



**Consumers
Power
Company**

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

Stephen H. Howell
Vice President

General Offices: 1945 West Parnall Road, Jackson, Michigan 49201 • Area Code 517 788-0453

September 29, 1978
Howe-183-78

REGULATORY DOCKET FILE COPY

Mr J G Keppler, Regional Director
Office of Inspection and Enforcement
Region III
US Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

RECEIVED
REGULATORY SERVICES
DIVISION
MARCH

1978 OCT 3 AM 11 21

RECEIVED DISTRIBUTION
SERVICES UNIT

MIDLAND NUCLEAR PLANT -
UNIT NO 1, DOCKET NO 50-329
UNIT NO 2, DOCKET NO 50-330
SETTLEMENT OF DIESEL GENERATOR FOUNDATIONS AND BUILDING

In accordance with the requirements of 10 CFR 50.55(e), this letter constitutes an interim report on the status of the settlement of the diesel generator foundations and building.

A description of the conditions relative to the settlements and the investigative actions planned are documented in the enclosures to this letter.

Another report, either interim or final, will be sent on or before November 17, 1978.

Stephen H. Howell

- Enclosures: 1) Quality Assurance Program, Management Corrective Action Report, MCAR-1, Report 24, dated September 7, 1978.
- 2) Letter, P A Martinez to G S Keeley, BLC-6578, MCAR-24, Interim Report #1, dated 9/22/78, with attached report.

CC: Director, Office of Inspection & Enforcement
Att: Mr John G Davis, Acting Director, USNRC (15)

Director, Office of Management
Information and Program Control, USNRC (:)

8006120 823

781600142

S

B019/s *
1/15

QUALITY ASSURANCE PROGRAM
MANAGEMENT CORRECTIVE ACTION REPORT
MCAR-1



REPORT NO. 24

JOB NO. 7220

Q NO. 1.40

DATE 9/7/78

I *DESCRIPTION (Including references):

The Bechtel "Foundation Data Survey Program" has indicated that the settlement of the Diesel Generator Building has been greater than expected. This has been documented in NCR-1482 dated (8/21/78). A preliminary evaluation of soil boring data from an investigation being conducted by Project Engineering indicated that the magnitude of the investigative tests and analysis of test results makes this item reportable under 10CFR50.55 e, 1, iii.

*RECOMMENDED ACTION (Optional)

1. Determine the amount of settlement of the Diesel Generator Building (DGB) and increase the frequency of foundation survey measurements to find if the settlement is or will be excessive.
2. Determine the cause of the settlement.
3. If the settlement is or will be excessive, determine what actions are required to correct the condition and preclude recurrence.

REFERRED TO ENGINEERING CONSTRUCTION QA MANAGEMENT

Wg...
ISSUED BY L. A. Dreisbach 9/7/78
Project QA Engineer Date

II REPEATABLE DISCREPANCY

NO YES

NOTIFIED CLIENT 9/7/78
[Signature] 9/7/78
Project Manager Date

III CAUSE

CORRECTIVE ACTION TAKEN

RECEIVED
SEP 8 1978
QUALITY ASSURANCE

AUTHORIZED BY _____ Date

- DISTRIBUTION:
- Project Manager
 - Construction Manager
 - Engineering Manager
 - Project Engineer
 - Proj. Supt. / Proj. Const. Mgr. or P & I Procurement Mgr.
 - Chief Field QC Engineer or Procurement Insp. Mgr.
 - QA Supervisor
 - Client

- J.B. Violette
- S.I. Heisler
- L.A. Dreisbach
- J. Amaral (Gaithersburg)
- J.E. Bashore (Norwalk)

FORMAL REPORT TO CLIENT _____ Date
(If Section II Applies)

CORRECTIVE ACTION IMPLEMENTED

VERIFIED BY _____ Date
Project QA Engineer

*Describe in space provided and attach reference document.

Bechtel Power Corporation

777 East Eisenhower Parkway
Ann Arbor, Michigan

Mail Address: P.O. Box 1000, Ann Arbor, Michigan 48106



September 22, 1978

BLC-6578

Mr. G. S. Keeley
Project Manager
CONSUMERS POWER COMPANY
1945 West Parnall Road
Jackson, Michigan 49201


Midland Units 1 and 2
Consumers Power Company
Bechtel Job 7220
MCAR 24 INTERIM REPORT 1
Files 2417/2801

Dear Mr. Keeley:

Attached is Interim Report 1 addressing the Deisel Generator Building Settlement as described in MCAR 24 (issued September 7, 1978).

As agreed with W. R. Bird on September 21, 1978, the next report will be issued November 3, 1978.

Very truly yours,


for P. A. Martinez
Project Manager

PAM/WGM/pp

cc: Mr. R. C. Fauman
Mr. W. R. Bird
Mr. J. L. Corley
Mr. B. W. Marguglio

Attachment (5 pages).

RECEIVED
SEP 25 1978
QUALITY ASSURANCE

Bechtel Associates Professional Corporation

Attachment to BLC-6578

SUBJECT: MCAR #24 (Issued 9/7/78)
 Settlement of the diesel generator foundations and building
INTERIM REPORT # 1
DATE: September 22, 1978
PROJECT: Consumers Power Company
 Midland Plant Units 1 & 2
 Bechtel Job 7220

Introduction

This report summarizes the project's actions relating to the settlement of the diesel generator foundations and building as described in MCAR #24 and NCR 1482.

The fill material in this area was placed between 1975 and 1977. Construction was started on the diesel generator building in mid-1977. The diesel generator building settlements were noticed to exceed anticipated values in July 1978. The diesel generator building construction was placed on hold on August 23, 1978. A diesel generator building soil boring program was started on August 25, 1978. Based on preliminary soil boring data evaluation, MCAR #24 was issued.

The actions requested by MCAR #24 are being performed as follows:

- 1) The Foundation Data Survey Program, Specification 7220-C-76, has been expanded by increasing the number of data locations and the frequency of measurements.
- 2) The cause of the settlement and the corrective actions required to preclude the recurrence of this condition will be addressed after the testing and monitoring programs have been evaluated.
- 3) The options available to resolve the existing settlement conditions will be discussed in the Corrective Actions section.

Bechtel Associates Professional Corporation

MCAR # 24 INTERIM REPORT 1

Page 2

September 22, 1978

Attachment to BLC-6578

Deficiency

The Bechtel Foundation Data Survey Program (Specification 7220-C-76) generated data that indicated the settlement of the diesel generator foundations and building was greater than anticipated. Nonconformance Report 1482 was generated on August 21, 1978, describing the settlements.

The general foundation and building settlements, as of September 19, 1978, are shown on Figure 1 (attached).

Due to the magnitude of the settlements observed, a soils boring program was started. Based on the borings completed to date, the fill under the building has variable strength properties ranging from good to poor.

Further clarification of the fill deficiency will be made when the soil test results have been completed and evaluated.

An independent soils consultant has been retained to help in the data evaluation and feasibility of the corrective actions.

Safety Implications

Large settlements can pose possible safety problems for buildings. A preliminary evaluation of soil boring data from the investigation being conducted indicates that the magnitude of the investigative tests and analysis of test results makes this item reportable under 10 CFR 50.55 e, 1, iii.

These structures are monitored for settlement as part of the foundation data survey program. Hence, any unusual settlement of the structure would be detected before the diesel generators would be rendered inoperable due to the resulting distortions.

Activities in Progress

Several activities are in progress to generate information needed to evaluate the feasibility of possible corrective actions. The activities are:

- 1) The Foundation Data Survey Program has been expanded to include additional settlement data locations as well as monitoring these data locations more frequently. Building time rate of settlement curves are being developed based on this datum for a better understanding of the problem.

Bechtel Associates Professional Corporation

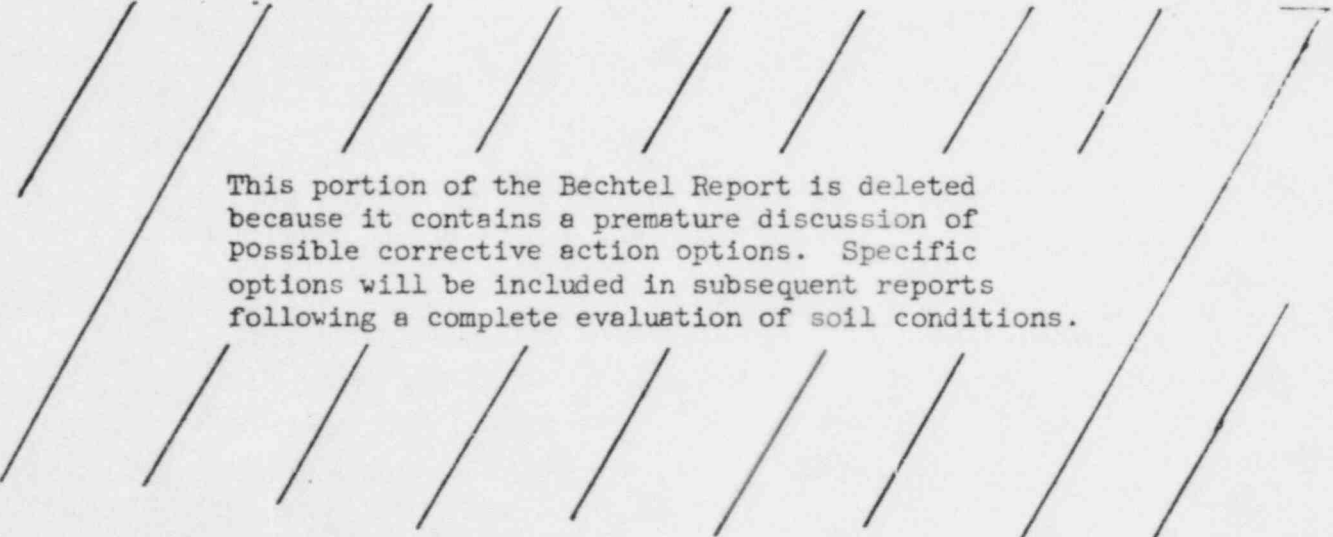
MCAR #24 INTERIM REPORT 1

Page 3

September 22, 1978

Attachment to BLC-6578

- 2) A boring program has been initiated to provide better definition of the fill conditions under the building and to obtain soil samples for laboratory tests. Dutch cone penetration tests are also being performed under the building area to better define the variable strength properties of the fill material.
- 3) Laboratory tests being performed are:
 - a. Shear strength tests to determine fill characteristic for bearing capacity evaluation
 - b. Consolidation tests to predict building settlement for the present fill material
 - c. Soil classifications
 - d. Mineralogy tests to evaluate the swelling potential of the fill material



This portion of the Bechtel Report is deleted because it contains a premature discussion of possible corrective action options. Specific options will be included in subsequent reports following a complete evaluation of soil conditions.

Bechtel Associates Professional Corporation

MCAR #24 INTERIM REPORT 1

Page 4

September 22, 1978

Attachment to BLC-6578



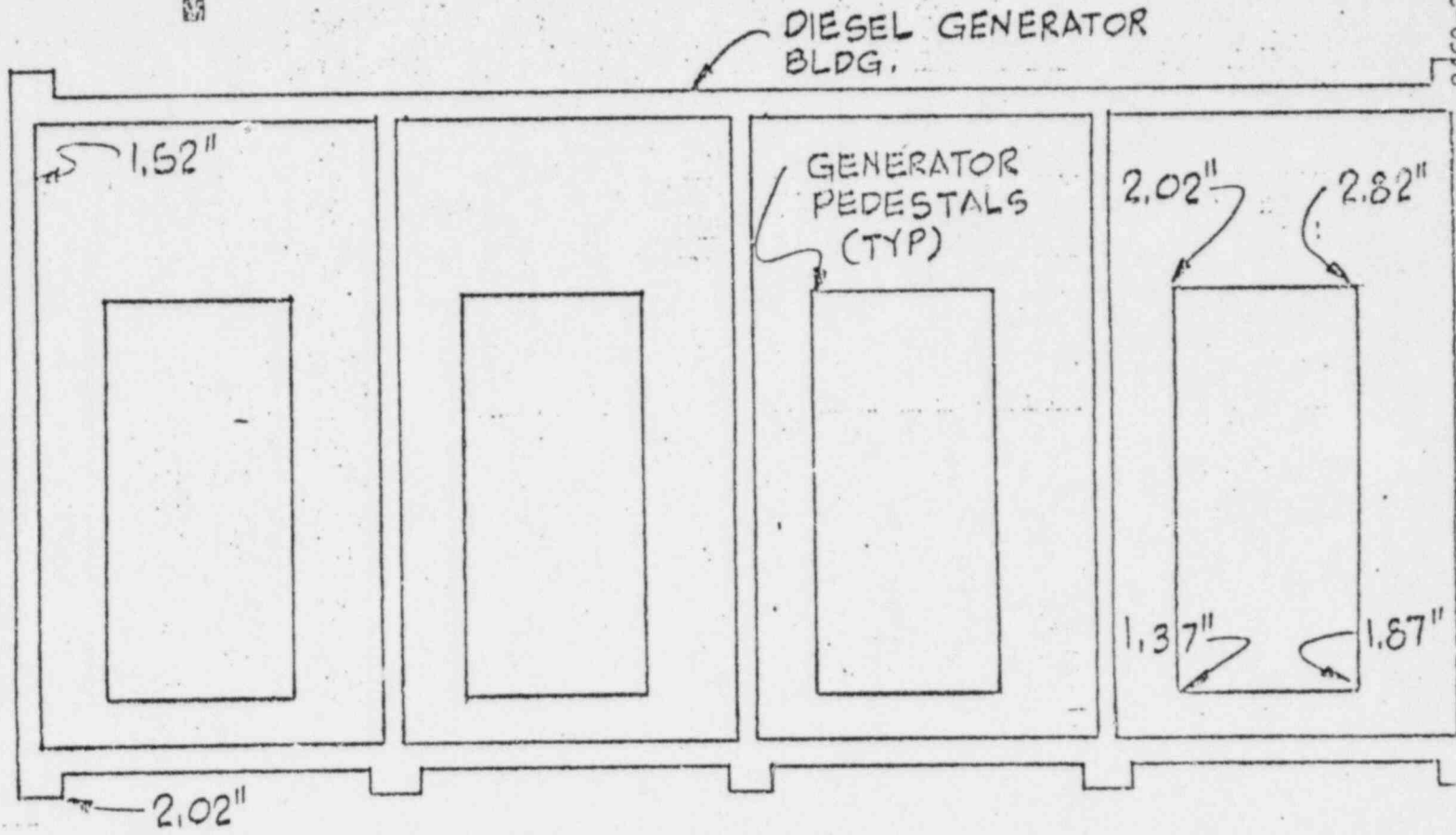
Detailed descriptions of the selected options will be presented in subsequent reports.

Submitted by: B. Charles McConnel

Approved by: J. L. [Signature]

Concurrence by: [Signature]

JH/cap
9/19/78



DIESEL GENERATOR BLDG.
 SETTLEMENT DATA AS OF 9-19-78
 (INCHES)

No.	DATE	ISSUED FOR INFO. TO MCAR # 24, INTERIM REPORT # 1	BY	CHK	APP
1	9-22-78		PB		
ORIGIN		REVISIONS	JOB NO. 7220		REV
		CONSUMERS POWER COMPANY MIDLAND PLANTS UNITS 1 AND 2 MCAR # 24	SPEC/DWG GUIDE NO		FIGURE 1
			SHEET		OF

C 10/03/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL

50-329/30

REC: KEPPLER J G
NRC

ORG: HOWELL S H
CONSUMERS PWR

DOCDATE: 09/29/78
DATE RCVD: 10/03/78

DOCTYPE: LETTER NOTARIZED: NO
SUBJECT:

COPIES RECEIVED
LTR 1 ENCL 15

FORWARDING INTERIM CONSTRUCTION DEFICIENCY REPT CONCERNING STATUS OF THE
SETTLEMENT OF SUBJECT FACILITY'S DIESEL GENERATOR FOUNDATIONS AND BUILDINGS
HAS BEEN GREATER THAN EXPECTED. . . W/ATT SUPPORTING INFO.

PLANT NAME: MIDLAND -- UNIT 1
MIDLAND -- UNIT 2

REVIEWER INITIAL: XJM
DISTRIBUTER INITIAL: RTW

***** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS *****

CONSTRUCTION DEFICIENCY REPORT (10CFR50.55E)
(DISTRIBUTION CODE B019)

FOR ACTION: ASST DIR VASSALLO**W/ENCL
PROJ MGR D HOOD**W/ENCL

BR CHIEF LWR#4 BC**W/ENCL
IC ASST LWR#4 LA**W/ENCL

INTERNAL:

REG FILE**W/ENCL
1 & 2 ENCL
GOSSICK & STAFF**W/ENCL
DIRECTOR DPM**W/ENCL
QAB**W/ENCL
AD FOR ENG**W/ENCL
AD FOR PLANT SYSTEMS**W/ENCL
STANDARDS DEV. **W/ENCL
FERD DREHER/IE**W/ENCL

NRC PDR**W/ENCL
OELD**W/ENCL
MIPC**W/ENCL
DEPUTY DIR DPM**W/ENCL
DIRECTOR DSS**W/ENCL
AD FOR REAC SFTY**W/ENCL
AD FOR SYS & PROJ**W/ENCL
K SEYFRIT/IE**W/ENCL

EXTERNAL:

LPDR'S
MIDLAND, MI**W/ENCL
TERA**W/ENCL
NSIC**W/ENCL
ACRS CAT A**W/16 ENCL

DISTRIBUTION: LTR 41 ENCL 41
SIZE: 1P+1P+6P

CONTROL NBR: 781600142

MA 1 60

***** THE END *****