

RECORD OF TELEPHONE CONVERSATION

DATE: March 12, 1982 9:45 a.m. PROJECT: Midland
RECORDED BY: Joseph Kane CLIENT: _____
TALKED WITH: James Meisenheimer OF Consumers Power Co.
ROUTE TO: INFORMATION ACTION

G. Lear
L. Heller
D. Hood
M. Hartzman
H. Singh
P. Hadala
J. Kane

MAIN SUBJECT OF CALL: CPC future submittal of information on results of
liquefaction studies

ITEMS DISCUSSED:

J. Meisenheimer indicated that CPC has mailed the results of Dr. Afifi's evaluation of liquefaction to Dr. Hadala and that he will have this same information for me to review during next week's design audit. This information was identified as being required for Staff review at the March 3, 1982 meeting in Bethesda on permanent dewatering. The results of Bechtel's study on liquefaction do show loose sands in the plant fill above elev. 610 at locations other than the Diesel Generator Building and Railroad Bay.

J. Meisenheimer indicated the loose sands located in the plant fill north of the Service Water Structure and Circulating Water Intake Structure within the foundation area of the 26" diameter service water lines will be removed and replaced with either lean concrete or stabilized soils. This is the first notification to NRC of this intended replacement work and involves approximately a 500 foot length of Cat. I pipe (26"Ø) and will extend in depth to El 610. The replacement option has been selected by CPC in this area rather than relying on the permanent dewatering system to maintain the water level at elevation 595.

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PDR FOIA
RICE84-96 PDR

J. Kane
Rec'd. 3/17/82



James W Cook
Vice President - Projects, Engineering
and Construction

General Offices: 1945 West Parnell Road, Jackson, MI 49201 • (517) 788-0483

March 10, 1982

Harold R Denton, Director
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND PROJECT

MIDLAND DOCKET NO 50-329, 50-330

SETTLEMENT OF UNDERGROUND DIESEL FUEL TANKS DUE TO SEISMIC SHAKEDOWN

FILE: 0485.16 SERIAL: 16243

- REFERENCES: (1) M SILVER AND H B SEED, "BEHAVIOR OF SANDS UNDER SEISMIC LOADING CONDITIONS," FROM REPORT NUMBER 69-16 (DECEMBER 1969), COLLEGE OF ENGINEERING OF THE UNIVERSITY OF CALIFORNIA AT BERKLEY
- (2) R PIKE, H B SEED AND C K CHAN, "SETTLEMENT OF SANDS UNDER MULTIDIRECTIONAL SHAKING," JOURNAL OF GEOTECHNICAL ENGINEERING DIVISION, PROCEEDINGS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS, VOLUME 101, GT 4, PP 379-401, APRIL 1975

During the May 5, 6 and 7, 1981 meeting with the NRC Staff, a concern raised by the Corps of Engineers was discussed with the Staff relating to the potential for the seismic shakedown of the underground diesel fuel oil tanks and connected piping. This concern pertains to the four or five feet of sand layer in the vicinity of the tanks and the effect of seismic shakedown on connected piping.

In accordance with the agreement reached in this meeting, an estimate of settlement was made for the loose sand layer indicated in Boring DF-5. For Boring DF-5, refer to Figure 33-1 from Question 33, 10 CFR 50.54(f), Responses to NRC Requests Regarding Plant Fill. The estimate we have made below is based on the procedures suggested by M Silver and H B Seed in their publication identified in Reference 1 and the further modified procedure of R Pike, H B Seed and C K Chan in the publication of Reference 2. The procedures involve using the relative density of sand as determined from standard penetration tests (SPT) and the relationships between shearing strain and vertical strain published by Silver and Seed in Reference 1. In this calculation, a ground surface acceleration of 0.12g was used. The vertical displacement calculated from this procedure is then multiplied by three to account for multidirectional earthquake ground shaking as proposed by R Pike, H B Seed and C K Chan in Reference 2.

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Based on this method of evaluation, the estimated shakedown settlement of the layer of loose sand, as indicated in the Boring DF-5, is on the order of 0.04 inch. This small a settlement is insignificant and we have concluded that the small settlement is well within the design capability of the system.

James W. Cook

JWC/RLT/dsb

CC Atomic Safety and Licensing Appeal Board

CBechhoefer, ASLB

MMCherry, Esq

FPCowan, ASLB

RJCook, Midland Resident Inspector

RSDecker, ASLB

SGadler

JHarbour, ASLB

GHarstead, Harstead Engineering

DSHood, NRC, (2)

DFJudd, B&W

JDKane, NRC

FJKelley, Esq

RBLandsman, NRC Region III

WHMarshall, Esq

JPMatra, Naval Surface Weapons Center

Wotto, Army Corps of Engineers

WDPaton, Esq

SJPoulos, Geotechnical Engineers

HSingh, Army Corps of Engineers

BStamiris

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