



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

Gallagher

December 6, 1978

Docket No. 50-329
Docket No. 50-330

MEMORANDUM FOR: R. L. Spessard
FROM: E. J. Gallagher
SUBJECT: MEETING HELD AT THE MIDLAND UNITS 1 AND 2
SETTLEMENT OF DIESEL GENERATING BUILDING

A meeting was held at the Midland site on December 4, 1978 between representatives of the NRC, Consumers Power Company and Bechtel regarding the settlement of the Diesel Generator Building and other Category I Structures. A list of attendees and the meeting agenda are attached. The meeting lasted from 9:30 a.m. through 2:30 p.m.

A brief summary of the presentation contents is as follows:

1. Bechtel provided a review of the settlement history to date and the identification of Category I Structures founded on the site fill material.
2. Bechtel explained the soil exploration program and results of soil borings and laboratory tests on the fill material as well as some possible causes of the excessive settlement.
3. The Bechtel Consultants discussed their recommendation for a resolution to the problem which includes a preloading of the foundation material by surcharging some 20 feet of sand in and around the Diesel Generator Building. This includes an extensive monitoring program of the structure and foundation materials during the preload.
4. Bechtel presented the activities that have been completed, in progress and planned.
5. Bechtel presented the impact of these activities on the project schedule.
6. A response to the open items documented in NRC Report 50-329/78-12; 50-330/78-12 was provided regarding the conflicts between FSAR commitments and site construction procedures. CPCo indicated that a formal response to these open items would be sent to our office.

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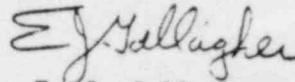
R. L. Spessard

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December 6, 1978

In general, the meeting was worthwhile in that it stimulated technical discussion and details of the proposed resolution to the problem. It was made clear by NRR project management that the proposed activities are at the risk of the licensee and that the results, after being formally documented, would be evaluated by NRR to the original acceptance criteria included in the PSAR/FSAR.

A detailed trip report of the technical issues is being prepared by NRR project management with input from the NRC attendees, and it will be made available when completed.



E. J. Gallagher, Reactor Inspector
Engineering Support Section 1

Enclosures:
As stated

cc w/encls:
J. G. Keppler
R. F. Heishman
R. J. Cook
D. W. Hayes
G. A. Phillip
T. E. Vandel

SUBJECT: CCo Midland Plant Units 1 & 2
Diesel Generator Building
Meeting with NRC at Midland

DATE: December 4, 1978

AGENDA

- I. Introduction by CCo (Don Miller)
- II. History by Bechtel (N. Swanberg)
 - a. Plant description
 - b. Settlement monitoring program
 - c. Brief history of site fill placement
 - d. Settlement of Category 1 structure
 - e. Settlement of diesel generator building and pedestals
 - f. Review settlement data and drawings (SK-C-620/623)
 - g. Consultants
- III. Soil Exploration by Bechtel (S. Afifi)
 - a. Soil borings
 - b. Dutch cone penetrations
 - c. Laboratory tests
 - d. Possible causes
- IV. Consultant's Recommendation by Dr. R.B. Peck and C.J. Dunnicliff ^{Peck}
 - a. Preload
 - b. Instrumentation
- V. Status report by Bechtel (B.C. McConnell)
 - a. Activities completed
 - b. Activities in progress
 - c. Activities planned for future
 - 1) Corrective action
 - 2) FSAR conformance
- VI. Schedule by Bechtel (P. Martinez)
 - a. Overall project
 - b. Impact on project schedule
 - c. Schedule for remedial measures

VII. Responses to open items in NRC Inspector's report dated 11/17/78 by Bechtel (L. Dhar)

- a. Responses to Gallagher's concerns:
- ✓ 1) Conflict between FSAR Table 2.5-14 and Table 2.5-10 regarding fill material description
 - ✓ 2) Conflict between FSAR Table 2.5-21 and Specification C-210 regarding required number of passes for compaction
 - ✓ 3) FSAR Section 3.8.5.5 - expected settlement
 - ✓ 4) Conflict between FSAR Figure 2.5-47 and project drawing regarding foundation elevation
 - ✓ 5) Conflict in Specification C-210 regarding compactive effort in test method
 - ✓ 6) Conflict between consultant's recommendation and Specification C-210 regarding lift thickness
 - 7) \pm 2% tolerance in moisture content permitted in Specification C-210
 - 8) Cracks in the building structure
- b. FSAR Question 362.2 (Section 2.5.4.5.1)

VIII. Closing Comments by CPCo

Attendees
12/4/78

Name	Organization	12/4/78	12/3/78
DARL HOOD	NRC/DPM	✓	✓
Gene Kellogh	NRC Region III (IE)	✓	
Daniel Miller	NRC/NRR Gosport	✓	✓
Sydney Heller	" " "	✓	✓
Ronald Cook	NRC Resident Inspector	✓	✓

Dec 4 Mtg - Soils

<u>NAME</u>	<u>ORGANIZATION</u>
F. A. Martinez	Bechtel
KARL WIEDNER	BECHTEL
S. S. AFIFI	Bechtel
R. B. PECK	Bechtel Consultant
→ W. R. FERRIS	BECHTEL
MO ROTHWELL	BECHTEL
JB Miller	CPCO - Project
JG Cox	CPCO - PROJECT
JF Bello	Bechtel
D. L. BARCLAY	BECHTEL
G. L. Richardson	Bechtel
A. J. BOOS	"
D. E. HORIU	CPCO - UAT
W. R. Bird	" "
R. M. Wheeler	CPCO - PMO
G. A. Hunt	CPCO - Engrg Services
D. E. Sibbald	CPCO Project
JOHN DUNNCLIFF	Bechtel Consultant
AUSTIN MARSHALL	BECHTEL - GEOTECH
Y. K. Lin	" "
B. C. Mc Connel	"
B. Dittler	"
H. Swenberg	Bechtel

Dec. 7, 1978

To: DARL HOOD
From: Gene GALLAGHER
Subject: Meeting Notes of Dec. 4, 1978 held at the
Midland Site (Docket No. 50-329 & 50-330)

The following is a summary of my understanding of the technical discussion of the meeting held at the Midland site on Dec 4, 1978 regarding the excessive settlement of the Diesel Generator Bldg & foundations and other Category I structures.

1. History by Bechtel - the Bechtel representatives identified the Category I structures & the types of material supporting the structures.
 - a. CONTAINMENT - GLACIAL TILL
 - b. BOATED WATER STORAGE TANK - PLANT FILL
 - c. DIESEL GENERATOR BLDG & PEDestal - PLANT FILL
 - d. AUX BLDG - PART GLACIAL TILL & PART PLANT FILL
 - e. SERVICE WATER INTAKE - GLACIAL TILL

The settlement monitoring program began in June 78; to date the settlements are as follows:

- CONTAINMENT - 1/4" TO 5/8"
- AUX BLDG - APPROX. 1/8"
- SERVICE WATER PUMP HOUSE - 0 TO 1/8"
- BOATED WATER STORAGE - APPROX 1/8"
- DIESEL GENERATOR BLDG - 3 TO 4"

The 4 ELECTRICAL DUCT BANKS RISING INTO THE D.G. BLDG were CUT LOOSE TO REMOVE THE SETTLEMENT RESTRICTION ON THE NORTH SIDE.

When the duct banks were cut loose, settlement on the order of 2" took place on the north side of the D.G. BLDG.

TO: DARL HOOD
FROM: GENE GALLAGHER

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2. Soils Exploration - Bechtel discussed the soil exploration program, including the boring program & laboratory testing of the foundation materials. The conclusion that was made by Bechtel is that the material varies in strength properties i.e. unconfined compressive strength from 200 PSF TO 4000 PSF & shear strength from 100 PSF TO 2000 PSF. The soils classification ranged from CL TO ML.

Bechtel also discussed possible causes based on input from Dr. R. Peck. Some of these causes were: 1. Variable quality of material used in the plant fill, however, the quality control records do not indicate the variation 2. Fill may have been placed on the dry side of optimum moisture & then when the water table rose inundating the fill the material become "soft". 3. Initial fill may have been placed satisfactory but after installing pipe trenches & duct banks the fill may have been disturbed.

3. Consultants Recommendations - Dr. Peck stated the following:

- a. Compacted fill made up mainly of glacial till
- b. Evident from Dutch cones curve that the looser zones are zones or lenses (local areas)
- c. Water content is higher than at the time the fill was placed
- d. Short of removing all the fill above the hard glacial till a "preload" program would be next approach.

TO: DARL HOOD
FROM: GENE CALLAGHER

3.

- e. Bldg would not have settled as much if the material had not been so wet (moisture content is high).
- f. Bearing capacity is not a problem for the footings.
- g. Preload purpose would be to consolidate the fill materials down to the original till.
- h. The settlement with the preload would tend to be rapid (a few weeks to a few months). The "structure would go along for the ride".
- i. The preload is a necessary first step even though other measures might be necessary.
- j. The main open question is what might happen to the rate of settlement as the water table rises & saturates the fill.
- k. Preload would take place in the New Year & be cleaned out around July '79.

Mr. Dumnichlife spoke about the instrumentation program to monitor the settlement of the foundation material & structures during the preload. The purpose of the instrumentation would be to see if the surcharge is doing its job & if it is doing any harm to the structures or utility lines under & around the bldg.

- a. INSTRUMENTATION for the structure would include optical survey measurements as well as monitoring of cracks using electrical devices. Four locations for the electrical devices have been chosen; 2 on the exterior of the east wall & 2 on the west wall

TO: DARRI HOOD
FROM: GENE GALLAGHER

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of bay 4 in the D.G. Bldg. A mapping of the cracks would be developed.

- b. Foundation monitoring would include devices to measure settlement & pore water pressure. A total of 60 anchors would be installed (20 groups of 3 at different elevations). A total of 40 piezometers are to be installed to measure the pore water pressure.

The consultants indicated that 6" settlement would not be a surprise & that up to as much as 13" could occur. The preload would be made up of 15 TO 20 feet of sand piled in & around the D.C. bldg. No more than a 5 foot differential would be permitted.

4. Bechtel summarized the activities completed in program & planned for the future:

a. Activities completed - 1) boring program
2) isolation of the electrical duct banks on the north side of the bldg.

b. Activities in Progress - 1) foundation settlement monitoring program 2) Preparation for preload (instrumentation) 3) actual preload of the structure & foundation 4) filling the cooling pond to maximum elevation (Elev 627) 5) Complete the rest of the D.G. Bldg Structure.

To: DARL HOOD
FROM: GENE GALLAGHER

5.

c. Activities Planned - 1) after removal of surcharge assure contact between footings & soil material 2) Verify utilities & structure integrity

5. Project Schedule - Bechtel presented the following project schedule information:
CONSTRUCTION is 58% completed as of NOV 78
ENGINEERING is 80% complete
STRUCTURAL CONCRETE is 97% complete
FUEL LOAD target date NOV. 1980
Earliest req'd for 1 Diesel generator, JAN 1980
Current completion for 1 D.G., JAN '80
LATEST for 1 D.G. June '80 (under study)

6. Response to open items in NRC Inspection
Report Nos 50-329/78-12 & 50-330/78-12:
Bechtel addressed the open items included in an NRC inspection report. CPCo stated that a written response would be sent to Region III to resolve the conflict between the FSAR & site implementing procedures:

a. Conflict between FSAR TABLE 2.5-14 & TABLE 2.5-10 regarding the description of fill material & what was actually used in the random fill: Bechtel stated that this conflict was an "oversight" & that an FSAR amendment would be issued.

- b. Conflict between FSAR Table 2.5-21 & spec C-210 regarding number of passes for compaction: Bechtel stated that FSAR table 2.5-21 is for the embankments for the cooling pond dikes.
- c. FSAR Section 3.8.5.5 regarding expected settlement: Bechtel stated that $\frac{1}{2}$ inch indicated in the FSAR was "NOT correct, a mistake". FSAR would be amended to correct the "mistake".
- d. Conflict between FSAR Figure 2.5-47 & project drawing regarding foundation elevation: Bechtel stated the elevations in the FSAR was "a mistake".
- e. Conflict in spec C-210 regarding compaction effort: Bechtel stated that FC 2 C-302 dated 10/31/75 clarified this conflict & permitted the "Bechtel Modified Proctor" using 20,000 FT-LB's Compactive effort rather than the ASTM standard of 56,000 FT-LB. The NRC inspector asked Dr. Peck if this was appropriate. Dr. Peck stated that "GREATER COMPACTION would have been in the right direction."
- f. Conflict between Dames & Moore recommendation regarding lift thickness of 6 to 8 inches & Bechtel spec permitting up to 12 inches: Bechtel stated that this should NOT matter. However,

The NRC was informed that no test qualifications on the random fill material using 12 inches was performed to qualify such lift thicknesses.

Dr. Peck was asked his opinion. He stated that, "the thicker the layer the more differential in compaction through the thickness of the layer".

- g. $\pm 2\%$ tolerance in moisture content permitted in spec C-210: Bechtel stated that this tolerance is in line with industry practice.

Dr. Peck was asked his view on this $\pm 2\%$ tolerance. He stated the important question is " $\pm 2\%$ of what material." Since the material used in the fill was variable the $\pm 2\%$ tolerance could cause a problem if the material is not consistent.

- h. Cracks in the Building Structure: Bechtel stated that all cracks greater than the ACI 318-71 limit would be identified & repaired after the preload program.

- i. FSAR question 362.2: Bechtel stated that the answer had been sent to NRR via amendment 15 dated 11/78. NRR was to review the response

To: DARL HOOD
From: GENE GALLAGHER

8.

Closing comments to the meeting were made by NRC's LYMAN HELLER. In summary he stated that the proposed solution is at the risk of the licensee & that NRC would review & evaluate the result to the original compaction requirements as set forth in the commitments in the PSAR/ISAR.

Gene Gallagher
Reactor Inspector, Region III
Div. of Inspection & Enforcement

C.C. LYMAN HELLER, NRC



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

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Consumers Ex #8 inc.
10/18/80 (Hewlett)

DOCKET NOS. 50-329
50-330

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 & 2

SUBJECT: SUMMARY OF DECEMBER 4, 1978 MEETING ON STRUCTURAL SETTLEMENTS

On December 4, 1978, the NRC staff met in Midland, Michigan with Consumers Power Company (CPCO), Bechtel Associates, and consultants in geotechnical engineering to discuss excessive settlement of the Diesel Generator (DG) Building and pedestals, and settlement of other seismic Category I structures. These technical discussions followed a site tour on December 3, 1978 during which the NRC staff observed each of these structures. Attendees for the tour and technical discussions are listed in Enclosure 1. Enclosure 2 is the agenda used during the technical discussion.

1. Background

Pursuant to 10 CFR 50.55(e), CPCO notified Region III of the Office of Inspection and Enforcement (I&E) on September 7, 1978, that settlement of the Midland DG Building foundation and generator pedestals was greater than expected and that a soils boring program had been started to determine the cause and extent of the problem. An interim status report was provided I&E by CPCO's letter of September 29, 1978. I&E conducted inspections on this matter on October 24-27, 1978 and issued inspection report number 50-329/78-12; 50-330/78-12.

2. History

The Bechtel representative identified the Category I structures and the type of material supporting the structure:

- a. Containment - Glacial Till
- b. Borated Water Storage Tank - Plant Fill
- c. Diesel Generator Building and Pedestal - Plant Fill
- d. Auxiliary Building - Part Glacial Till & Part Plant Fill
- e. Service Water Intake - Glacial Till (Completed portion only)
- Plant Fill (Small portion yet to be constructed)

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The settlement monitoring program began in June 1978; to date the measured settlements are as follows:

Containment - 1/4" to 5/8" over last 1-1/2 years

Auxiliary Building - Approximately 1/8" (central portion)

Service Water Pump House - 0 to 1/8"

Diesel Generator Building - 3 to 4" since footing was poured October 1977 and walls in Spring 1978.

The four electrical duct banks rising into the DG Building, and which extend downward into the glacial till, were cut loose to remove the settlement restriction on the north side of the DG Building. When the duct banks were cut loose, settlement on the order of 2" occurred on the north side of the DG Building at a rapid rate. The east wall exhibited rapid settlement (1/8" in one week), but the west wall showed very little subsequent settlement. This indicates that the east wall was being held up by the duct pedestal.

3. Soils Exploration

Bechtel discussed the soil exploration program, including the boring program and laboratory testing of the foundation materials. The conclusion that was made by Bechtel is that the material varies across the site in strength properties, i.e., unconfined compressive strength from 200 PSF to 4000 PSF and shear strength from 100 PSF to 2000 PSF. The soils classification ranged from C1 to M1.

Bechtel also discussed possible causes based on input from a consultant, Dr. R. Peck. Some of these causes were:

- (1) Variable quality of material used in the plant fill, however, the quality control records do not indicate the variation.
- (2) Fill may have been placed on the dry side of optimum moisture, and then when the water table rose inundating the fill, the material may have become "soft."
- (3) Initial fill may have been placed satisfactorily but after installing pipe trenches and duct banks, the fill may have been disturbed.

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4. Consultants Perspective

Dr. R. B. Peck stated the following:

- a. The compacted fill is comprised mainly of glacial till and was excavated from the cooling pond area.
- b. Evidence exists from the Dutch cone curve that the looser and softer areas are limited to local zones or lenses.
- c. Water content is higher than at the time the fill was placed. Settlement of the till has been occurring since original placement of fill, accelerated by increased moisture content resulting from filling of the discharge cooling pond. Soil settlement is occurring under its own weight and the added weight of the building is believed to be insignificant.
- d. The DG Building would probably not have settled as much if the material had not been so wet (moisture content is high).
- e. Bearing capacity is not a problem for the footings.
- f. Short of removing all the fill above the hard glacial till, a "preload" program would be the best approach. The preload purpose would be to consolidate the fill materials.
- g. The settlement with the preload would tend to be rapid (a few weeks to a few months).
- h. The preload is a necessary first step even though other measures might be necessary.
- i. The main unknown is what might happen to the rate of settlement as the water table rises and saturates the fill.
- j. Preloading would occur in early 1979 and the sand used as the surcharge would be removed in mid-1979.

Mr. C. J. Dunicliff of Goldberg, Zoino, Dunicliff & Associates described the instrumentation program to monitor the settlement of the foundation material and structures during the preload. The purpose of the instrumentation is to determine if the surcharge is doing its job of consolidation and if it is causing any harm to the structures or utility lines under and around the building.

14-01-0

- a. Instrumentation for the structure will include optical survey measurements as well as monitoring of cracks using electrical devices. Four locations for the electrical devices have been chosen; two on the exterior of the east wall of the DG Building and two on the west wall of bay number four in the DG Building. A mapping of cracks will be developed.
- b. Foundation monitoring will include devices to measure settlement and pore water pressure. A total of 60 anchors will be installed (20 groups of 3 at different elevations). A total of 40 piezometers are to be installed to measure the pore water pressure.

The consultants indicated that 6" settlement would not be a surprise and that up to as much as 18" could occur. The preload will be made up of 15 to 20 feet of sand piled in and around the DG Building. No more than a 5-foot differential in the sand level between bays would be permitted.

The NRC questioned the effect of settlement and preloading on the condensate lines located under the DG Building. Fixed points for the piping, such as the Turbine Building wall, are also of interest for the potential of cantilever effects. Bechtel explained that the 20-inch condensate lines are encased in 24-inch lines surrounded by concrete and resting in well compacted sand. Instrumentation will be included to monitor the condensate lines. The possibility of cutting the lines loose at the DG Building and the Turbine Building is also being studied. The condensate lines have no safety-related function for the Midland design.

The NRC also expressed concern for the effect of settlement on the fuel oil lines under the building. CPCO stated that re-routing of lines can be readily accommodated if necessary. This matter is also under review.

The NRC Resident Inspector asked for a list of the equipment, with a discussion of the compacting capability and limitations of each, used for compacting the fill for the DG Building from elevation 618 to 628 feet. Bechtel will provide this information.

5. Program Status

Bechtel summarized the activities completed, in progress, and planned for the future:

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Activities Completed

- (1) Boring program
- (2) Isolation of the electrical duct banks on the north side of the DG Building

Activities in Progress (or soon to be initiated)

- (1) Foundation settlement monitoring program
- (2) Preload instrumentation program
- (3) Actual preload of the structure and foundation
- (4) Filling the cooling pond to maximum elevation (Elevation 627)
- (5) Complete construction of the rest of the DG Building structure

Activities Planned

- (1) After removal of the surcharge, assure contact between footings and soil foundation material
- (2) Verify utilities and structure integrity

6. Project Schedule

Bechtel presented the following project schedule information:

- Construction is 58% completed as of November 1978
- Engineering is 80% complete
- Structural concrete is 97% complete
- Fuel load target date is November 1980
- Earliest requirement for one diesel generator is January 1980
- Current completion date for one diesel generator is January 1980
- Latest date for one diesel generator is June 1980

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Bechtel emphasized that the installed instrumentation will show when the preload surcharge may be removed and therefore the present schedule is somewhat tentative. Most settlement is predicted to occur rapidly as the area is being preloaded and frequent readings will be taken during this period and used as a basis for further projections. The rate of settlement will decrease thereafter and the total settlement is expected to be reached within a few months.

CPCO stated that if necessary, temporary diesels could be used during preoperational testing prior to fuel loading and that this matter is presently under study.

7. Response to Open Items in NRC Inspection Report

Bechtel addressed the open items included in NRC inspection report Nos. 50-329/78-12 and 50-330/78-12. CPCO stated that a written response would be sent to I&E Region III to resolve the conflict between the FSAR and site implementing procedures:

- a. Conflict between FSAR Table 2.5-14 and Table 2.5-10 regarding the description of fill material and what was actually used in the random fill: Bechtel stated that this conflict was an oversight and that an FSAR amendment would be issued. The NRC staff stated that any such amendment should address both the previous and the adjusted entries such that the basis for the previous staff review is not obscured in the documentation.
- b. Conflict between FSAR Table 2.5-21 and Bechtel Specification C-210 regarding number of passes for compaction: Bechtel stated that FSAR Table 2.5-21 is for the embankments for the cooling pond dikes.
- c. FSAR Section 3.8.5.5 regarding expected settlement: Bechtel stated that 1/2-inch indicated in the FSAR was a mistake and that the FSAR would be amended to correct this mistake.
- d. Conflict between FSAR Figure 2.5-47 and project drawing regarding foundation elevation: Bechtel stated the elevations in the FSAR was also a mistake and would be corrected.
- e. Conflict in Bechtel Specification C-210 regarding compactive effort: Bechtel stated that Field Change Request C-302 dated 10/31/75 clarified this conflict and permitted the "Bechtel Modified Protector" using 20,000 ft-lbs compactive effort rather than the ASTM standard of 56,000 ft-lbs.

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f. Conflict between Dames & Moore recommendation regarding lift thickness of 6 to 8 inches and the Bechtel specification permitting up to 12 inches: Bechtel stated that the greater depth permitted by their specification should not matter because of performance qualification tests. However, the NRC was then informed that the test qualifications performed were for Zone 1 clay only, and that no test qualifications on the random fill material using 12 inches was performed to qualify such lift thicknesses. Dr. Peck stated that the thicker the layer, the more differences in compaction through the thickness of the layer would occur.

g. Tolerance of $\pm 2\%$ in moisture content permitted in Bechtel Specification C-210: Bechtel stated that this tolerance is in line with industry practice.

Dr. Peck was asked his view on this $\pm 2\%$ tolerance. He stated that the important question is " $\pm 2\%$ of what material." Since the material used in the fill was variable, the $\pm 2\%$ tolerance could cause a problem if the material is not consistent.

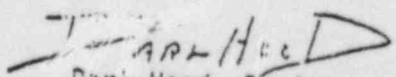
h. Cracks in the building structure: Bechtel stated that all cracks greater than the ACI 318-71 limit would be identified and repaired after the preload program.

i. FSAR question 362.2: Bechtel stated that the answer had been sent to NRC via FSAR revision 15 in November 1978.

CPCO stated that the reply to the inspection report is in process, and that the reply will include copies of all data, slides, and drawings presented during this meeting.

In concluding remarks, CPCO stated its intent to proceed with the preloading program as described during the meeting.

In its closing comments, the NRC staff stated that the proposed solution is at the risk of the applicant and that NRC intends to review and evaluate this matter in accordance with the original compaction requirements as set forth in the commitments in the PSAR. The staff also stated that while attention to remedial action is important, determination of the exact cause is also quite important for verifying the adequacy of the remedial action, assessing the extent of the matter relative to other structures, and in precluding repetition of such matters in the future.


Dari Hood, Project Manager
Light Water Reactors Branch 4
Division of Project Management

Enclosures:
As stated

ENCLOSURE 1

ATTENDEES DECEMBER 4, 1978 MEETING

JAN 12 1979

P. A. Martinez, Bechtel
Karl Wiedner, Bechtel
* S. S. Afifi, Bechtel
R. B. Peck, Bechtel Consultant
* W. R. Ferris, Bechtel
M. O. Rothwell, Bechtel
* D. B. Miller, CPCO - Project
* J. P. Betts, Bechtel
W. L. Barclay, Bechtel
* A. J. Boos, Bechtel
G. L. Richardson, Bechtel
* D. E. Horn, CPCO - QA
W. R. Bird, CPCO-QA
* R. M. Wheeler, CPCO - PMO
* C. A. Hunt, CPCO - Engineering Services
D. E. Sibbald, CPCO Project
John Dunicliff, Bechtel Consultant
* Austin Marshall, Bechtel - Geotech
* Y. K. Lin, Bechtel - Geotech
* B. C. McConnel, Bechtel - Geotech
* B. Dhar, Bechtel
* N. Swanberg, Bechtel
* Darl Hood, NRC LPM
* Gene Gallagher, NRC Region III (I&E)
* Daniel Gillen, NRC/NRC Geosciences
* Lyman Hiller, NRC/NRR Geosciences
* Ronald Cook, NRC Resident Inspector

*Present during both the 12/3/78 site tour and the 12/4/78 meeting.

Enclosure 2

SUBJECT:

CPCo Midland Plant Units 1 & 2
Diesel Generator Building

JAN 12 1979

Meeting with NRC at Midland

DATE:

December 4, 1978

AGENDA

- I. Introduction by CPCo
- II. History by Bechtel (N. Swanberg)
 - a. Plant description
 - b. Settlement monitoring program
 - c. Brief history of site fill placement
 - d. Settlement of Category 1 structure
 - e. Settlement of diesel generator building and pedestals
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 - 2) FSAR conformance
- VI. Schedule by Bechtel (P. Martinez)
 - a. Overall project
 - b. Impact on project schedule
 - c. Schedule for remedial measures

VII.

Responses to open items in NRC Inspector's report dated 11/17/78 by Bechtel (B. Dhar)

JAN 12 1979

- a. Responses to Gallagher's concerns:
- 1) Conflict between FSAR Table 2.5-14 and Table 2.5-10 regarding fill material description
 - 2) Conflict between FSAR Table 2.5-21 and Specification C-210 regarding required number of passes for compaction
 - 3) FSAR Section 3.8.5.5 - expected settlement
 - 4) Conflict between FSAR Figure 2.5-47 and project drawing regarding foundation elevation
 - 5) Conflict in Specification C-210 regarding compactive effort in test method
 - 6) Conflict between consultant's recommendation and Specification C-210 regarding lift thickness
 - 7) $\pm 2\%$ tolerance in moisture content permitted in Specification C-210
 - 8) Cracks in the building structure
- b. FSAR Question 362.2 (Section 2.5.4.5.1)

VIII.

Closing Comments by CPCo



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

NOV 14 1978

Docket Nos: 50-329
50-330

MEMORANDUM FOR: Steven A. Varga, Chief, Light Water
Reactors Branch No. 4, DPM

FROM: Darl Hood, Project Manager, Light Water
Reactors Branch No. 4, DPM

SUBJECT: FORTHCOMING MEETING AND SITE VISIT
ON SETTLEMENT OF MIDLAND STRUCTURES

Date & Time: December 3, 1978 - 1:00 p.m.
December 4, 1978 - 9:00 a.m.

Location: Midland, Michigan
Plant Site

Purpose: To discuss and observe
settlement of the Diesel
Generator Building and
other structures.

Participants: NRC
L. Heller
D. Gillen
D. Hood
R. Cook (Site)
A. Hafiz
Consumers Power Company
G. Keeley, et. al.

DARL HOOD

Darl Hood, Project Manager
Light Water Reactors Branch No. 4
Division of Project Management

Enclosure:
Agenda

cc: See next page

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ENCLOSURE

NOV 14 1978

AGENDA

Pursuant to 10 CFR 50.55(e), Consumers Power Company (CPCO) notified Region III of the Office of Inspection and Enforcement on September 7, 1978 that settlement of the Midland Diesel Generator Building foundations and generator pedestals was greater than expected and that a soils boring program had been started to determine the cause and extent of the problem. An interim status report was provided to Region III by CPCO's attached letter of September 29, 1978.

Region III conducted inspections on this matter on October 24-27, 1978 (Inspection Report No. 50-329/78-12; 50-330/78-12).

The architect - engineer has contracted Goldberg, Zoino, Dunnicliff & Associates (Consultants in Geotechnical Engineering) to conduct laboratory tests on soil samples obtained during the soils boring program including a series of soils classification tests and determination of engineering soils properties. Results were provided to CPCO November 6, 1978.

Members of the NRC will observe settlement of the foundation and structures on Sunday, December 3, 1978.

The meeting on December 4, 1978 will discuss results of the architect - engineers investigative soils test program and those matters of the Region III inspection report.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

Kepler
Spessard

November 24, 1978

MEMORANDUM FOR: H. D. Thornburg, Director, Division of Reactor
Construction Inspection, IE

FROM: James G. Kepler, Director

SUBJECT: LETTER FROM MYRON CHERRY - MIDLAND

The attached letter from Mr. Cherry regarding the Midland construction project is provided for your information. Region III is preparing a response to this letter and will discuss it with you prior to issuance.

I discussed Mr. Cherry's charges regarding the resident inspector (page 3) with Morris Howard (Acting Director) earlier today and asked him whether we should turn this matter over to OIA immediately or whether we should solicit more specific information from Mr. Cherry in our response to him. Morris indicated he would discuss the matter with OIA and get back to me.

James G. Kepler
James G. Kepler
Director

Attachment:
Letter, Cherry to Kepler, dtd 11/20/78

cc w/attachment:
J. G. Davis, IE
E. M. Howard, IE
W. J. Olmstead, ELD

781220334

LAW OFFICES
MYRON M. CHERRY
ONE IBM PLAZA
CHICAGO, ILLINOIS 60611
(312) 565-1177

November 20, 1978

Mr. J. G. Keppler, Regional Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Re: CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)
Docket Nos. 50-329 and 50-330
(Operating Licenses Proceeding)

Dear Mr. Keppler:

I have received from Mr. Olmstead of the Nuclear Regulatory Commission a copy of a letter and report from Consumers-Bechtel to you, which were attached as enclosures to my copy of his November 16th letter to the Licensing Board. The report from Bechtel-Consumers is dated September 22, 1978 and accompanied your cover memorandum to Mr. Thornberg dated November, 1978. At page 2 of your November 1, 1978 letter to Mr. Thornberg you state:

"In our view, this deficiency [that is, the deficiency in connection with the diesel generator building settlement] has the potential for affecting the design adequacy of several safety related structures at the Midland site."

In view of the seriousness of this statement and the enormous sums of money which Consumers continues to spend, I should like a more full explanation, including a submission or a listing of all memorandums, communications, letters and reviews, whether formal or informal, which form the basis for the Region III's conclusions made by you. Please also tell me how you justify continued construction, in view of this serious breach of quality control, unless, of course,

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NOV 21 1978

Mr. J. G. Keppler
November 20, 1978
page two

you are content to permit "magic" to ensure safety. I am most concerned over what appears to be a cavalier attitude towards construction. Can it be that your organization (whether intentionally or otherwise and whether conscious or unconscious) is affected by the amounts of money Consumers has spent so that you blind your eyes to reality. If so, you do a disservice not only to the people of the United States but also to the utilities who unfortunately take advantage of such lax enforcement. Do we need a serious accident before enforcement, in your mind at least, equals the importance of monetary investment?

Also attached with your letter to Mr. Thornberg of November 1 were communications sent to you from Consumers Power Company, in particular a letter from Howell dated September 29, 1978 and a September 22, 1978 Interim Report No. 1, apparently issued by Mr. Martinez of Bechtel to Mr. Keeley of Consumers Power Company.

In connection with the last mentioned report, page 3 has a significant deletion whereby Consumers Power or Bechtel apparently deleted information submitted regarding what you labeled as a serious safety problem, i.e. the diesel building settlement. The report states:

"This portion of the Bechtel Report is deleted because it contains a premature discussion of possible corrective action options."

In view of the lackluster performance at Consumers' Midland site, the history of the defects and bad workmanship at the Palisades site, and the overall shenanigans of Consumers (including the allegations of dishonesty), I am surprised and astounded that Region III compliance would permit Consumers or Bechtel to delete information on a serious safety issue without even a whimper being heard from the Nuclear Regulatory Commission.

Please let me know whether you plan to follow up with Consumers and obtain the information which they have withheld. It simply is incredible that this issue has to be raised by me (or anyone outside of the NRC) and was not followed up on by anyone at the NRC.

Mr. J. G. Keppler
November 20, 1978
page three

I also wish to inform you that my lines of communication have reported to me that the resident inspector currently on the Midland site may not be doing his job and may, in fact, have been co-opted by Midland personnel. Before I take any action, I would like you to make your own investigation to determine whether this person should be replaced and whether the resident inspector operation is working.

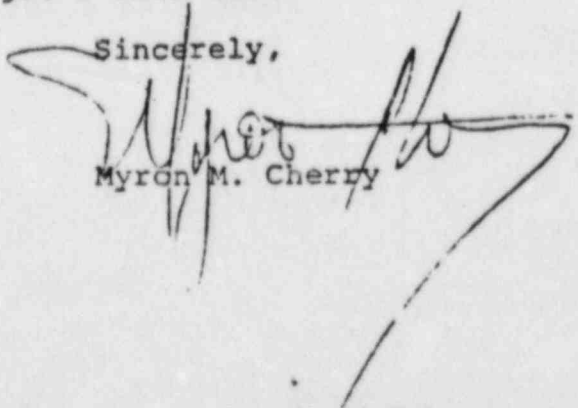
I am requesting all of the information in this letter on an immediate timeframe. If it is necessary for me to make a Freedom of Information Act request or take other steps to secure the information, please let me know immediately.

In view of all of these situations I should also like to request advance notice of any inspection which Region III intends to make at the Midland plant, so that either I or a representative on my behalf can make arrangements to be in attendance. If any inspection is to be surprise in nature, I will pledge my confidence to maintain the confidentiality of any such unannounced on-site visitation and inspection. I would appreciate sufficient advance notice to permit me to arrange my schedule so as to conform with any upcoming inspection (or to permit making arrangements for the attendance on my behalf, of a representative). Please let me know at your earliest convenience whether such arrangements will be made.

I realize this is a harsh and direct letter. But these problems at Midland have been repetitive so long that I can no longer believe that anyone takes them seriously. If you and others at the NRC worry about what shutting down Midland will do to the development of nuclear power more than what eventually will occur throughout the U.S. nuclear industry, if Consumers becomes the example to follow, then such persons should resign and join the industry, letting others more concerned with good government replace them.

I don't mind my principles losing in an honest adjudication. I have no respect, however, when I or my clients' interest cannot get a fair deal.

Sincerely,



Myron M. Cherry

MMC/ay