MIDLAND SEISMIC MARGIN REVIEW
STRUCT. ENGR. REVIEW COMMENTS
on Aux. I. Bldg. - Vol. III
SWPS - Vol III
DGB - Vol. V

J. Kane

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

MAY 03 1984

Docket Nos.: 50-329 and 50-330

MEMORANDUM FOR: Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

FROM: George Lear, Chief
Structural and Geotechnical Engineering Branch
Division of Engineering

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - MIDLAND NPP - SEISMIC MARGIN REVIEW (AUXILIARY BUILDING, SERVICE WATER PUMP STRUCTURE AND DIESEL GENERATOR BUILDLING)

Plant: Midland NPP, Units 1 and 2
Licensing Stage: OL Application Review
Docket Numbers: 50-329/330
Responsible Branch and Project Manager: LB-4, D. Hood
Review Status: Continuing

Enclosed is a request for additional structural engineering information needed by the Structural and Geotechnical Engineering Branch (SGEB) in order to continue its OL review of the Midland NPP application as applicable to the seismic margins review. This request for additional information is the result of the SGEB review of Structural Mechanics Associates Seismic Margin Review Volumes III, IV, and V. These volumes address the Auxiliary Building, the Service Water Pump Structure and the Diesel Generator Building.

Please note that for each report the first number under each question identifies the section in the subject report to which the question applies while the second number identifies the SRP section reference. When the second number is omitted, it means that we are seeking a clarification prior to establishing a firm position that would necessitate a reference to SRP or other specific justification. The enclosure was prepared by Frank Rinaldi, Structural Section B, Structural and Geotechnical Engineering Branch, with support by staff consultant G. Harstead.

George Lear

George Lear, Chief
Structural and Geotechncial Engineering
Division of Engineering

Enclosure:
As stated

cc: See next page

cc: R. Vollmer
J. Knight
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T. Novak
D. Hood
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STRUCTURAL AND GEOTECHNICAL ENGINEERING BRANCH
STRUCTURAL ENGINEERING SECTION B

REQUEST FOR ADDITIONAL INFORMATION - MIDLAND NPP
SEISMIC MARGIN REVIEW FOR AUXILIARY BUILDING (VOL. III).
SERVICE WATER PUMP STRUCTURE (VOL. IV).
DIESEL GENERATOR BUILDING (VOL. V)

AUXILIARY BUILDING (VOL. III)

220.SMR.31 In page III-2-13 you state that the results of the parametric evaluation are presented in Appendix B of this report. Clarify how the figures provided in Appendix III-B apply to the content of the first paragraph in page III-2-13.

220.SMR.32 North-South cracks have been noted in several floors in the control tower. The slab at elevation 685' was selected to assess vertical seismic amplifications in the floors. Discuss how the reduction in bending stiffness due to the reported cracks affects the results of these analyses. Also, confirm if this location (Elevation 685') is still considered a representative location for this structure for the effects of vertical seismic amplification.

220.SMR.33 In page III-3-9 you state that SME values exceed the design values, as noted. However, in page III-6-6 it is stated that the SME* values would have to be increased by a factor of 1.2 before code capacity would be reached for any auxiliary building structural element. Explain this inconsistency.

* (SME = Seismic Margins Earthquake)

220.SMR.34 In page III-3-15 we assume that the diaphram forces refer to the interface between the EPA* and the CT*. Confirm our assumption. Also, state if these diaphram forces are obtained at the finite element nodal points or at their center points. Explain how the location of these forces can effect the results for evaluation of local load transfer. Special consideration should be given at wall and slab off-sets.

* (EPA = Electrical Penetration Areas; CT = Control Tower)

220.SMR.35 State how you selected and/or determined the jacking loads (temporary and permanent) identified in page III-3-15/16. This documentation should address how all tributary areas of the structure are included in the determination of the permanent jacking loads at lock-off. Also, address the effects on the results if these loads were to be exceeded by 20%.

220.SMR.36 State how the increased stiffness resulting from the final modification proposed for the slab at elevation 659' would effect the stated code margins on page III-6-5.

220.SMR.37 The note on Figure III-2-4 states that all horizontal members between column lines G and H are not rigid members. State if this applies only to the slabs and walls.

SERVICE WATER PUMP STRUCTURE (VOL. IV)

220.SMR.38 In Vol. IV you discuss "Dynamic Soil Decrement." State why this concept was not applied to the evaluation of the auxiliary building.

220.SMR.39 In page IV-3-11 you address Bechtel's dynamic soil decrement. Additional clarifying discussion is needed for this proposed concept. Provide a list of applicable references with related discussion as to their contents and applicability to the SME analysis for the SWPS.

DIESEL GENERATOR BUILDING (VOL. V)

220.SMR.40 The settlement loads identified in page V-3-11 refer to Bechtel's calculated settlement-load values; however, these values have not been accepted by the staff. Identify the sensitivity of this parameter on the SME results provided in this report. Provide documentation addressing changes in the settlement load values resulting from different analyses, and the effects on the SME results.

1/Box 8

Records in folder

labeled "Midland – Underground

Piping" maintained by

Joseph Kane.

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Records requested from folder maintained by Joseph Kane entitled "Midland Settlement (Meetings & Site Visits)".