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TEXAS UTILITIES GENERATING COMPANY

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July 27, 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
REQUIRED BACKFIT OF SOURCE RANGE NEUTRON
FLUX MONITORS INTO ALTERNATE SHUTDOWN
DESIGN

REF: (1) B. J. Youngblood to R. J. Gary letter of October 17, 1983, entitled "Staff Evaluation of Alternate Shutdown Instrumentation Requirements

(2) H. C. Schmidt to B. J. Youngblood letter TXX-4174 dated May 21, 1984

Dear Mr. Youngblood:

In reference (1), the NRC staff required that source range neutron flux indication (SR) and reactor coolant system cold leg temperature indication (Tc) be backfit into the Comanche Peak Steam Electric Station (CPSES) alternate shutdown design. Reference (2) indicated that the backfit for Tc will be completed prior to fuel load and a description of this backfit was provided. Also the backfit for SR would be completed prior to the end of the first refueling outage and a design for the SR backfit was described. The interim design to justify operation during the first operating cycle was also described.

Additional examination of design alternatives has provided a design which will allow installation before fuel load. That design is described in Attachment A and supercedes Attachment B of Reference (2). Since its feasibility depends on an additional operator action the details of this action is included as Attachment B.

Respectfully,

J. S. Marshall for
H. C. Schmidt

HCS:grr
Attachments

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ATTACHMENT A

Source Range Neutron Flux Indication Backfit Description for Alternate Shutdown at CPSES

Per a requirement of the NRC staff, source range neutron flux indication (SR) will be added to the alternate shutdown design at Comanche Peak Steam Electric Station (CPSES) prior to the completion of the first refueling outage. The present design intentions for this backfit is described below:

Source Range Neutron Flux will be sensed by an existing source range neutron flux detector. The transfer will be accomplished at the Emergency Source Range Panel near the Source Range Neutron Flux Pre-Amplifier. The NIS Channel I source range drawer will be de-energized to remove high voltage from the detector. Then the cable from the control room to the detector will be disconnected at the plug-in connector at the pre-amplifier. The cable from the Alternate Shutdown Source Range electronics will then be connected to the detector at the pre-amplifier. Again, a plug-in connector is used and the cable with the required plug is permanently located at the Emergency Source Range Panel. Now the Emergency Source Range Panel will be energized. Source Range neutron flux will be indicated on a meter on the HSP. The procedure for implementing alternate shutdown will include the transfer of a source range channel to the HSP.

This instrument loop will meet the criteria specified for alternate shutdown at CPSES as described in Section 7.4 of the CPSES FSAR; and more specifically, all of the hardware required for this channel will be properly separated from the fire zones for which alternate shutdown is required to ensure the availability of the channel during alternate shutdown. In addition, all of the hardware installed as part of this backfit will be located and reviewed in accordance with the Transient Fire Hazards Analysis (TFHA) for CPSES, as described in Section 9.5.1 of the CPSES FSAR, to ensure that the fire protection criteria for CPSES is met. This backfit is not expected to generate any new deviations to Appendix R, Section III.G.

The NRC staff has added the additional requirement that a Source Range Neutron Flux channel be available for any design basis fire at CPSES. Both Source Range Neutron Flux channels, including the hardware being added for this alternate shutdown fix, will be reviewed to ensure that the required fire separation is maintained between these two channels in all areas of the plant other than the Cable Spreading Room and the Control Room. For a fire in the Cable Sreading Room or Control Room, the Alternate Shutdown systems are employed. This review will ensure that at least one Source Range Neutron Flux channel is protected for any design basis fire at CPSES.

The intent of this final design will be to satisfy the requirements of the NRC staff. This backfit and the associated procedural changes will be implemented before fuel load.

ATTACHMENT B

Methods for Removing High Voltage from a Source Range Detector

The source range drawers can be de-energized by several methods. First the operator can pull fuses on the front panel of NIS Channel I source range drawer in the control room. Should the panel be inaccessible, the NIS Channel I can be deenergized in the cable spreading room by opening the circuit breaker on the 118 VAC instrument bus feeding these drawers. Alternatively, the inverter output breaker located in the inverter room can be opened to the Channel I protection set which will again deenergize the NIS Channel I. These three locations are in separate fire areas. CPSES FSAR Figure 8.3-15 (118 VAC Instrument Bus Distribution One Line Diagram) shows the electrical distribution. FSAR Sections 7.6.1.2, 8.3.1.2.3 and the response to NRC question Q032.108 discuss the effect of opening the inverter output breaker. Specifically, the system is designed such that loss of a single inverter will not compromise reactor safety during operation. (See FSAR Table 8.3-7, Sheet 9 of 11, Item 25, and Table 032.108-2. Following removal of the high voltage cable at the Source Range pre-amplifier the Channel I protection set can be re-energized.