-37, Revision 1, "Balance-of-Plant Safety Related Setpoints") was revised to require consideration of instrument cable insulation resistance in the determination of safety-related instrument loop accuracies. In addition, a DBD to control Nuclear Steam Supply System (NSSS) instrument setpoint calculations using the methodology specified in the Westinghouse evaluation is being prepared to assure consistent executions in future performance of setpoint calculations.
- (4) During PCHVP, engineering evaluations are being performed (ECE 9.04-05 PCHVP Engineering Evaluations) to identify instrument cable lengths, types and makes and to assess the effects of elevated temperatures for each safety related cable in accordance with the design criteria as specified in the Design Basis Document. For those safety-related instruments, whose loop accuracies are affected by decreased instrument cable insulation resistance, the deficiency will be corrected by replacement of the instrument or by rerouting and/or replacement of the cable to reduce its length.
- (5) The calculated instrument cable insulation resistances, and cable lengths, types and makes related to Westinghouse-supplied safety-related instruments, are being submitted to Westinghouse as inputs to their engineering evaluation of this deficiency.

Incorporation of applicable requirements in the above referenced DBDs will preclude recurrence of this deficiency.

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The completion date of this issue is August 11, 1988 which will be commensurate with the completion schedule of the CPSES Post Construction Hardware Validation Program.

Very truly yours,

W. G. Council

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

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