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TEXAS UTILITIES GENERATING COMPANY

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May 21, 1984

Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION
DOCKET NOS. 50-445 AND 50-446
TMI ACTION PLAN ITEM II.F.2
ADDITIONAL INFORMATION

REF: TXX-4086 of January 3, 1984, a submittal concerning CPSES implementation of TMI Action Plan Item II.F.2

Dear Sir:

In the referenced letter, TU provided the information formally requested by the NRC staff concerning TMI Action Plan Item II.F.2. Upon receipt of that letter, the NRC staff requested some information by means of a phone conversation. The requested additional information is hereby submitted in the attachment to this letter which was prepared in response to the NRC staff's phone call.

Respectfully,

J. S. Marshall, Jr.

H. C. Schmidt

DRW/grr
Attachment

Distribution: Original + 40 copies

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Attachment to TXX-4173

INSTRUMENTATION FOR DETECTION OF ADEQUATE CORE COOLING

1.0 INTRODUCTION

By letter dated January 3, 1984 (R. J. Gary to B. J. Youngblood), Texas Utilities submitted to the NRC a report providing response to documentation requirements of NUREG-0737 Item II.F.2, "Instrumentation for Detection of Inadequate Core Cooling." This report described the various instrumentation systems to be used at CPSES for providing redundant capability to monitor the approach to or existence of ICC conditions. As indicated in the report, the final combined ICC monitoring system at CPSES is considered by Texas Utilities to fulfill the instrumentation requirements of NUREG-0737 and to assure provision to reactor operators of clearly-displayed, easy-to-interpret indications of ICC. However, in the specific terminology of Attachment 1 to NUREG-0737 Item II.F.2, the report failed to clearly distinguish between "primary" and "backup" displays available for use by reactor operators to obtain results of the multiple core exit thermocouple (CET) measurements.

This supplementary response is intended to provide clarification or additional information regarding (1) identification of the various CET-measurement displays, (2) conformance of the designed display channels to specific design requirements of NUREG-0737, and (3) any known deviations from these specific requirements.

2.0 ICC MONITORING DISPLAYS

As described in the previous report, the combined ICC monitoring system instrumentation includes a minimum of three different displays (for each separate, redundant train). In the case of the Core Cooling Monitor (CCM), a fourth display capability is also available to provide continuous indication and recording of the signal data obtained from each train of CET measurements.

2.1 Primary Display

In accordance with requirements of NUREG-0737, the primary display of CET measurements at CPSES is the Emergency Response Facility (ERF) computer system. This highly-reliable computer system and the associated display information parameters were described in Section 3.4 of the previous submittal.

With one temporary exception, the ERF computer system meets all specific requirements of NUREG-0737 Item II.F.2, Attachment 1, for the primary display of CET measurements. Currently, the system software does not include provision of a spatially oriented core map of CET temperature readings. However, the design calls for this feature to be included prior to October 1985. Meanwhile, core-map capability is provided by a computer-based backup display discussed below.

2.2 Backup Displays

Various other display channels are available to assure capability for monitoring ICC conditions based on CET measurements. The most reliable CCM displays are the redundant Control Board analog meters described in Section 3.3 of the previous submittal. These displays and associated hardware are fully-qualified, Class 1E.

The Control Board meter displays (which employ the highest valid CET temperature measurement) meet the specific back-up display requirements delineated in NUREG-0737, Attachment 1, except for the requirement for selective reading of a limited number of thermocouples from each core quadrant. This is the only known deviation of the proposed ICC monitoring displays from the specific display requirements. However, compensation for this deviation is given by the availability of multiple, additional CET-measurement displays which will provide redundant information from which selective readings can be obtained to determine changes in the radial distribution of the reactor coolant temperature. These additional display channels include continuous output from the Plant Process Computer (which provides core-map capability) and optional auxiliary output directly from the CCM via an instrument service port to which a standard computer terminal (moveable CRT and/or printer) can be connected. These display channels were described in Section 3.3 and 3.4 of the previous submittal. As in the case of the primary display, both of these available backup displays receive signal data from redundant, qualified CCM-output channels which are separated up to and including the isolation device. In both cases, displayed information available on demand includes an array of all CET measurements from which selective readings or the radial distribution of readings within each core quadrant can easily be obtained.

The attached figure illustrates the various displays available for use at CPSES to indicate plant status based on CET measurements. This illustration is intended to clarify the CCM-display information shown in Figure 4 of the previous report.

3.0 SUMMARY OF DEVIATIONS

As described above, the only known deviation between the CPSES proposed ICC monitoring display design and specific NUREG-0737 requirements is the lack of selective CET readings from a limited number of thermocouples (four per core quadrant) from a Class-1E backup display. This deviation is considered to be justifiable due to the availability of multiple, additional backup displays which provide indication (and recording if desired) of all CET readings (including more than four per core quadrant).

The only other deviation indicated in the Documentation Checklist (Table III of the previous submittal) relates to methods to be employed for periodic testing of instrument channels according to Appendix B of NUREG-0737 (the applicable portions of Regulatory Guide 1.118). The compliance with all Regulatory Guides as indicated by Table III in the original submittal, TXX-4086 of January 3, 1984, is in accordance with the commitments described in Sections 1A(N) and 1A(B) of the CPSES FSAR. The

CPSES commitments with respect to Regulatory Guide 1.118 reference the June 1976 version and IEEE Std. 338-1971. The periodic testing of ICC monitoring systems is in compliance with the applicable portions of Regulatory Guide 1.118 Revision 2 (positions C.5 and C.6) and IEEE Std. 338-1977 (section 6.1 through 6.5) except as noted below:

> The design of the core exit thermocouple system requires the lifting of some leads for testing. This exception to item 5 in Section 6.4 of IEEE Std. 338-1977 and position C.6 in Regulatory Guide 1.118 Revision 2 originates from the fact that the core exit thermocouples were provided prior to the addition of the ICC monitoring system.

Texas Utilities considers this an acceptable exception to this regulatory guidance.

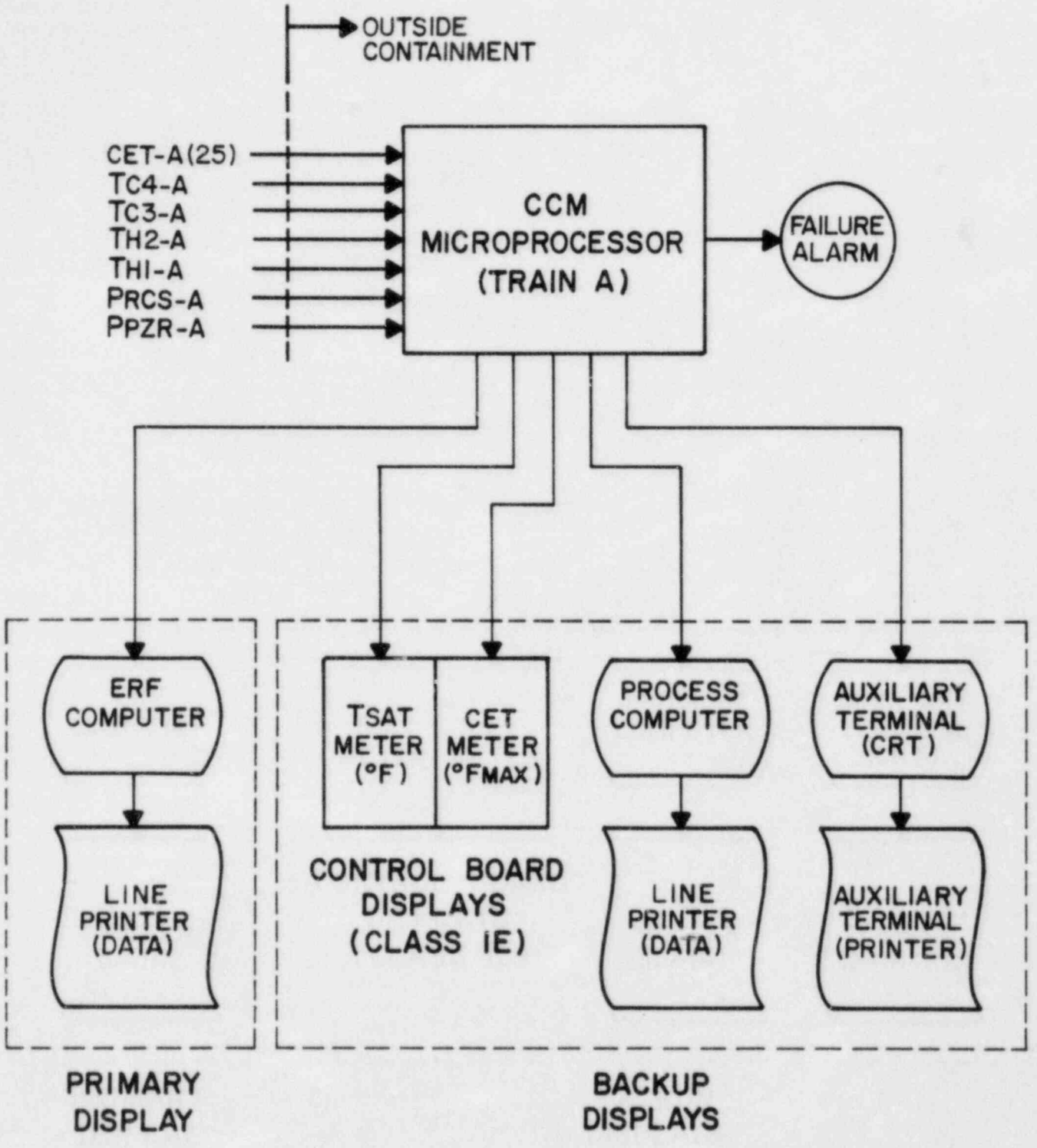

FIG. 1 CORE EXIT THERMOCOUPLE TRAIN A DISPLAYS (TRAIN B SIMILAR)