

FEB 10 1977

MEMORANDUM FOR: K. R. Goller, Assistant Director for Operating Reactors, DOR
FROM: D. G. Eisenhut, Assistant Director for Operational Technology, DOR
SUBJECT: SEISMIC QUALIFICATION OF OCONEE EMERGENCY POWER PATH

Plant Name: Oconee Nuclear Station Units 1, 2 and 3
Licensing Stage: Operating Plants
Docket Numbers: 50-269, 50-270, 50-289
Branch and Project Manager Requesting Assistance: ORB 1, J. D. Neighbors
Description of Request: TAC 6048 - ORB-1-250
Review Status: Awaiting Additional Information

The Engineering Branch, Division of Operating Reactors has reviewed the information submitted with the letter dated October 7, 1976.

We find that before we can complete our review, additional information as indicated in the enclosure, is necessary.

It should be pointed out that our review pertains only to the seismic capability of the emergency power path and not to the General Design Criterion number 2 of the Appendix A to the 10 CFR Part 50.

D. G. Eisenhut, Assistant Director
for Operational Technology
Division of Operating Reactors

Enclosure: As stated

cc: V. Stello
L. Shao
W. Butler
A. Schwencer
D. Neighbors
R. Stuart
P. Atherton
K. Jabbour
G. Bagchi

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DATE →	2/2/77	2/2/77	2/2/77	2/7/77	2/8/77

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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D. G. Eisenhut
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for Operational Technology
Division of Operating Reactors

Enclosure: As stated

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OCONEE NUCLEAR STATION UNITS 1, 2 & 3
SEISMIC CAPABILITY OF EMERGENCY POWER PATH
ENGINEERING BRANCH-DIVISION OF OPERATING REACTORS
REQUEST FOR ADDITIONAL INFORMATION TAC #6048

1. For each of the structures indicated in Table I describe foundation condition i.e, soil or rock, indicate how soil-structure interaction was accounted for, discuss what precautions were taken to stabilize the fill soil where applicable, provide the input response spectra, indicate the damping values and the extent to which a three directional earthquake was considered for the design and discuss the load combinations investigated.
2. Describe the dynamic model of the transmission line and the towers. Indicate how the relative displacements of the ground between the towers during a seismic event are accounted for. Identify the critical sections on the transmission line, the towers and their foundations and provide a stress summary comparing the stresses against the acceptance criteria citing the applicable codes.
3. Describe the dynamic model of the 230 kvSwyd Relay House and provide the floor response spectra for different locations at which Category I equipment are supported. Identify the critical sections and provide a stress summary comparing the stresses against the acceptance criteria from applicable codes.
4. Provide the dynamic model of a typical transformer in the overhead emergency power path including its foundation. Discuss the methods used to seismically qualify the fan coolers mounted on the transformers to ensure operability during and after a seismic event.

5. Provide a copy of a typical equipment procurement specification and discuss the extent and the manner in which the dynamic loads from SSE and OBE were considered by the supplier to qualify the subject equipment.
6. On Table 2, identify clearly, for each of the items qualified by a combination of test and analysis, the portions which were qualified by analyses, and the portions which were qualified by tests. Provide some typical results for the qualification program for the 230 KV Power Circuit Breakers (PCB) and supportive equipment.
7. For items or portions of items qualified by analysis provide the following information:
 - a. State whether the analysis method was static or dynamic, and justify your selection.
 - b. Provide a diagram of the math model used for each equipment item.
 - c. Provide input loads used in the analysis and point of application.
 - d. Show location and magnitude of the highest stress intensity and deflection, and list the corresponding margins of safety.
 - e. Verify that the operability of each equipment item was considered in your analysis and provide a discussion on how the calculated deflections were considered in relation to the operability of the component.
 - f. Define the acceptance criteria used in the operability analysis.
8. In view of the size of the emergency power path, provide a discussion on detailed inservice inspection and maintenance program to ensure integrity and serviceability of the structures and equipment incorporated in the emergency power path. Parameters required to be monitored, for example, may be the tension in overhead cables or deflection of towers. Indicate your intent to incorporate the proposed inservice inspection and test frequency in the technical specifications of the three nuclear power plants.



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It should be pointed out that our review pertains only to the seismic capability of the emergency power path and not to the General Design Criterion number 2 of the Appendix A to the 10 CFR Part 50.

A handwritten signature in dark ink, appearing to read "D. G. Eisenhut".

D. G. Eisenhut, Assistant Director
for Operational Technology
Division of Operating Reactors

Enclosure: As stated

cc: V. Stello
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