



Log # TXX-88156
File # 10110
907
Ref. # 10CFR50.55(e)

January 29, 1988

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Executive Vice President

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
LIMIT SWITCH WIRING
SDAR: CP-87-16 (FINAL REPORT)

Gentlemen:

On June 1, 1987, we verbally notified your Mr. H. S. Phillips of a deficiency involving installation of safety related valve limit switches. We have concluded that this issue is reportable under the provisions of 10CFR50.55(e) and the required information follows.

DESCRIPTION

In September 1985, Corrective Action Report (CAR) 049 was initiated to resolve an apparent trend of non-conformances associated with the installation of safety related valve limit switches for Unit 2. The Unit 2 non-conformances documented problems involving cables/conduits routed to the wrong limit switches and cables terminated to the wrong contacts in limit switches. The corrective action specified for CAR 049 implemented additional controls to preclude repetition of these problems during the remaining construction of Unit 2, but failed to adequately address potential existing deficiencies in Unit 2 prior to implementation of the corrective actions. To correct this oversight, CAR 049 Revision 1, was issued.

At the time this deficiency was identified in Unit 2, Unit 1 installation and startup testing of limit switches was essentially complete. Problems associated with limit switch wiring in Unit 1 were resolved by startup during performance of Startup Prerequisite Testing. This was due to the availability of logic diagrams that properly indicated the switch functional requirements, and performance of continuity and termination verifications and control circuit functional testing. During Unit 1 Startup this was controlled by a single Startup Prerequisite Test Instruction XCP-EE-8. However these activities did not in all cases result in updated drawings. As a consequence future maintenance activities may have resulted in improper cable terminations during system restoration.

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Engineering reviews of CAR 49 Revision 1, attributed limit switch wiring deficiencies to the following:

- a) Drawings lacked sufficient detail to permit construction to properly terminate limit switches.
- b) Limit switches were not properly identified (tagged) in the field. As a result there were instances where construction incorrectly identified the open/close limit switches and incorrectly routed associated conduit. Cables were subsequently terminated to the wrong switches.

The lack of adequate detail in drawings utilized by construction for conduit routing and cable termination is a significant deficiency in design as released to the field for construction. These concerns are potentially applicable to all safety related limit switches.

SAFETY IMPLICATIONS

Safety related limit switches are utilized to provide valve position indication to operations personnel, and inputs to the Emergency Response Facility (ERF) computer. Additionally they often provide interlocking functions with other safety/non-safety related equipment to ensure system operation and sequencing is properly coordinated within design requirements. Failure to accurately display valve positions may result in improper operator actions. Faulty operation of valve interlocks may result in a departure from expected safety system actuations assumed to take place by the accident analysis included in the FSAR.

CORRECTIVE ACTION

The actions necessary to correct and prevent recurrence of this deficiency are detailed in the Engineering and Construction response to CAR 049 Revision 1, and the Instrumentation and Control Project Status Report. The essential elements of these corrective actions are summarized as follows.

Conduct an as-built verification of the current limit switch configurations against validated electrical schematic diagrams. Unique tag numbers will be assigned for all switches. Drawings will be revised as necessary to include limit switch tag numbers and terminal assignments. Additional drawings will record the switch location (on the valve), model numbers and tag numbers. The cable schedules will be revised to show limit switch tag numbers as a cable destination.

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These activities involve performance of Field Verification Method CPE-SWEC-FVM-EE/ME/IC/CS-089, "Engineering Walkdowns," and will be coordinated with other Post Construction Hardware Validation Program (PCHVP) related activities for Unit 1. Unit 2 activities will be accomplished in accordance with the general construction schedule.

In addition to the above activities, the design criteria specified in Design Basis Document (DBD-EE-054, Rev. 1), "Control Circuit Parameters/Loading Requirements," will ensure that terminal blocks and control components shown on design drawings are properly identified. TU Electric Procedure NEO 3.06, "Reporting and Control of Deficiencies," ensures that nonconformances with design documents identified during testing are properly dispositioned including document revisions if required.

Very truly yours,

W. G. Council

By: John W. Beck
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JCH/grr

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