

April 2, 1985

DMB-016

Dockets Nos. 50-321
and 50-366

Mr. J. T. Beckham, Jr.
Vice President - Nuclear Generation
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

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Dear Mr. Beckham:

In letters dated December 14, 1984 and January 16, 1985 you provided information to the staff regarding the discrepancies identified and the additional analyses performed to demonstrate the adequacy of structures, piping, supports, equipment and cable trays to resist the design basis earthquake for the Hatch plant. The staff has reviewed your submittals and finds that the information identified in the enclosure is necessary for the completion of the staff's review.

Please provide the requested information 30 days from the receipt of this letter. If clarification is found necessary regarding any of the items, please contact Mr. Robert A. Hermann at (301) 492-7385.

The reporting and/or recordkeeping requirements of this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

*ORIGINAL SIGNED BY
JOHN F. STOLZ*

John F. Stolz, Chief
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Division of Licensing

Enclosures: As Stated

cc: w/enclosures
See next page

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Hatch 1/2
Georgia Power Company

50-321 and 50-366

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EDWIN I. HATCH NUCLEAR PLANT
UNITS 1 & 2
STRUCTURES AND CABLE TRAYS

- Q.1. In Georgia Power Company's (GPC) letter to NRC Region II, dated January 6, 1984, you stated that, "In some cases, discrepancies were found to exist between the floor response spectra used and spectra broadening commitments." Please clarify which spectra broadening commitment you are referring to (PSAR vs. FSAR and respective percentage).
- Q.2. GPC letter of February 10, 1985, indicated that the PSAR and FSAR commitments were exceeded in some cases. Also, in the same letter you stated that, "the floor response spectra used for the analyses were plotted as smoothed upper envelopes of the calculated raw curves." Please provide a detailed discussion explaining this process and emphasize its adequacy and acceptability by reference to and comparison with the staff acceptance criteria in the pertinent sections of the SRPs and RGs. In addition, provide the screening criteria used for establishing potentially unsafe conditions as related to the floor response peak broadening and seismic analyses evaluations.
- Q.3. We understand from GPC letter of September 12, 1984, "that a reportable condition per the criteria of Part 10 CFR 21 does not exist for the discrepancies in the analyses of the floor response spectra (FRS) for Edwin I. Hatch Nuclear Plant - Units 1 and 2." Therefore, we request a discussion comparing the results of the re-analyses with the proposed acceptance criteria.

Q.4. In GPC letter of February 10, 1984, you stated that, "the architect/engineers have found some less significant discrepancies. These discrepancies are minor in nature and will require that some revisions be made to the FSARs of both units." Although we understand final resolution of these discrepancies can be documented as FSAR updates, we currently need identification and discussion of any discrepancies that effect the modeling, analyses and design of Category I structures. Please provide this information.

Q.5. In GPC letter of May 24, 1984, you stated that the new seismic design evaluation would be performed for ± 10 percent peak broadening. You assumed that the ± 15 percent stated in the FSAR was an erroneous value. Nevertheless, we believe that the use of 10% peak broadening requires justification as indicated in the current SRP Section 3.7.2.II.9.

Moreover, the staff acceptance criteria require ± 15 percent peak broadening if other requirements described in the SRP are not met. We believe that this criteria was in effect during the FSAR review of Hatch Unit 2. Therefore, please demonstrate the adequacy of the ± 10 percent peak broadening criterion considering structural properties, soil properties, and soil structure interaction. Additional references can be found in R.G. 1.122 "Development of Floor Design Response Spectra for Seismic Design of Floor - Supported Equipment of Components."

Q.6. In GPC letter of May 24, 1984, you stated that new analyses would address the impact of new floor response spectra on cable tray supports and that

these analyses would be based on higher damping ratios than specified in the FSAR. In support of these new higher damping values you stated, "The new damping ratios are consistent with those that have been reviewed and accepted by NRC for seismic analysis of some recent projects."

The staff has based approval of higher damping values than those identified in R.G. 1.61 on test results of the ANCO/Bechtel tests. The staff has requested for each case, where the applicant requested the approval of higher damping values, that the applicant establish the applicability of test results to the system used in their plant. The applicability could be demonstrated by establishing positive correlation between the cable tray systems for the case in question and those used in the ANCO/Bechtel tests. Provide a detail discussion substantiated by detailed test results supporting your claim and/or show comparison between the Hatch cabletray systems and applicable ones utilized in the ANCO/Bechtel tests.

Q.7. In GPC letter of December 14, 1984, you stated that you, "have reviewed the technical specifications and have determined that no technical specification violation exists." Please explain the relationship of the technical specifications and the reported concern with respect to reduced percentage value of floor response spectra peak broadening, increased damping values for the cable tray supports evaluation, and other structural engineering items reported in your previous letters (NED-84-008, NED-84-0066, NED-84-274, and NED-84-484).

- Q.8. In your letter of December 14, 1984, you stated that the results of an independent audit of design commitments in the FSARs for Units 1 and 2 indicated that, "Preliminary information from this audit indicates that, "other commitments in the FSARs were met." Please explain what is meant by preliminary information and state if the final results confirm the same conclusions. Also, provide the findings of the audit and a discussion for each of the concerns resolved by the audit.
- Q.9. In the enclosure to GPC December 14, 1984, letter, you restated your considerations for the values of peak broadening that did not meet current NRC criteria. The staff evaluation of the FSAR was performed based on information presented in FSAR Sections 3.7 and 3.8. It is the staff position that, if criteria differing from those criteria presented in these FSAR sections were used, justification and an amendment to the FSAR are required. In this regard, provide in-depth discussion on engineering methodology, assumptions, and other evaluation data employed during your re-evaluation of the Hatch 1 and 2 seismic/structural design. In as much as construction is completed, the information should be much more detailed than that presented for a typical FSAR, and should duplicate information, as required, when comparisons need to be made to the original FSAR.
- Q.10. Provide a comparison of the ground response spectra developed by the synthetic time history method for damping values of 5 percent and 2 percent.

- Q.11. Explain how the equivalent radiation damping was used in the development of the floor response spectra, as stated on Item 3 of page 11 of GPC December 14, 1984 submittal. Also, discuss why the use of equivalent radiation damping per table 3.7A-2 results in higher damping than ordinarily used.
- Q.12. Explain why you consider the current cable trays evaluation "overly conservative" with the assumption that the trays are considered to be continuous for the entire run. Also, state your criteria for identifying the cable tray supports which have the greatest chance of being overstressed for all load conditions, and identify with some specificity the proposed action.
- Q.13. Expand on the "more refined analytical techniques" referred to in GPC letter of December 28, 1984, for the evaluation of the cable tray supports. Present the staff with information which supports your statement related to the adequacy of the analytical techniques used in your analyses.
- Q.14. GPC January 16, 1985 letter on cable trays does not address the connections utilized to secure these cable tray systems to the structure. Please provide detailed information on the re-evaluation of these anchoring systems, and include considerations for the changes of loads and damping values referred in your submittal.

Q.15. Figure 1 - Plant Hatch Design Damping Curve, summarizes your position with regard to the allowable damping values of the E.I. Hatch Nuclear Plant cable tray systems. State the types and percentage of cable trays and supports that fall in the various segments of the curve. Also, expand on the justifications for the criteria established in the same figure with respect to fully loaded, partially loaded, and unloaded cable tray systems.

EDWIN I. HATCH NUCLEAR PLANT - UNITS 1 AND 2
REQUEST FOR ADDITIONAL INFORMATION - SOILS

1. Prepare tables to provide numerical values actually used in seismic studies for parameters relating to soil foundation materials:
 - A. Original FSAR Seismic Analysis - Unit 1
 - a) Dynamic soil shear modulus, G
 - b) Shear strain (%)
 - c) Range of G varied
 - d) Poisson's ratio
 - e) Soil damping (% of critical) - geometric, material, and total design damping for the appropriate modes of motion.

Provide the above information for all Unit 1 seismic Category I structures.
 - B. Provide a second table for the recently completed seismic reanalysis study for Unit 1 structures.
 - C. Provide similar tables (as A. and B. above) for all Unit 2 structures for the original FSAR seismic analysis and for the seismic reanalysis.
 - D. Identify FSAR or other document references which provide the basis for the listed soil shear moduli and soil damping values given in the four tables.
2. Compare and discuss foundation material input listed in the tables and actually used in the original FSAR seismic analyses with specific design values used in the seismic reanalysis studies. Provide justification for less conservative values wherever used in reanalysis/redesign studies. Provide available references to support justification discussions.

EDWIN I. HATCH NUCLEAR PLANT
UNITS 1 AND 2
REQUEST FOR ADDITIONAL INFORMATION - PIPING

The licensee's use of Code Case N-411 damping values in piping seismic analysis as an alternative to Reg Guide 1.61 damping values is acceptable to the staff. The licensee has also stated that it intends to use the Code Case N-411 damping values for new or replacement piping systems and load reconciliation work at the Hatch Plant. The licensee should, provide a, commitment to do the following:

1. If, as a result of using the ASME Code Case N-411 damping values, piping supports are moved, modified or eliminated, the expected increased piping displacements due to greater piping flexibility will be checked to assure that they can be accommodated and that there will be no adverse interaction with adjacent structures, components and equipment.
2. The licensee will not use Code Case N-411 damping values for time history analysis, and will use them only for seismic response spectrum analysis.

EDWIN I. HATCH PLANT
UNITS 1 AND 2
REQUEST FOR ADDITIONAL INFORMATION - EQUIPMENT QUALIFICATION

The Equipment Qualification Branch (EQB) has reviewed the Licensee's Part 21 evaluation report, regarding the subject discrepancies in seismic analysis, submitted with its letter of December 14, 1984. Based on the information provided, the following staff comments will need to be responded by the licensee before a final staff evaluation can be performed.

1. In Figure 4 of the above report, the peak acceleration of the new floor response spectrum (FRS) exceeds the original one by about 50%. The applicant should provide more detailed information of seismic qualification for the six equipment types (see Table 6 of the report) which are located in Control Building at floor elevation 112 ft. and are governed by Figure 4 in their qualification. The specific information which may be of interest includes, but not limited to, the original methods of qualification and the basis of concluding seismic qualification against the new FRS. In addition, the staff may, in the future, elect to audit the corresponding equipment qualification documentations.
2. On page 16 of the above report, it is stated that insufficient information precluded a decision regarding the impact of the new FRS on seismic qualification of 10 equipment items. In order for the staff to concur that the equipment seismic qualification was indeed not adversely affected by the new FRS, however, more supporting information will need to be established to confirm the qualification. Otherwise, a requalification will have to be performed and approved by the staff.