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

August 2, 1984

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Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

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Dr. Frederick P. Cowan
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In the Matter of
CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)
Docket Nos. 50-329 OM & OL and 50-330 OM & OL

Dear Administrative Judges:

Several weeks ago, Staff counsel received an inquiry from Chairman Bechhoefer concerning Board Notification 84-115 (June 18, 1984) which addressed seismic and structural design departures from licensing and design criteria for the Midland Plant. Specifically, Judge Bechhoefer referred to Enclosure 6 to that Board Notification which is a Memorandum dated May 23, 1984 from George Lear, Chief, Structural and Geotechnical Branch, Division of Engineering, to Eleanor Adensam, Chief, Licensing Board #4, Division of Licensing.

The second paragraph of enclosure 6 to the Board Notification states that the geotechnical engineering input into SSER 2 (§ 2.5.4.5.6, p. 2-44) and the NRC consultant's (P. Hadala) testimony in the December 1981 hearing session are effected by Safety Concerns and Reportability Evaluations (SCRE) nos. 9 & 15. Judge Bechhoefer asked the Staff to provide information to clarify the manner in which those SCREs would effect the evidence now before the Board.

In response to that inquiry I attach a three page document prepared by Joseph Kane which identifies the specific hearing evidence and documents in the geotechnical engineering area of review, which are impacted by the discrepancies in the original seismic design calculations which have been reported in SCREs 9 and 15. I also attach a two page document prepared by

Frank Rinaldi which addresses the evidence in the structural engineering area of review which is impacted by the discrepancies in the original seismic design calculations which have been reported in SCREs 9, 15, 19 and 42.

Sincerely,

W. D. Paton

William D. Paton
Counsel for NRC Staff

Enclosures: As stated

cc w/enclosures:

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RESPONSE TO ASLB REQUEST FOR IDENTIFICATION OF
SPECIFIC EVIDENCE WHICH IS ADVERSELY IMPACTED
BY DISCREPANCIES IN THE ORIGINAL SEISMIC DESIGN CALCULATIONS

Prepared by: Joseph Kane, NRR, DE, SGEB, GES

References:

1. June 18, 1984 Memorandum from D. Eisenhut, Director, Division of Licensing to NRC Commissioners, subject "Board Notification - Seismic and Structural Design Departures from Licensing and Design Criteria - Midland Plant (BN 84-115)

2. June 15, 1984 Letter from D. Eisenhut to J. Cook, Vice President, Consumers Power Co., subject "Request for Additional Information Regarding Discrepancies In Seismic Calculations"

Four Safety Concerns and Reportability Evaluations (SCRE Nos. 9, 15, 19, and 42) are listed in Reference 1; SCREs 9 and 15 involve geotechnical engineering considerations. The evidence before the ASLB which is affected by SCRE 9 and 15 include the following:

SCRE No 9. SCRE 9 reports that the seismic design of seismic Category 1 structures used a value of 22×10^6 lb/ft^2 for dynamic soil modulus. The use of a single nominal modulus value is inconsistent with the evidence before the Board because it had been reported that a ± 50 percent variation in soil modulus would be used in seismic design. The following documents include evidence of the variation in soil modulus:

a. FSAR, Section 2.5.4.7.1, Pages 2.5-93 through 2.5-96.

b. SSER No. 2, October 1982, Paragraph 2.5.4.5.6, Page 2-44

c. December 14, 1981 Hearing Transcript

- Kennedy Testimony, Following Tr. 5995, Pages 9 and 16
- Rinaldi and Matra Testimony, Following Tr. 6128, Pages 12 and 14
- Hadala, Tr. 6131

SCRE No. 15. SCRE 15 reports that in the original seismic analysis of the Diesel Generator Building, the foundation soil stiffness (dynamic soil modulus) had been inadvertently chosen to be the same as the undisturbed (natural) till material. In the original seismic analysis, the approximately 25 feet of plant fill beneath the DGB continuous wall footings had been given the same dynamic soil properties as the undisturbed (natural) till soils. This is inconsistent with the following evidence before the Board:

a. FSAR, Section 2.5.4.7.2, Pages 2.5-94 and 2.5-95

b. SSER No. 2, October 1982, Paragraph 2.5.4.4.2, Page 2-24 and Paragraph 2.5.4.5.6, Page 2-44

It appears that the discrepancy reported in SCRE 15, which was originated in April 1981, may be outdated based on K. Weidner's testimony of December 8, 1982 (Follows Tr. 10790). In K. Weidners testimony, he indicates that, in seismic reanalysis of the DGB, the soil properties of the plant fill material were correctly used (Testimony pages 21 to 24, following Tr. 10790). In Reference 2,

the Applicant has been requested to provide the actual soil design values that were used in the final plant design. However, the Applicant should be requested to confirm that the discrepancies reported in SCRE 15 were corrected by the seismic reanalyses that are described in K. Weidner's testimony of December 8, 1982.

RESPONSE TO ASLB REQUEST FOR IDENTIFICATION OF
SPECIFIC EVIDENCE WHICH IS ADVERSELY
IMPACTED BY DISCREPANCIES IN THE ORIGINAL SEISMIC DESIGN CALCULATIONS

Prepared by: Frank Rinaldi, NRR, DE, SGEB

References:

1. June 18, 1984 Memorandum from D. Eisenhut, Director, Division of Licensing to NRC Commissioners, Subject: "Board Notification - Seismic and Structural Design Departures from Licensing Design Criteria - Midland Plant (BN 84-115).

2. June 15, 1984 Letter from D. Eisenhut to J. Cook, Vice President, Consumers Power Co., subject "Request for Additional Information Regarding Discrepancies In Seismic Calculations".

All of the four Safety Concerns and Reportability Evaluations (SCRE Nos. 9, 15, 19, and 42) identified in Reference 1, involve structural engineering considerations. The evidence before the ASLB which is affected by the inconsistencies reported in SCRE Nos. 9, 15, 19, and 42 include the SER (Section 3.7 and 3.8), the staff and consultant testimonies on Dynamic Models, Auxiliary Building, Service Water Pump Structure, Diesel Generator Building, and Borated Water Storage Tanks, and the Seismic Margins Evaluation by Structural Mechanics Associates (SMA). The staff needs to evaluate fully the impact of the reported design discrepancies prior to confirming our previous conclusions on stress levels and safety margins of the above identified Category I structures. In particular, we must assess the effect of the changed values of soil parameters identified in SCRE 9 and 15, the unclear problems alluded to by SCRE 19, and the re-evaluation requirements identified in SCRE 42.

Specific NRC documents utilized during the ASLB hearings that are affected by the reported inconsistencies in SCRE Nos. 9, 15, 19, and 42 include the following:

1. SER, May 1982, Section 3.7 and 3.8 (Pages 3-15 through 3-23).
2. SSER No. 2, October 1982, Sections 3.7 and 3.8 (Pages 3-1 through 3-31).
3. December 3, 1981, Hearing Transcript (Rinaldi's Testimony).
4. December 14-15, 1981, Hearing Transcript (Rinaldi/Matra's Testimony).
5. February 17, 1982, Hearing Transcript (Rinaldi/Matra's Testimony).
6. November 19-20, 1982, Hearing Transcript (Rinaldi/Matra's Testimony).
7. December 10, 1982, Hearing Transript (Rinaldi/Schauer/Harstead/Matra Testimony).