

**TEXAS UTILITIES GENERATING COMPANY**  
SKYWAY TOWER • 400 NORTH OLIVE STREET, L.B. 81 • DALLAS, TEXAS 75201

Log # TXX-4295  
File # 10010  
903.10

August 31, 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  
RESPONSE TO SEISMIC AND DYNAMIC  
QUALIFICATION QUESTIONS

Dear Sir:

In a conference call with members of the Equipment Qualification Branch on August 23, 1984, several questions were asked concerning the final resolution of several open items resulting from the CPSES Seismic and Dynamic Qualification Audit. The attached pages respond to these questions.

Respectfully,

*H. C. Schmidt*  
H. C. Schmidt

HCS:grr  
Attachments

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ATTACHMENT TO TXX-4295

ITEM 4

The site audit for the seismic and dynamic qualification of safety-related equipment concluded that a justification for single frequency, single axis testing must be provided in order to qualify the Solid State Isolation Equipment (cabinet CR-16).

The single frequency-single axis testing for this item complies with IEEE Std 344-1975. The resonance search test for the devices (Reference Forney Test Report A-302743-01, Rev. D, G&H Rev. 3) demonstrated that there was no resonance frequency below 33Hz. In accordance with IEEE Std. 344-1975, Section 6.6.2, "If it can be shown that the equipment has no resonances...single-frequency tests may be used to fully test the equipment." Therefore, single-frequency testing is in conformance with the requirements of IEEE Std 344-1975.

In support of the single-axis test, Forney Analysis Report A-302761-0, Rev. C, G&H Rev. 1 was presented to the NRC Seismic Qualification Review Team during the August 1982 audit (SQRT Item No. BOP/4, p. 2 of 2). This report indicates that high seismic accelerations in one horizontal (x) direction occur at the vicinity of nodal points 71, 92 and 99 where the corresponding responses in the other horizontal (y) direction are less than 10% (pp. 2-29, 2-30). Similar results are observed at nodal points 15 and 16 for high accelerations in the (y) direction. This indicates that the panels amplify motion in one direction. The above nodal points are defined on pages iv, 2-5 and 2-7 and are located on the panels on which the devices are normally mounted. According to IEEE STd 344-1975, Section 6.6.6, "If a device is normally mounted on a panel that amplifies motion in one direction...single-axis testing of the device may be adequate."

Therefore, the single-axis testing is in conformance with IEEE Std. 344-1975.

This justification has been placed in the Seismic Qualification file for the Solid State Isolation Equipment (by transmittal TSG-6223 of 8/27/84) to complete its qualification.

## ITEM 12

The site audit for the seismic and dynamic qualification reviewed some of the qualification documentation for the generator local control panel for the diesel generators. The documentation reviewed, however, addressed components that were not sequentially tested and aged. The audit concluded that the panel would not be considered qualified until the components had been aged and sequentially tested.

As outlined in document (2) below, the overall qualification of the generator panel was performed in two steps. The panel with unaged components was first tested by shake table, and the responses at the mounting locations of the components were monitored.

Another panel with aged components was then tested by shake table, and the input motion was adjusted so that the response at the mounting points of the aged components enveloped the responses recorded at the mounting points of the unaged components during the initial test. The shake table procedure used is documented in document (1) below.

The aged components have therefore been qualified to a seismic level equal to, or exceeding, the level of accelerations applicable at their mounting locations on the original panel.

The seismic testing of the aged components was conducted with the components mounted in a manner similar to the way they are mounted on the generator local control panel. This is documented in document (3) below.

Components such as meters, switches, and Agastat relays are included in this program. The sequential testing of the components, including aging and seismic, is documented in the following reports:

- (1) Wyle Labs Report No. 58176, 8/10/77, Seismic Test of One Generator Control Panel for Delaval.

- (2) RTE Delta Qualification Plan #NES-26296-1, Rev. G
- (3) Operational Life Qualification Report for Generator Control Panel  
-RTE Delta #NES-26296-ITR, Rev. 2 (TDI Report #76001-710) - TNE  
Rev. 1, supplemented by TSG-5055 dated May 29, 1984.

The completion and acceptance of these reports completes the qualification of the generator local control panel.

ITEM 13

The site audit for the seismic and dynamic qualification of the Main Steam Isolation Valves (MSIV's) concluded that the impact loading due to sudden valve closure should be addressed before the MSIV's are considered qualified.

All valves in the main steam system are pipe mounted. The effects on the system piping, valves and supports due to the turbine stop valve closure have been accounted for in the steam hammer piping stress analysis.

The dynamic effects of the main steam isolation valve closure are small compared to the effects caused by the closure of the turbine stop valve. This is because of the relatively slow isolation valve closure time compared to the stop valve closure time. The TUSI main steam system has been designed to take the full impact of turbine trip. This analysis umbrellas the effect of any dynamic effects due to isolation valve closure.

The fact that the impact of turbine trip envelopes the impact of MSIV closure is further demonstrated by the following quantitative considerations:

The Main Steam Isolation Valves close in about 2.5 seconds.

The Turbine Stop Valves close in about 0.15 seconds.

By comparison, the relatively slow closure time for the MSIV's will result in very low impact loading and can hardly generate even a minor steam hammer. The Turbine Stop Valves, however, do generate a steam hammer. The loading due to that steam hammer was used in the analysis of the Main Steam system piping as described in Section 3.9B of the CPSES FSAR.

## ITEMS 15 AND 18

The seismic and dynamic qualification of the CVI Filter Units and the Control Room HVAC Control Panel was considered incomplete because CPSES had not completed its review of these equipments and their qualification reports. These reviews have since been completed. The qualification reports have been accepted and have been supplemented with the following documents:

### Filter Units

CCL Report No. A-599-83-01

MODAL SURVEY REPORT OF CVI EQUIPMENT FOR CPSES accepted by TSG-4515

AETC TEST REPORT No. 15928-A,

Vol. 2, Rev. 2 accepted by TSG-6259

### Control Panel

CCL Report No. A-599-83-01

MODAL SURVEY REPORT OF CVI EQUIPMENT FOR CPSES accepted by TSG-4515

CCL Report No. A-604-83 with supplemental calculations CCL-CA-33,  
Rev. 3 accepted by TSG-6257

AETC TEST REPORT No. 15928-A,

Vol. 2, Rev. 2 accepted by TSG-6259

The completion of these reviews and the acceptance of the qualification reports complete the qualification of these two items.