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

May 24, 1984

Docket Nos: 50-329 OM, OL
and 50-330 OM, OL

Mr. J. W. Cook
Vice President
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Cook:

Subject: Request for Additional Information Regarding Seismic Margin Review for the Midland Auxiliary Building, Service Water Pump Structure, and Diesel Generator Building

Sections 1.8 and 3.7.2.2 of Supplement 2 to the SER identified seismic margin studies as a confirmatory issue for Midland Plant, Units 1 and 2. Your letters of July 22, September 2, and August 2, 1983, forwarded Volumes III, IV and V of the Seismic Margin Reviews by Structural Mechanics Associates for NRC review. The NRC staff has reviewed these three volumes and finds that additional information identified by Enclosure 1 is needed to complete structural engineering aspects of this review.

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

Should you have questions regarding Enclosure 1, contact our Licensing Project Manager, Darl Hood, at (301) 492-8474. Your response within 30 days of receipt of this letter is requested.

Sincerely,

Elinor G. Adensam

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

Enclosure:
As stated

cc: See next page

DESIGNATED ORIGINAL

Certified By

MIDLAND

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ENCLOSURE 1

REQUEST FOR ADDITIONAL INFORMATION REGARDING
SEISMIC MARGIN REVIEW FOR AUXILIARY BUILDING (VOL. III),
SERVICE WATER PUMP STRUCTURE (VOL. IV), AND
DIESEL GENERATOR BUILDING (VOL. V)

130.0 STRUCTURAL ENGINEERING SECTION B, OF THE STRUCTURAL AND GEOTECHNICAL ENGINEERING BRANCH

130.31 Provide the following additional information and clarifications with respect to Volume III of the seismic margin report for the Midland Auxiliary Building:

1. Page III-2-13 states that the results of the parametric study are presented in Appendix B of this report. Clarify how the figures provided in Appendix III-B apply to the contents of the first paragraph on page III-2-13.

2. North-South cracks have been observed in several floors of the control tower. You have selected the slab at elevation 685' to assess vertical seismic amplifications in the floors. Discuss how the reduction in bending stiffness due to the cracks affects the results of these analyses. Also, discuss whether or not Elevation 685' is still considered to be a representative location for this structure for the effects of vertical seismic amplification.

3. Page III-3-9 states that Seismic Margins Earthquake (SME) values exceed the design values, as noted. However, page III-6-6 states 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 apparent inconsistency.

4. We assume that the diaphragm forces discussed on page III-3-15 refer to the interface between the Electrical Penetration Areas (EPA) and the Control Tower (CT). Confirm or correct our assumption. Also, clarify whether these diaphragm 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.

5. Discuss how you selected and/or determined the temporary and permanent jacking loads identified on pages III-3-15 and III-3-16. This discussion should include 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%.

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

7. A note on Figure III-2-4 states that "horizontal members shown are rigid except between lines G and H". Clarify this figure by providing a legend for the model and state whether this note applies only to the slabs and walls.

130.32 Provide the following additional information and clarifications with respect to Volume IV of the seismic margin report for the Midland Service Water Pump Structure:

1. Seismic Margin Report Vol. IV includes a discussion of "Dynamic Soil Decrement." Why was this concept not applied to the evaluation of the auxiliary building?

2. Page IV-3-11 addresses Bechtel's dynamic soil decrement. Provide additional clarifying discussion for this proposed concept. Include a list of applicable references with related discussion as to their contents and applicability to the seismic margin earthquake analysis for the Service Water Pump Structure.

130.33 Provide the following additional information with respect to Volume V of the seismic margin report for the Midland Diesel Generator Building: The settlement loads identified on page V-3-11 refer to Bechtel's calculated settlement-load values. These values have not been accepted by the staff. Identify the sensitivity of this parameter on the seismic margin earthquake (SME) results provided in Volume V. Provide documentation addressing changes in the settlement load values resulting from different analyses, and the effects on the SME results.

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