Log # TXX-4384
File # 10010
919

TEXAS UTILITIES GENERATING COMPANY

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January 7, 1985

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
ELECTRICAL ISOLATION CLASS 1E CIRCUITS
AT CORE COOLING MONITORS

Dear Sir:

Attached is a partial revision to the Comanche Peak Steam Electric Station (CPSES) response to NRC staff question 033.1. This attachment is a direct replacement to section 1.2 of that response and will be incorporated into the FSAR in an upcoming amendment.

Please note that this revised response describes a modification to the design of the Core Cooling Monitor/Safety Parameter Display System interface as an interim justification to allow the operation of CPSES Unit 1 during the first operating cycle. The revised response also provides a commitment to obtain the test data requested by the NRC staff prior to startup for the second operating cycle of CPSES Unit 1.

Respectfully,

John W. Beck

John W. Beck

DRW/grr
Attachment

Distribution: Original plus 40 copies

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ATTACHMENT

1.2 Core Cooling Monitor Inputs

The inputs to the SPDS from the core exit thermocouples and the Margin to Saturation indicator are by way of the two (Train A and Train B) qualified safety related Core Cooling Monitors (CCMs). Electrical isolation between the CCMs and the SPDS is accomplished by means of DC to DC Converters and Optical Isolators. A description of these isolators is provided below.

DC to DC Converter

Function: Provide isolated dc power to the non-class 1E CCM circuits by isolating the class 1E power supply from the non-class 1E circuits.

a. The isolator was tested by applying 1000vdc pulses to the output (non-class 1E) side of the isolator and verifying that no degradation was suffered by the input (Class 1E) side.

b. The maximum credible fault that the isolator could experience is 120 vac (RMS) or a peak of 170 volts. This maximum credible fault results from applying to the isolator the maximum voltage supplied to the SPDS.

c. The description of the testing (i.e., the 1000vdc pulses applied to the output) was provided by EXO SENSORS.

d. The testing was performed to verify that the input side of the isolator suffered no degradation as a result of faults applied to the isolator output. This criteria was met for the 1000vdc test voltage which is far in excess of the maximum credible fault (170 volts peak). Therefore, the adequacy of this DC to DC Converter as an electrical isolation device for this application is assured.

Optical Isolator

Function: Provide electrical isolation between the class 1E input signal circuitry and the non-class 1E output signal circuitry.

a. The isolator was tested by applying 2500vac for 5 seconds to the output (non-class 1E) side of the isolator and verifying that no degradation was suffered by the input (class 1E) side.

b. The maximum credible fault that the isolator could experience is 120vac (RMS) or a peak of 170 volts. This maximum credible fault results from applying to the isolator the maximum voltage supplied to the SPDS.

c. The description of the testing (i.e., the 2500vac for 5 seconds applied to the output) was provided by EXO SENSORS.

d. The testing was performed to verify that the input side of the isolator suffered no degradation as a result of faults applied to the isolator output. This criteria was met for the 2500vac test voltage which is far in excess of the maximum credible fault (170 volts peak). Therefore, the adequacy of this Optical Isolator as an isolation device for this application is assured.

In addition to the discussions provided above, in-line fuses will be installed in the output cables from the CCMs to the SPDS. These output cables represent the only source for the credible fault of concern. Each conductor will be fused with a fuse of about 1/4 amp (the actual value will be determined based on an engineering review of the lowest reasonable value that will allow proper circuit operation). The installation of these fuses will reduce the maximum credible fault to such a low value that, as an interim solution, the DC to DC Converters and the Optical Isolators can be considered adequate isolators for the class 1E circuits that interface with the CCMs. Prior to startup for the second operating cycle for CPSES Unit 1, documentation of the required isolator testing will be obtained to demonstrate the adequacy of these isolators for the maximum credible fault that could be assumed without the fuses installed.