

KSCH 2  
5  
May 13, 1983

Note to: Ross Landsman  
Ron Cook  
Darl Hood  
Joe Kane

SUBJECT: ALLEGED VIOLATION OF THE BOARD ORDER

I am enclosing CPC's testimony on the alleged violation of the Board Order. An investigation of the alleged violation will be coming out in the future. However, CPC may present their testimony before that time. Accordingly, it is necessary for us to go through CPC's testimony and determine where cross-examination is appropriate.

Please analyze the testimony and I will contact you shortly for your comment.

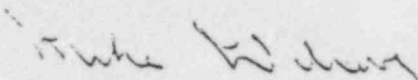
I am also providing a list of questions which should be addressed.

- (1) Does Ross agree that minor excavations did not need specific NRC approval so long as the paperwork could be reviewed during site visits? (CPC testimony, p. 3)
- (2) What is a fireline pipe?
- (3) Did the Staff ever indicate to CPC that the fireline and deep Q excavations were minor? (CPC testimony, pp. 3-5)
- (4) Did CPC have any reason to believe the excavations were minor? (CPC testimony, pp. 3-5)
- (5) Does anyone recall the May 21, 1982 meeting in which Ross said specific approval was needed before the deep Q duct bank excavation could begin? (CPC testimony, p. 5)
- (6) At the May 20 meeting, did NRC indicate that its technical concerns were with the backfill and not with the excavation? (CPC testimony, p. 8)
- (7) Does the May 25 letter constitute approval for the excavation below the deep Q duct bank? (CPC testimony, p. 9)

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JUN 6 1983

- (8) Did CPC have any reason to believe the May 25 letter constituted approval for the excavation? (CPC testimony, p. 9)
- (9) Do we believe either the fireline or deep Q excavations were minor?



Michael N. Wilcove  
Attorney, OELD

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

TESTIMONY OF JAMES A MOONEY AND R M WHEELER  
CONCERNING THE ALLEGED VIOLATIONS OF THE APRIL 30  
ASLB ORDER AND THE MARCH, 1982 CABLE-PULLING INCIDENT

Q1. Mr. Wheeler, would you please explain the controversy involving the excavation below the deep Q duct bank and the excavation for the fireline relocation?

A1. In response to the Licensing Board's April 30, 1982 Order, the Company issued a letter to Bechtel stopping all work affected by the Order. No work covered by the stop work order was allowed to proceed until the Company determined that Staff approval had been obtained and gave authorization to proceed by means of issuing letters to Bechtel.

In late May, 1982, an excavation permit system was established to ensure proper controls of excavation and to avoid damaging underground utilities. Excavation permits were required for all excavations in Q-soils. The permits included a block for sign-off by Consumers' construction, signifying that all necessary NRC approvals had been ob-

tained. The procedure authorizing work by letter was also continued for work falling under the April 30 Order, including excavations.

The use of letters was superseded on June 29, 1982, by a work permit system. The work permit system applied to all work covered by the April 30 Order. This system also made use of forms requiring sign-off by the Company, indicating that NRC approval had been obtained. After institution of the work authorization procedure, both an excavation permit and a work permit had to be secured before excavation work could proceed.

Between April 30 and early June, I took a number of specific excavation requests to Dr. Landsman for approval prior to Company sign-off of an excavation permit of work release. Included among them were excavations for a freeze-hole extending 54 feet below grade, excavation of a 72-inch diameter pond fill repair, slope layback and auxiliary building deepseated benchmarks. In the early part of June, I discussed with Dr. Landsman the excavation permit system and the manner in which the Staff was approving work under the Order. With the creation of an excavation permit process, we anticipated that the NRC Staff could eventually find sufficient controls were in place to justify a broad work release for routine excavations at the site. We believed

that such a work authorization was within the NRC Staff's powers under the April 30 Order.

On June 11, 1982, Dr. Landsman and I discussed the excavation permit procedure. Dr. Landsman, at that time, stated that he found the excavation permit procedure sufficient. He indicated that Region III did not find it necessary to specifically review and approve all minor excavations before work started, but that he would want to review the paperwork on all excavations permitted between his site visits. He also stated that the excavation permit procedure should be adhered to. Based on this discussion, I concluded that Dr. Landsman had given approval to go ahead with minor excavations, under the excavation permit procedures, and subject only to Staff review after-the-fact. We further understood that Dr. Landsman wanted to review major excavations, such as the excavation for the service water underpinning, before the work started.

The fireline excavation was carried out to relocate a fire protection line to an area where it would not be damaged by planned excavations to replace and rebed service water piping. The old fireline, located near the circulatory water structure, was abandoned in place and a new line was installed at a nearby location. The fireline was not a category I pipe.

The excavation below the deep-Q duct bank involved a crossing of the freezwall and an underground electrical duct bank, often referred to as the "deep-Q duct bank." To protect the duct bank, it was necessary to discontinue the freezwall where it crossed the duct bank. To prevent water from passing through this gap in the freezwall, a plug had to be installed below the duct bank. The excavation down to the duct bank was 32 feet deep. An additional excavation below the duct bank was necessary to install the plug.

While I do not recall specific discussions concerning the permits in operation here, our general practice was to hold internal discussions before sign-off on an excavation permit or work permit for the purpose of verifying that the work in question was authorized by the NRC. Both the fire-line excavation and the excavation below the deep-Q duct bank occurred after my June 11 discussion with Dr. Landsman. Both were minor excavations, which therefore did not require explicit NRC review and approval prior to commencement of the work, but which would be subject to NRC review at a later date. Accordingly, the Company signed off on the excavation permits and work permits for these two excavations in late July, 1982.

At the time the Company signed off on these activities, I was unaware of Dr. Landsman's concern and desire that

these two activities not be treated as minor excavations but that explicit review and approval be obtained for them. Had I known of his concerns, I would not have allowed the sign-offs to occur and the excavations to proceed without his prior review and approval.

Since becoming aware of Dr. Landsman's concern about these excavations, I have learned that a Bechtel Remedial Soils Group Supervisor had personal meeting notes from a May 21, 1982, exit meeting with Dr. Landsman that suggest that Dr. Landsman had requested that further approvals be obtained before excavating under the deep-Q duct bank. I attended that meeting, but do not recall Dr. Landsman expressing such a concern. I was also unaware of the Bechtel Supervisor's notes until after this matter became an issue. The Bechtel Supervisor was not an individual responsible for determining if NRC authorization had been obtained.

Once I became aware that Dr. Landsman was concerned about the excavations proceeding without prior NRC approval, I had the approvals for the work permits withdrawn.

Q2. Mr. Mooney, do you have anything to add to Mr. Wheeler's testimony on this subject?

A2. Mr. Wheeler was operating on the theory that Region III, through Dr. Landsman, was the final approval point within the NRC Staff for this work. The Memorandum and Order memorializing a conference call on May 5, 1982, explicitly stated that either NRR or Region III could approve the work.

Quite frankly, it was not eminently clear which Branch of the Staff was exercising approval authority. Certainly, I believe that Mr. Wheeler's practice of seeking approval through Dr. Landsman was permissible and prudent since Dr. Landsman was the NRC inspector closest to the work.

Q3. Could you describe your recollection of the meetings referred to in Dr. Landsman's memo?

A3. With regard to the May 20, 1982 meeting referred to in Dr. Landsman's memo of August 24, 1982, I apparently had a different understanding of the nature of NRR's technical problems than did Dr. Landsman.



Q4. Could you explain?

A4. Yes. The so-called deep-Q electrical duct bank is a safety-related electrical duct bank located quite deep in the ground. The technical questions discussed at the May 20 meeting concerned the manner in which this duct bank would be protected from damage at the location where it crossed the freezeway and the requirements for backfilling the monitoring pits. I understand that the freezeway has been previously described to the Board, so I will not repeat a description here. It suffices to say that without protection, the freezeway could damage the duct bank by causing the soil beneath the duct bank to heave.

Initially, the Company intended to insert the freeze elements in a manner which would have frozen the soil directly beneath the duct bank. The Company proposed to protect the duct bank from any heaving which would have been caused by the freezeway by excavating the soil directly beneath the duct bank. However, the Company abandoned this plan when it discovered that the duct bank was deeper than previously expected. The depth of the duct bank precluded the insertion of freeze elements at locations which would have insured the freezing of the soil beneath the duct bank. At the May 20 meeting, the Company advised the Staff that the duct bank was deeper than expected and proposed an alternative plan, involving excavating the soils

below the duct bank and installing a plug, either of clay or concrete, which would serve in place of the freezwall at that location.

At the May 20 meeting, the NRR representatives expressed concern with the manner in which the Company would permanently backfill the excavation around the duct bank, as well as excavations made to monitor the heaving of soil at other locations. NRR was concerned that concrete would be harder than the surrounding soil and therefore might cause differential settlement if left there permanently. Discussions relating to this permanent backfill question were not completed at this meeting, but to my knowledge, no one from the Company understood NRR's concern as relating to the excavation, as opposed to the permanent backfill. This point is highly relevant, since the Company would not have permitted this excavation to proceed if we believed NRR had technical problems with it.

After this issue was raised in Dr. Landsman's memo, I was advised that Mr. John Fischer, a Bechtel employee, had personal notes of the May 20, 1982, meeting indicating that the Company would not proceed with excavating the pit below the duct bank "until NRC approval." I do not remember such a commitment being made at the meeting, nor do I recall anyone from the Staff requesting such a commitment. However, I do not dispute that the statement apparently was made at the meeting.

When I left the May 20 meeting, I understood the need for further contact from NRR on the backfill, but felt that the

Company and NRR were in agreement on the excavation itself. However, quite apart from my understanding of the meeting, NRR gave explicit approval for the excavation in a letter dated May 25, 1982, four days after the meeting. The May 25 letter states that excavations directly beneath the deep-Q duct bank had been approved. [The letter also makes a clear distinction between excavating and backfilling, which at the time served to confirm my understanding of NRR's concerns]

✓ 11.24.25 (11.82)  
from NRR to CPC

I had further discussions with representatives of NRR on this matter at a soils audit held July 27-30, 1982, at Bechtel's Ann Arbor office. As my notes and the NRC meeting summary, dated November 12, 1982, indicate, discussion at this audit once again focused on the backfill and did not relate to the excavation itself. At the audit, NRR again advised the Company that a report was necessary prior to permanently backfilling any of the excavation pits. No such condition was placed on excavating soil.

Q5. Mr. Mooney, do you have anything to add on the fireline relocation question?

A5. Mr. Wheeler explains his basis for believing this work had been approved. The fireline relocation job, which clearly falling within the scope of the April 30 only ancillary to the soils remedial work. That

say that proper controls could be ignored or that NRC approval was unnecessary. Because the fireline relocation was essentially an ancillary task, I do not believe the Company had discussions with NRR concerning it.

Q6. Mr. Mooney, could you please describe your views of the so-called "cable-pulling incident" of March, 1982.

A6. Because I was personally involved in these discussions, I wish to explain my view of the "cable-pulling" incident referenced in the Attachments to Mr. Keepler's testimony. This incident has been the subject of a formal NRC investigation as to whether material false statements were made. I believe that the incident arose because of ineffective communication between the Company and the NRC Staff.

The Company proposed a quality assurance plan for the auxiliary building underpinning work to the NRC in a letter dated January 7, 1982, and at a meeting with Region III on January 12, 1982. Over the next two months, discussions between the Company and the Staff continued regarding which underpinning activities were to be Q-listed.

On March 10, 1982, there was a meeting between Company and NRR and Region III. At this meeting,

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

*best copy*  
2nd Draft



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

Consumers Power Company  
ATTN: Mr. James W. Cook  
Vice President  
Midland Project  
1945 West Parnall Road  
Jackson, I 49201

Gentlemen:

This refers to a special investigation conducted by Mr. C. H. Weil of this office on April 6 - June 17, 1982 of activities related to the Midland Nuclear Power Plant authorized by License Numbers CPPR-81 and CPPR-82.

The investigation was conducted to determine whether misleading information was provided to NRC Region III inspectors on March 10 and 12, 1982 concerning the installation of underpinning instrumentation at the Midland Nuclear Power Plant.

After reviewing the results of the investigation and our enforcement policy, we feel there is insufficient support for escalated enforcement action regarding a material false statement. However, the major issue that cable pulling started the day after the Q requirements were imposed on all remedial soils work leads us to believe that our inspectors' interpretation of the statements made by a member of your staff were reasonable. We are concerned that these statements misled our inspectors. We wish to impress upon you the seriousness of misleading our inspectors. We feel it is your responsibility to ensure that in the future all information provided to the NRC is factual.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).

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



3rd Draft

Docket No. 50-329  
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ATTN: Mr. James W. Cook  
Vice President  
Midland Project  
1945 West Parnall Road  
Jackson, MI 49201

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The investigation was conducted to determine whether misleading information was provided to NRC Region III inspectors on March 10 and 12, 1982 concerning the installation of underpinning instrumentation at the Midland Nuclear Power Plant. The report setting forth the results of the investigation is enclosed.

Although the results of the investigation were inconclusive and we do not plan to take any enforcement action, we are concerned that statements made by a member of your staff were considered misleading by our inspectors. Considering the fact that cable pulling was started the day after the requirements were imposed on all remedial soils work, I appreciate why our inspectors believe they were misled. We wish to emphasize the importance of your ensuring that in the future all information provided to the NRC is factual.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).



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



1ST DRAFT

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

Consumers Power Company  
ATTN: Mr. James W. Cook  
Vice President  
Midland Project  
1945 West Parnall Road  
Jackson, MI 49201

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Although the results of the investigation were inconclusive and we do not plan to take any enforcement action, we are concerned that statements made by a member of your staff were considered misleading by our inspectors. We wish to emphasize the importance of your ensuring that in the future all information provided to the NRC is factual.

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Stamps X95



4/6/82 ROSS B. LANDSMAN

1

Meeting  
Rendshil work  
sat. bring

Meeting 3/10/82  
Crazy Q in future

Al Boss, Receipts for it then  
stop all instrument to be in place  
for Aug Bldg (remedial fix - stain  
ganges).

These is a list of items about it  
about Q, to be brought in  
- Access of ft. 609  
- Aug Bldg instrument  
- Freezer  
- dehydrating well.

3/12/82, telephone call from Foreman  
Lantern, Boyd, Ray Cook  
Coronavirus paper to get list of Q's,  
list of backfill items not to be  
removed Q.

following week 3/17-19/82 on site with  
Galtre (82-06 in process).

✓

star gauge, settled mounting (2)

Wed. afternoon in midst of pulling  
instrument to - no 9.

Mike Schaffer <sup>SONALGEE</sup> stops Elect/9C seen by  
Ron Cook 2 hours prior to  
a log observation.

Wed. Afternoon @ talk to  
Schaffer, talk no 9, 2 Schaffer  
says will stop work.

Thursday morning work very continuing.

Met w/ Margulian who says I  
need more fine. Margulian says  
Kepple & Jim Cook have an agreement  
not to bite.

Boyd talks to Kepple & Kepple dems

Friday morning

Margulian says he stopped  
work because it was 9.

Margulian  
Reason no 9 was cable pulling started  
before 3/10. Schaffer found cable  
pulling started 3/11.

Monday heard Bill Little had part of  
of Jim Cook. Cook stated he had  
agreement w/ Kepple & Burton.

Hirzel  
Ruchy ~~4/21~~  
Nash Butterfield

(3)

Agreement was they would only be cited  
for things obviously G.

Meeting 3/30 to discuss instruments.

A access shaft below 609 → ① soldier piles - non Q already installed

- purchase ONLY
- ② tools & equipment - non Q
  - ③ steel & wood lagging
  - ④ rock bolts that secure walers to wall

- B Drifts
- ① steel sets non Q } purchase only
  - ② wood lagging
  - ③ back packing of wood lagging
  - ④ rock anchors

- C Press
- ① ~~form~~ glue to secure form to lagging } purchase only

- D Electrical instrumentation
- ① raceway, wire & "brackets" } purchase & installation non-Q
- thought it was always Q } checkout is Q

② data room non-~~CUE~~

③ dial gages purchased non-Q9Ames

ONLY TO COMMENT - DOES NOT  
CONSTITUTE AN APPROVAL

DON HORN  
517-631-8650 EX 277

Supports of FNIV Pit ←

April 6  
SWS  
DEB  
Judge hz/hc  
Question  
LZ  
QA

DRAFT

Based on Boos' statements of March 10 and 12, 1982, I understood the instrumentation (i.e. <sup>settlement gauges and</sup> strain gauges) for the Auxiliary Building ~~XXXXXXXXXX~~ <sup>ent monitoring</sup> would not be included in the remedial foundation quality assurance program, as work had begun before March 10, 1982.

On March 17, 1982, I was at the Midland site, along with Region III Inspector Ron Gardner, to observe the remedial foundation work, and we observed cables being pulled for the Auxiliary Building <sup>settlement</sup> instruments. These cables were being pulled without quality control <sup>quality assurance</sup> ~~inspectors being present~~. Later that day I questioned Mike Schaeffer of the Consumers Power Company Quality ~~Control~~ <sup>Assurance</sup> Department about the absence of the ~~XXXX~~ quality control <sup>quality assurance</sup> ~~inspectors~~ for the cable pull. Schaeffer informed me that the installation of the <sup>settlement</sup> instruments for the Auxiliary Building began on March 11, 1982, <sup>and</sup> that the cable pulling was considered to be under the quality assurance program for the remedial foundation work. Also, Schaeffer stated ~~that since quality control inspectors were not present for the pull~~ <sup>since there seemed to be some confusion on the Q status of the cable pulling</sup>. He also informed me

On the morning of March 18, 1982, I observed cable pulling was continuing without quality control <sup>Quality Assurance</sup> ~~inspectors being present~~, and I informed Mr. B. W. Marguglio, Consumers Power's Director of the Midland Project Quality Assurance Department. Marguglio stated the cable pulling had begun prior to March 10, 1982; therefore, the cable pulling was not a part of the quality assurance program for the remedial foundation work. Also, Marguglio stated it was his understanding that Consumers Power Company Vice President Jim Cook and NRC Region III Director Jim Keppler had previously agreed the Midland project would not be cited by the NRC for things that were ~~(not included)~~ <sup>obviously non Q</sup> under the remedial foundation work quality assurance program.

On March 19, 1982, Marguglio informed me that he had stopped the cable pulling because it <sup>would not be known be</sup> ~~was~~ considered ~~part~~ under the remedial foundation work quality assurance program and procedures would be developed.

UKAFI

I am presently employed by the Nuclear Regulatory Commission Region III as a <sup>reactor</sup> civil engineering <sup>ing</sup> inspector . I was recently assigned to inspect remedial foundation work at the Midland Nuclear Power Plant construction site in Midland, MI.

On March 10, 1982, I <sup>initiated</sup> ~~attended~~ a meeting ~~in~~ at the Nuclear Regulatory Commission's headquarters in Bethesda, MD. The purpose of this meeting was to discuss the application of quality assurance criteria and procedures to remedial foundation work underway at the Midland site. During the meeting it was agreed between the Nuclear Regulatory Commission and the Consumers Power Company that work started before March 10, 1982, would not be included in the remedial foundation work quality assurance program <sup>but work commencing from these day forward would.</sup>

One of the topics of conversation at the March 10th meeting was the status of the installation of instrumentation to measure the settlement of the Midland Auxiliary Building. Mr. Al J. Boos, the Bechtel Power Corporation's Assistant Project Manager at Midland, <sup>lead us to believe that</sup> ~~stated~~ the ~~XXXXXXXXXXXXXXXXXXXX~~ instruments were <sup>INSTALL</sup> ~~inst~~ to measure the settling of the Auxiliary Building, <sup>SINCE THEY WERE INSTALLED, THE INSTRU</sup> ~~xxx~~ and would not have to be included in the quality assurance program under consideration for the remedial foundation work.

On March 12, 1982, I participated in a telephone conversation initiated by the Consumers Power Company. The purpose of this telephone call was to have Consumers Power Company identify the items, either completed or where installation was underway not to be included in the quality assurance program for the Midland remedial foundation work. During this telephone conversation, Al Boos stated, <sup>the</sup> "Gauges, backup gauges, have been procured as non-Q but would be calibrated under a Q program. These are existing dial gauges. Our instrumentation is essentially well under way. Wiring has been pulled - raceway has been installed."

SAFETY CONCERN AND REPORTABILITY EVALUATION  
BROWSE SCREEN

ACTION NUMBER: S-1274      SCRE NUMBER: 42  
COMPANY CODE: C      TYPE: SCRE  
TO MANAGER MPQA FROM: RCBAUMAN  
ORGANIZATION: MPDQAJ  
FILE NO: 15.1  
DISCIPLINE:      PRIORITY CODE: 05      TREND CD: DNT  
ORIGINATION DATE: 20282  
IS CONCERN A PART 21?: NO      WHEN:      0 BY WHOM:  
IS NRC AWARE OF THIS:  
WHEN AWARE: 0      TIME      WHOM:

PRESS PF 8 FOR CONTINUATION SCREEN

HOW WAS CONCERN IDENT(WHEN WHERE): DURING THE JAN. 29, 1982 SEISMIC DESIGN STATUS REVIEW MEETING IN ANN ARBOR, BECHTEL PRESENTED A FLOOR RESPONSE SPECTRUM CURVE FOR THE REACTOR BUILDING COMPARING THE ORIGINAL SPECTRA WITH THE CURRENT SPECTRA. THE COMPARISON (ATTACHED) INDICATES A DEGREE OF NON-CONSERVATISM IN THE ORIGINAL SPECTRA AT CERTAIN FREQUENCIES.

BRIEF DESCRIPTION OF CONCERN: THE NON-CONSERVATISM IN THE ORIGINAL SPECTRA AS SHOWN ON THE COMPARISON DATED 012782 APPEARS TO BE A RESULT OF THE ORIGINAL USE OF CE-931 WHICH RESULTED IN A COMPOSITE MODEL DAMPING WHICH WAS TOO HIGH. BLC-11329 (ATTACHED), DATED 081481 STATED THAT THE USE OF CE-931 WAS NOT A SAFETY PROBLEM DUE TO OTHER OFF-SETTING FACTORS, HOWEVER THE SPECTRA COMPARISON PRESENTED ON JAN. 29 INDICATED THAT CE-931 DID IN FACT RESULT IN A SPECTRA WHICH WAS TOO LOW.  
IMMEDIATE REPORTABILITY EVALUATION: NOT REPORTABLE, FURTHER EVALUATION

ORGANIZATION RESPONSIBLE FOR FURTHER EVALUATION:  
NAME: BECHTEL ENG.      DATE: 0  
FINAL REPORTABILITY EVALUATION:  
PRESS PF8 FOR CONTINUATION SCREEN

APPROVAL OF EVALUATION MANAGER MPQAD:  
NAME: WRBIRD      DATE: 20382  
JUSTIFICATION OF EVAL (RECORD ATTACH ID NO): BECHTEL ADVISED DURING THE JAN. 29 MEETING THAT THE ORIGINAL DESIGN HAD SUFFICIENT MARGIN RELATIVE TO THE NON-CONSERVATIVE SPECTRA, HOWEVER FINAL DETERMINATION REGARDING REPORTABILITY CANNOT BE MADE UNTIL THE NEW ANALYSIS IS COMPLETE.

266  
FINAL APPROVAL SIGN MGR MPQAD: WRBIRD  
DATE: 32284      TIME: 0  
NRC NOTIFICATION HOW: TELECON  
DATE: 3034      TIME 500  
INDIVIDUAL NOTIFIED: RON GARDNER  
REFERENCE: OCR CHRON FILE NO 28053  
PRESS ENTER TO DISPLAY SUS VALUES



SAFETY CONCERN AND REPORTABILITY EVALUATION  
BROWSE SCREEN

ACTION NUMBER: S-771                      SCRE NUMBER: 19  
COMPANY CODE: C                      TYPE: SCRE  
TO MANAGER MPQA FROM: RCBAUMAN  
ORGANIZATION: MPDQAJ  
FILE NO: 15.1  
DISCIPLINE:                      PRIORITY CODE: 00                      TREND CD: DNT  
ORIGINATION DATE: 42081  
IS CONCERN A PART 21?: NO                      WHEN: 0                      BY WHOM:  
IS NRC AWARE OF THIS:  
WHEN AWARE: 0                      TIME                      WHOM:

PRESS PF 8 FOR CONTINUATION SCREEN

HOW WAS CONCERN IDENT(WHEN WHERE): THE ISSUES COVERED BY THIS SCRE WERE IDENTIFIED BY BECHTEL AND CONSUMERS POWER DURING PREPARATION FOR THE APRIL 20 NRC STRUCTURAL AUDIT. ADDITIONAL ITEMS MAY BE IDENTIFIED DURING THE AUDIT.

BRIEF DESCRIPTION OF CONCERN: DURING PREPARATION FOR THE NRC STRUCTURAL AUDIT, IT WAS ESTABLISHED THAT VARIOUS ENGINEERING ACTIVITIES RELATED TO PLANT DESIGN REQUIRE ADDITIONAL ATTENTION TO DOCUMENT FULL COMPLIANCE WITH PROJECT LICENSING AND/OR DESIGN CRITERIA. THESE ITEMS WERE DISCUSSED WITH BECHTEL ON APRIL 13 AND ARE SUMMARIZED ON THE ATTACHED BECHTEL PREPARED LIST WHICH DOES NOT INCLUDE ITEMS COVERED BY PREVIOUS SCRE'S OR EXISTING MCR'S. IN ADDITION, CERTAIN ISSUES RAISED (CONT) IMMEDIATE REPORTABILITY EVALUATION: NOT REPORTABLE, FURTHER EVALUATION

ORGANIZATION RESPONSIBLE FOR FURTHER EVALUATION:  
NAME: BPCO PE                      DATE: 0  
FINAL REPORTABILITY EVALUATION:  
PRESS PF8 FOR CONTINUATION SCREEN

APPROVAL OF EVALUATION MANAGER MPQAD:  
NAME: WRBIRD                      DATE: 42181  
JUSTIFICATION OF EVAL (RECORD ATTACH ID NO): NONE OF THE PRESENTLY IDENTIFIED ITEMS ARE DEEMED REPORTABLE AT THIS TIME DUE TO THE LACK OF ANY INDICATED SAFETY IMPACT. IN ALL CASES, APPROPRIATE ANALYSES WILL BE CONDUCTED BY BECHTEL TO DETERMINE THE ACTUAL SITUATION RELATIVE TO POTENTIAL IMPACT ON PLANT SAFETY.

FINAL APPROVAL SIGN MCR MPQAD: WRBIRD  
DATE: 32284                      TIME: 0  
NRC NOTIFICATION HOW: TELECON  
DATE: 3 84                      TIME: 500

2022

ORGANIZATION RESPONSIBLE FOR FURTHER EVALUATION:  
NAME: BPCD PE DATE: 0  
FINAL REPORTABILITY EVALUATION:  
PRESS PF8 FOR CONTINUATION SCREEN

APPROVAL OF EVALUATION MANAGER MPQAD:  
NAME: WRBIRD DATE: 42181  
JUSTIFICATION OF EVAL (RECORD ATTACH ID NO): NONE OF THE PRESENTLY  
IDENTIFIED ITEMS ARE DEEMED REPORTABLE AT THIS TIME DUE TO THE LACK  
OF ANY INDICATED SAFETY IMPACT. IN ALL CASES, APPROPRIATE ANALYSES  
WILL BE CONDUCTED BY BECHTEL TO DETERMINE THE ACTUAL SITUATION  
RELATIVE TO POTENTIAL IMPACT ON PLANT SAFETY.

FINAL APPROVAL SIGN MGR MPQAD: WRBIRD  
DATE: 32284 TIME: 0  
NRC NOTIFICATION HOW: TELECON  
DATE: 3-84 TIME 500  
INDIVIDUAL NOTIFIED: RON GARDNER  
REFERENCE: OCR CHRON FILE NO 28053  
PRESS ENTER TO DISPLAY SUS VALUES

SUS: NTS00

PRESS ENTER TO DISPLAY NEXT SUS VALUE  
PRESS PF1 TO EXIT THE UPDATE FUNCTION

2024

SAFETY CONCERN AND REPORTABILITY EVALUATION  
BROWSE SCREEN

ACTION NUMBER: S03961      SCRE NUMBER: 15  
COMPANY CODE: C      TYPE: SCRE  
TO MANAGER MPQA FROM: BFHENLEY  
ORGANIZATION: DESIGN PROD  
FILE NO: 15.1  
DISCIPLINE: G PRIORITY CODE: 02      TREND CD: K-9  
ORIGINATION DATE: 40781  
IS CONCERN A PART 21?: NO      WHEN: 0      BY WHOM:  
IS NRC AWARE OF THIS: NO  
WHEN AWARE: 0      TIME      WHOM:

PRESS PF 8 FOR CONTINUATION SCREEN

HOW WAS CONCERN IDENT(WHEN WHERE): DURING THE COURSE OF PREPARING FOR THE NRC'S STRUCTURAL AND SEISMIC DEISGN AUDIT, THIS CONCERN WAS BROUGHT TO CONSUMERS ATTENTION IN A MEETING IN THE BECHTEL ANN ARBOR OFFICES ON APRIL 3, 1981.

BRIEF DESCRIPTION OF CONCERN: IN BECHTEL'S ORIGINAL SEISMIC ANALYSIS OF THE DIESEL GENERATOR BUILDING, IT HAS BEEN DETERMINED THAT THE MATERIAL STIFFNESS OF THE SITE FILL HAD BEEN INADVERTENTLY CHOSEN TO BE THE SAME AS THE UNDISTRUBED TILL MATERIAL. BECHTEL SHOULD PROCEED AT ONCE TO PERFORM A SAFETY IMPACT EVALUATION FOR ANY POSSIBLE EFFECTS ON THE DIESEL GENERATOR STRUCTURE AND INTERNAL EQUIPMENT.

IMMEDIATE REPORTABILITY EVALUATION: NOT REPORTABLE, FURTHER EVALUATION

ORGANIZATION RESPONSIBLE FOR FURTHER EVALUATION:  
NAME: BPE      DATE: 0  
FINAL REPORTABILITY EVALUATION:  
PRESS PF8 FOR CONTINUATION SCREEN

APPROVAL OF EVALUATION MANAGER MPQAD:  
NAME: JLWOOD/WRB      DATE: 40781  
JUSTIFICATION OF EVAL (RECORD ATTACH ID NO):

20222  
FINAL APPROVAL SIGN MGR MPQAD: WRBIRD  
DATE: 32285      TIME: 0  
NRC NOTIFICATION HOW: TELECON  
DATE: 3-34      TIME 500  
INDIVIDUAL NOTIFIED: BOB CARNER

SAFE CONCERN AND REPORTABILITY EVALUATION  
BROWSE SCREEN

ACTION NUMBER: S-683                      SCORE NUMBER: 9  
COMPANY CODE: C                      TYPE: SCORE  
TO MANAGER MPQA FROM: WRBIRD  
ORGANIZATION: MPDQAJ  
FILE NO.: 15.1  
DISCIPLINE:                      PRIORITY CODE: 04                      TREND CD: DNT  
ORIGINATION DATE: 20481  
IS CONCERN A PART 21?: NO                      WHEN: 0                      BY WHOM:  
IS NRC AWARE OF THIS:  
WHEN AWARE: 0                      TIME                      WHOM:

PRESS PF 8 FOR CONTINUATION SCREEN

HOW WAS CONCERN IDENT(WHEN WHERE): DURING THE FSAR REVIEW, IT WAS DETERMINED THAT THERE WERE SOME INCONSISTENCIES IN THE FSAR WITH REGARD TO VARIATIONS OF SOIL MODULUS AND EFFECTS ON STRUCTURAL FREQUENCIES. REFER TO FSAR SECTION 2.5.4.7, 3.7.2.4, 3.7.2.9, AND APPEN. 3A (RESPONSE TO REG GUIDE 1.122).

BRIEF DESCRIPTION OF CONCERN: THE FSAR SECTIONS ARE NOW IN THE PROCESS OF REVIEW AND REVISION TO RESOLVE INCONSISTENCIES BETWEEN SECTIONS AND WITHIN SECTIONS. THIS WILL BE COMPLETED IN THE NEAR FUTURE. WITH REGARD TO STRUCTURAL ADEQUACY, A CHECK OF SEISMIC RESPONSE FORCES WITHIN THE MAJOR SEISMIC CATEGORY 1 STRUCTURES FOR A VARIATION OF SOIL MODULUS OF - 50% FROM THE NOMINAL VALUE (22X10(6) LB/FT(2)) AS INDICATED BY FSAR 2.5.4.7 IS IN PROCESS. (CONT)  
IMMEDIATE REPORTABILITY EVALUATION: NOT REPORTABLE, FURTHER EVALUATION

ORGANIZATION RESPONSIBLE FOR FURTHER EVALUATION:  
NAME: BPE                      DATE: 0  
FINAL REPORTABILITY EVALUATION:  
PRESS PF8 FOR CONTINUATION SCREEN

APPROVAL OF EVALUATION MANAGER MPQAD:  
NAME: WRBIRD                      DATE: 20481  
JUSTIFICATION OF EVAL (RECORD ATTACH ID NO): BASED ON INFORMATION IN BLOCK 5, THERE IS CONFIDENCE THAT THE FIRST REPORTABILITY CRITERION IS NOT MET (IE, NO ADVERSE IMPACT ON SAFETY). THE COMPLETION OF ONGOING STRUCTURAL (SEISMIC) ANALYSIS IS REQUIRED TO CONFIRM THIS. THE SECOND REPORTABILITY CRITERION THAT COULD BE APPLICABLE IS "A SIGNIFICANT DEPARTURE FROM THE FINAL DESIGN AS (CONT.)"  
FINAL APPROVAL SIGN MGR MPQAD: WRBIRD  
DATE: 32284                      TIME: 0  
NRC NOTIFICATION HOW: TELECON  
DATE: 31584                      TIME: 500  
INDIVIDUAL NOTIFIED: RON GARDNER  
REFERENCE: OCR CHRON FILE NO 28053  
R SS ENTER TO DISPLAY SUS VALUES

2025



# SAFETY CONCERN AND REPORTABILITY EVALUATION LOG

PROJECTS, ENGINEERING  
AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT

PAGE: 1

SCRE NO	DATE RECEIVED	BRIEF DESCRIPTION OF SAFETY CONCERN	IMMEDIATE EVALUATION OF REPORTABILITY			CONTINUED EVALUATION BY	FINAL EVALUATION		DATE NRC NOTIFIED
			YES	POT.	NO		YES	NO	
1	Rev1 11/17/80	Part 21 on Air Extractors		X	X	Bechtel Eng	X		10/30/81
2	11/25/80	Reactor Coolant Pump Snubber Anchor Bolts		X		CPCo Design Production	X		11/25/80
3	12/5/80	Anchor Darling Motor Operated Gate Valves			X			X	
4	12/17/80	Accident Induced Neutron Flux Measurement Errors			X	B&W		X	
5	1/7/81	BWST Ring Foundation Values Inconsistency			X	Bechtel Eng-Civil	X		1/22/81
6	1/8/81	Potential Problem With Lubrication of DG Thrust Bearings			X	Bechtel Eng		X	4/3/81
7	1/20/81	Part 21 on One-inch Stud Anchors			X	Bechtel Proj-LADreisbach		X	
8	1/28/81	RV Cavity Cooling			X	Bechtel Proj Eng - LHCurtis	X		6/16/81
9	2/4/81	FSAR Inconsistencies - Variations of Soil Modulus			X	CPCo Design Production			
10	3/2/81	Potential problem with RCS if HPI Line Pinch Break Occurs			X	Bechtel Proj Engineering		X	
11	3/11/81	NSSS Components Design Concern			X	Bechtel & B&W			
12	3/17/81	Corrosion of safety-related stainless steel pipe			X	Bechtel Proj Engineering DRAnderson		X	
13	3/25/81	Residual Heat Removal System Wiring			X	Bechtel	X		9/11/81
14	4/02/81	Service Water Sluice Gate Concerns		X				X	4/3/81
15	4/07/81	Soils Properties Used for Original DG Building Design			X	Bechtel Eng			
16	4/09/81	RCP Snubber Spring Rates			X	Bechtel Eng LHCurtis			
17	4/09/81	Cooling System for OTSG Lower Support Skirt			X	Bechtel Eng LHCurtis		X	
18	4/16/81	Indeterminate 460 V Motor Control Center Breaker Wiring ( NEVER ISSUED but referenced by NCR M-01-6-1-013)			X	Bechtel Eng LHCurtis	X		4/17/81
19	4/20/81	Documentation of Plant Design Criteria to Licensing and/or Design Criteria			X	Bech Proj Eng B&W	(SCRE Never		Issued)
20	4/27/81	FSAR - Steam Flow for NSSS		X					

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# SAFETY CONCERN AND REPORTABILITY EVALUATION LOG

PROJECTS, ENGINEERING  
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SCRE NO	DATE RECEIVED	BRIEF DESCRIPTION OF SAFETY CONCERN	IMMEDIATE EVALUATION OF REPORTABILITY			CONTINUED EVALUATION BY	FINAL EVALUATION		DATE NRC NOTIFIED
			YES	POT.	NO		YES	NO	
21	5/7/81	Safety Features of Service Water Sluice Gates			X	CPCo Tech Dept		X	
22	5/18/81	125 Ton Aux Bldg Crane Weld Defects			X	Bechtel Eng		X	
23	5/18/81	Emergency Diesel Lube Oil Piping			X	Bechtel Eng		X	
24	6/19/81	Westinghouse Gate Valves			X	Bechtel Eng LHCurtis	X		7/9/81
25	6/25/81	Failure to Consider Accident Temperatures in Design of NSSS Component Supports			X	Bechtel Eng LHCurtis		X	
26	7/20/81	Failure to Obtain Impact Properties for Containment Penetration Sleeve			X	Design Prod		X	7/20/81
27	8/17/81	CE 931 Composite Model Damping Program Calculation Resulted in Too High Damping on RB			X	Bechtel Eng		X	
28	8/24/81	Sizing Emergency Diesel Generator Fuel Oil Storage			X	Bechtel, Mechanical		X	
29	9/4/81	Indeterminate Wiring in G-205 Circuit Wiring -(Bechtel Field Modifications)			X	Bechtel Eng		X	
30	9/02/81	Rockbestos Coaxial Cable - Part 21			X	Bechtel Eng LADreisbach		X	
31	10/13/81	Potential Faulty Current Transformer in DG Control Circuits			X	LHCurtis		X	
32	10/2/81	Invalid Seismic Qualification of Class 1E Cabinets			X	Bech Eng	X		1/12/83
33	10/20/81	Misinterpretation of Welding Symbol			X	Bechtel Eng		X	
34	11/10/81	Power Strut Design Load			X	LHCurtis		X	
35	11/13/81	Discrepancies between Vendor supplied equipment and instruction manuals			X				
36	11/20/81	Minimum Bend Radius Violations			X	LHCurtis		X	
37	11/16/81	RCP Snubber Spherical Bearings			X	Design Prod & Bech Civ Eng		X	
38	12/2/81	IE Bulletin 79-21 Temp. Effects on Level Meas'mts			X	B&W & Bechtel	X		4/14/82



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# SAFETY CONCERN AND REPORTABILITY EVALUATION LOG

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SCRE NO	DATE RECEIVED	BRIEF DESCRIPTION OF SAFETY CONCERN	IMMEDIATE EVALUATION OF REPORTABILITY			CONTINUED EVALUATION BY	FINAL EVALUATION		DATE NRC NOTIFIED
			YES	POT.	NO		YES	NO	
39	12/28/81	Rodent Damage to Electrical Penetrations			X		X		1/20/82
40	1/7/82	Part 21 by Delaval on DG governor lube oil cooler problem			X			X	
41	1/13/82	Control Power Transformer in 460V Motor Control Center(Mounting of)			X	LHCurtis		X	
42	2/2/82	Reactor Bldg Spectra Comparison			X	LHCurtis			
43	2/15/82	Snubber Drawing Errors Effect on Pressurizer Lower Support Design			X	LHCurtis		X	
44	3/4/82	Schematic Diagram Does Not Function In Accord With Logic Diagram (ESFAC)			X	LHCurtis		X	
45	3/8/82	Aux Feedwater Level Control Valves		X		LHCurtis	X		3/9/82
46	3/12/82	B&W Transmitter Mounting Brackets Lack of Seismic Qualifications			X	TJSullivan	X		6/3/82
47	4/1/82	Transamerica DeLaval Diesel Engine Starting Air Sensing Line Failure			X	EMHughes		X	
48	4/16/82	Material Damping Value for Cat. I Cable Tray Supports			X	EMHughes		X	
49	4/16/82	Yield Strength for Design of Pipe Whip Restraints			X	EMHughes		X	
50	5/6/82	Containment Penetration Sleeve			X	EMHughes		X	
51	5/20/82	Discovery of Void During Drilling of Permanent Observation Well OBS#4			X	EMHughes			
52	6/9/82	Diesel Generator Building HVAC Operability			X	EMHughes		X	
53	6/17/82	Piping Class ELB Fittings Minimum Wall Thickness Requirements			X	EMHughes		X	
54	6/21/82	Welding Defects in Structural Beams			X	JARutgers			
55	7/23/82	Formation of Frazil Ice, Its Effects on Midland Cooling Water System			X	EMHughes	X		11/12/82
56	8/2/82	Zack ID Number Discrepancies (Welder) on Travelers			X	Zack Co/Bech Construction		X	
57	8/19/82	Termination of Instrument & Control Transformers			X	Bechtel Engrg		X	
58	9/2/82	Cracked Terminal Blks in NSSS Instrumentation Cabinet			X	IDGreen, B&W		X	
59	9/8/82	Flued Head Fittings - NDE Rejections			X	Bechtel Proj		X	



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# SAFETY CONCERN AND REPORTABILITY EVALUATION LOG

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SCRE NO	DATE RECEIVED	BRIEF DESCRIPTION OF SAFETY CONCERN	IMMEDIATE EVALUATION OF REPORTABILITY			CONTINUED EVALUATION BY	FINAL EVALUATION		DATE NRC NOTIFIED
			YES	POT.	NO		YES	NO	
60	10/8/82	DeLaval DG Governor Drive Couplings Mfg Deficiency			X	Bech Proj Eng		X	
61	10/8/82	Design Criteria for Dresser Main Steam Safety Valves			X	CPCo Design Production			
62	10/22/82	Improper Sizing of Cable					X		10/28/82
63	10/29/82	Paralleling of Emergency Diesel Generators			X	Bech Proj Eng		X	
64	11/5/82	Workmanship on (Vendor) DG Engine Control Panels			X	Bech Proj Eng	X		12/3/82
65	11/2/82	Circuit Board Plug-in Modules			X	CPCo Licensing		X	
66	11/15/82	Vendor Workmanship on Safeguard Cabinets (Electrical Circuitry)			X	Bech Proj Eng	X		12/3/82
67	11/18/82	Service Water Pump Grease Seals			X	Bech Proj Eng			
68	11/29/82	NCR M01-9-2-173 AFW PT Control Panels			X	Bech Proj Eng	X		12/3/82
69	12/1/82	Violation of 1" Separation between Conduit			X	Bech Proj Eng		X	
70	12/2/82	Emergency DG Exhaust System			X	Bech Proj Eng			
71	12/15/82	NCR M01-9-2-130 Flued Heads UT by Uncertified Personnel			X	REWhitaker		X	
72	12/17/82	Vaneaxial Fan Motor Grease Drains			X	Bech Proj Eng			
73	12/27/82	Discrepancies Between Unit 1 & 2 SG Feedline Valves			X	Bech Proj Eng		X	
74	12/30/82	Steam Line Break Analysis by B&W			X	B&W		X	
75	1/6/83	Qualification of Zack welding			X	Bech Proj Eng			
76	1/12/83	Routine Inspection of Operations Warehouse Inspection Practices			X	Mid Administrative		X	
77	1/28/83	ASME Class II Piping Installed In ASME Class I System (B&W)			X	Bech Proj Eng			
78	1/28/83	Raceway Supports Not In Accordance With Design Drawings			X	Bech Proj Eng		X	
79	2/4/83	Design Control of Turned Over System			X	DBMiller/ LHCurtis		X	
80	3/02/83	Exide Batteries Case Cracks Around Terminal Posts			X	Bech Proj Eng		X	





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# SAFETY CONCERN AND REPORTABILITY EVALUATION LOG

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SCRE NO	DATE RECEIVED	BRIEF DESCRIPTION OF SAFETY CONCERN	IMMEDIATE EVALUATION OF REPORTABILITY			CONTINUED EVALUATION BY	FINAL EVALUATION		DATE NRC NOTIFIED
			YES	POT.	NO		YES	NO	
81	3/31/83	Pipe Whip Restraints on NSSS Cold Leg Piping			X	Bechtel Proj Engineering		X	
82	3/2/83	CCW Temperature Bypass Valves			X	Bech Proj Eng			
83	4/6/83	Lower Thermal Shield Bolts In Core Support		X		Design Prod.	X		4/19/83
84	4/14/83	Control Room HVAC Air Handling Housings Leakage			X	Bechtel Proj Engineering		X	
85	2/11/83	Potential Problem Potentiometers Foxboro Circuit Modules		X		Bech Proj Eng			
86	5/5/83	Conduit Support Loading			X	Bech Site Mgr			
87	6/8/83	Power Supplies to FOGG Interlock Relays			X	CPCo Elec	X		6/22/83
88	6/13/83	Reactor Coolant Pump Seal Injection Temp Transient			X	B&W Lynchburg			
89	7/1/83	Foxboro Modules			X	Bech Proj Eng			
90	7/8/83	Throttling Valves			X	CPCo Eng (REMcCue)		X	
91	7/18/83	Redlined Drawings			X	Bech. Const			
92	8/1/83	Main Coolant Pump Seal Cartridge Assys			X	B&W			
93	8/11/83	Nonconformance Reports 24-hour Clock			X	CPCo MPQAD (never issued)			
94	8/19/83	SWPS Building Problem with Dewatering Wells			X			X	
95	9/1/83	Torquing Anchors after Grout Hardening			X	Bech Proj Eng			
96	9/6/83	J-401-4 Cat I Racks & Supports not to Spec.			X	Bech Proj Eng			
97	9/9/83	SS Pipe w/Rejectable Linear Indications			X	Bech Proj Eng			
98	9/9/83	Routing & Separation of Class IE Cables			X	Bech Proj Eng			
99	9/26/83	Retroactivity of Design Changes			X	Bech Proj Eng			
100	9/23/83	Env Qualif restriction-factory rework of cable			X	Bech Proj Eng	X		11/10/83



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# SAFETY CONCERN AND REPORTABILITY EVALUATION LOG

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SCRE NO	DATE RECEIVED	BRIEF DESCRIPTION OF SAFETY CONCERN	IMMEDIATE EVALUATION OF REPORTABILITY			CONTINUED EVALUATION BY	FINAL EVALUATION		DATE NRC NOTIFIED
			YES	POT.	NO		YES	NO	
101	10/7/83	Q Coating Verif on Carbon Steel Supports			X	EMHughes BPI		X	
102	10/25/83	Electrical Schematic F438			X			X	
103	11/14/83	Results of Investigation of Analysis of RPV Anchor Studs			X	EBPoser BPE			
104	11/28/83	Installation of BIW Cable in Q System			X	EBPoser BPE		X	
105	1/18/84	Safety-related installations using grouted anchor bolts			X	Bechtel Proj Engg			

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ENFORCEMENT HISTORY - MIDLAND 1 AND 2

<u>Report Number</u>	<u>Number of Noncompliances</u>	<u>Report Number</u>	<u>Number of Noncompliances</u>
70-1	0	74-1	1
70-2	0	74-2	0
70-3	0	74-3	0
70-4	0	74-4	1
70-5	0	74-5	0
70-6	4	74-6	0
71-1	0	74-7	0
71-2	0	74-8	0
	<u>4</u>	74-9	0
72-1	0	74-10	0
73-1	0	74-11	1
73-2	0		<u>3</u>
73-3	0	75-1	0
73-4	0	75-2	0
73-5	0	75-3	0
73-6	0	75-6	0
73-7	0	75-7	0
73-8	5	76-1	3
73-9	0	76-2	2
73-10	4	76-3	0
73-11	0	76-4	5 =
	<u>9</u>	76-5	0
Show Cause		76-6	0
Order Issued 12/3/73			<u>10</u>
		77-1	0
		77-2	1
		77-3	0
As of 8/24/76, nine stop-work		77-4	0
orders issued by CP.		77-5	0
			<u>1</u>
			(Total 27)

HQ's Notice of Violation

MIDLAND 1 AND 2

CHRONOLOGICAL LISTING OF QA/QC EMBEDMENT PROBLEMS

- 9/29-30 & Site Inspection conducted. Four nonconformances regarding:
- 10/1/70: (1) placement activities violated ACI Code, (2) lab not performing tests per PSAR, (3) sampling not per ASTM, and (4) QA/QC personnel did not act on deviations when identified. This was considered during hearings.
- 1971: In mothballs pending CP.
- 1972: In mothballs pending CP.
- 12/14/72: CP issued.  
(Calvert Cliffs impacted on CP issuance.)
- 9/73: Five nonconformance of Bechtel Ann Arbor activities.
- 11/73: Four separate criteria nonconformances with several examples of each, including cadweld splicing, storage of materials, identification of acceptance, and resulting records. Precipitated the Show Cause Order.
- 12/5/74: CP reported to RIII per 50.55(e) that rebar spacing out of specification 50 locations in Unit 2 containment (RIII Reports 75-01, 75-02, and 75-03).
- 3/5 & 10/75: CP reported to RIII that approximately 63 #6 rebar were either missing or misplaced in Auxiliary Building. (RIII Report 75-03.)
- 3/12/75: RIII held management meeting with CP (RIV letter to CP, dated April 16, 1975).
- 8/21/75: CP reported to RIII that 42 sets of #6 tie bars were missing in Auxiliary Building (RIII Report 75-07).

- 3/22/76: CP reported to RIII that approximately 32 #8 rebar were omitted in Auxiliary Building. A stop-work order was issued by CP (RIII Report 76-04).
- 3/26/76: RIII inspector requested CP to inform RIII when stop-work order to be lifted and to investigate the cause and the extent of the problem. Additional rebar problems identified during site inspection (RIII Report 76-04).
- 3/31/76: CP lifted the stop-work order.
- 4/19 thru 5/14/76: RIII performed in-depth QA inspection at Midland (RIII Report 76-04).
- 5/14/76: Discussed inspection findings with site personnel (RIII Report 76-04).
- 5/20/76: RIII management meeting with CP President, Vice President, and others.
- 6/7 & 8/76: RIII follow-up meeting with CP management and discussed the CP 21 correction commitments.
- 6/1-7/1/76: Overall rebar omission reviewed by R. E. Shewmaker (Report 76-05).
- 8/9 thru 9/9/76: Five-week, full-time onsite inspection conducted by RIII inspector (RIII Report 76-08).
- 2/28/77: Unit 2 bulge of containment liner discovered.
- 4/19/77: Tendon sheaths problem of Unit 1 was reported.

Inner Plate  
Rebar  
Tendon Sheathes  
Leg Guides  
Organization  
Vessel Support -

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MIDLAND UNITS 1 AND 2

Major Events Ladder

- December 5, 1974 - Rebar spacing nonconformance identified for Unit 2 containment by licensee.
- March 5 & 10, 1975 - Rebar deficiencies in Auxiliary Building identified by licensee; RIII accepts justification.
- April 9, 1975 - Bechtel engineering justification for rebar spacing in Unit 2 containment accepted by RIII. (Report No. 75-03.)
- April 16, 1975 - Meeting at Consumers Power Company Corporate office; Hunnicutt, Hayes, and LeDoux relative to rebar spacing in containment and missing rebar in Auxiliary Building.
- April 28, 1975 - Unit 2 containment rebar spacing reanalysis accepted.
- August 21, 1975 - RIII notified of rebar omitted in Auxiliary Building.
- May 4, 1976 - Bechtel conclusion, that missing rebar in Auxiliary Building will not affect integrity, referred to Headquarters; Hayes to Seyfrit.
- June 7 & 8, 1976 - Meeting, Consumers Power Company, Jackson; Keppler and others vs Selby and others relative to missing rebar in Auxiliary Building and QA deficiencies per Report No. 76-04.
- June 18 & 24, 1976 - Licensee letters of response committing to 21 items of corrective action in response to Report No. 76-04.
- June 25, 1976 - Keppler to Consumers Power Company; Immediate Action Letter per Jordan to Keppler memo 8/26/76.

- July 14, 1976 - IE concurred with the Bechtel conclusion regarding missing rebar in Auxiliary Building, Seyfrit to Hunnicutt.
- July 28, 1976 - PN-III-76-52 issued on concrete work stoppage due to further rebar placement errors found as a result of Consumers' overview program instigated in late June 1976.
- August 2, 1976 - Keppler letter to Headquarters recommending Headquarters' Notice of Violation be issued. Notice sent 8/13/76.
- October 29, 1976 - Consumers Power Company responded to Headquarters' Notice of Violations.
- November 30, 1976 - Hearings take place on environmental matters. Completed in January 1977.
- December 10, 1976 - Consumers Power Company's Midland QA Program accepted by NRR.
- \*July 1977 - Staff commenced responding on Consumers Power Company's Regulatory Guide use.
- February 26, 1977 - Bulge occurrence of Unit 2 containment liner discovered - reported on February 28, 1977.
- April 14, 1977 - Meeting, Ann Arbor, to review activities of bulged liner plate repair.
- April 19, 1977 - Tendon sheath omission of Unit 2 reported.
- April 29, 1977 - Immediate Action Letter issued relative to tendon sheath placement errors.

\*See backup information on Regulatory Guides.



- May 5, 1977 - Meeting, Consumers Power Company, Jackson; Keppler, Heishman, and Hayes relative to Immediate Action Letter discussion regarding tendon sheath problem.
- May 24 - 27, 1977 - Special QA inspection to determine adequacy of QA program implementation at Midland.
- June 30, 1977 - Meeting, Ann Arbor; R. F. Heishman and R. E. Shewmaker; release to proceed for tendon sheath omission and for bulge repair.
- August 1 - 5 & 8 - 9, 1977 - Site inspection to witness start of repairs for bulge liner and review records of completion of tendon sheath.
- August 12, 1977 - Final 50.55(e) report o tendon sheath.
- August 15, 1977 - Final report on liner plate repair.

REBAR OMISSION PROBLEM

Inspection Report File Information

- 12/5/74 - CP identified rebar spacing noncompliance for Unit 2 containment wall. Issued QF-36 and stop-work FSW-6 December 6, 1974. Inspection conducted on December 11 - 13, 1974. Inspection Report No. 74-11.
- 2/5-7/75 - Inspection Report No. 75-01  
More information requested for stress analysis for the rebar spacing of December 5, 1974. Tentative submittal March 15, 1975. NRC refuted existing analytical work.
- 2/26/75 - Inspection Report No. 75-02  
NRC reviewed stress analysis on rebar spacing nonconformance. NRC refuted (CP agreed with NRC) analysis. Another analysis report due March 28, 1975.
- 4/8-9/75 - Inspection Report No. 75-03  
NRC accepts Bechtel engineering justification. Resolves rebar spacing of December 5, 1974 for rebar in Unit 2 containment. Auxiliary Building rebar deviations - found by CP on March 5 and 10, 1975. NRC accepts the licensee computations.
- 10/23-24/75 - Inspection Report No. 75-07  
August 21, 1975, NRC notified of rebar not installed in Auxiliary Building. NRC accepts CP analysis.
- 4/19-21, 5/3, 6-7, 13-14, and 20, 6/7-8/76 - Inspection Report No. 76-04  
Bechtel concluded missing rebar in Auxiliary Building will not affect integrity. Referred to Headquarters.  
QA inspection: Licensee letter June 18, 1976; licensee letter June 24, 1976.  
Inspection Report No. 76-05 states revised and new work

procedures for concrete placement acceptable. Covered under licensee letter of June 24, 1976, under "Activities to be Completed Prior to Resumption of Q-Listed Concrete Placement."

6/24, 25, 30 and 7/1/76 - Inspection Report No. 76-05

IE:HQ did not identify any deficiency with Auxiliary Building rebar omissions.

Bechtel trend analysis not accepted by NRC - found acceptable in 76-09 dated November 1976. November 16-19, 1976, Bechtel trend analysis accepted by NRC.

8/9 - 9/9 and 23/76 - Inspection Report No. 76-08

Completes same licensee commitments from 76-04.

11/16-19/76 - Inspection Report No. 76-09

Inspector review of "Bechtel Trend Analysis" was found to be acceptable and considered resolved.

LETTER FILE

- 12/5/74 - CP quality assurance coordination found rebar spacing out of specification on containment wall of unit 2.
- 12/6/74 - Stop-work order issued by CP.
- 12/11-13/74 - Site inspection.
- 6/10/75 - Meeting by Mr. Yin with Mr. Slager, CP staff. Meeting held in RIII offices to review unresolved and/or open items from RIII inspection reports from 1970 to present.
- 11/18/75 - Meeting at Headquarters between RIII, IE, and CP to discuss implementation of Regulatory Guides 1.20, 1.26, 1.29, 1.46, 1.48, 1.67, and 1.72.
- 2/4/76 - Meeting scheduled for 2/4/76 between RIII, IE, and CP.  
Meeting to review noncompliance items and unresolved items identified during RIII inspection of 1/14-16/76.  
Infractions:  
1. No assurance temperature limits were exceeded on concrete pours.  
2. No measures to identify nonconforming aggregate.  
3. Nonconforming aggregate not disposed of as required.
- 2/4/76 - Meeting at CP corporate offices between CP, Hunnicutt, and Hayes. The meeting reviewed noncompliance and unresolved items from January 13-16, 1976 (Inspection Report No. 76-01). Meeting discussed effectiveness of QA/QC effectiveness. Licensee responded with letter of March 5, 1976.
- 4/28/75 - Memo of Yin to file. Yin review of BAPC report claims that rebar spacing problem in Unit 2 containment is considered resolved.  
March 5, 1975 } CP notifies NRC of missing rebar in  
March 10, 1975 } Auxiliary Building.

Letter April 16, 1975, Keppler-CP. Refers to meeting at CP corporate office with Hunnicutt, Hayes, and LeDoux. Meeting to discuss rebar spacing in Unit 2 containment and missing rebar in Auxiliary Building. CP committed to:

1. Complete safety evaluation and engineering review for rebar spacing discrepancy.
2. Continue review of safety implications and reportability considerations for missing rebar.
3. Complete formulation and implementation of corrective measures.

2/26/75 - Inspection at BAPC, Ann Arbor. NRC refuted analysis.

On April 28, 1975 (Yin memo) analysis accepted.

3/16-18, 24-26/76 - Inspection Report No. 76-02

Addresses continued rebar omission. Discussed with D. W.

Hayes on April 13, 1976. Report letter dated April 20, 1976.

Letter, March 5, 1976, CP-Keppler

Responds to citations of inspection of January 13-16, 1976.

Citation: Concrete temperature, aggregate control, and disposal of aggregate.

May 4, 1976, Memo Hayes to Seyfrit

Refers to Headquarters for review and evaluation of missing/misplaced rebar for periods of 2/76, 3/76, 10/74, 7/74 ----

May 20, 1976 - Scheduled meeting at Jackson CP corporate offices to discuss noncompliance of April 19 - May 20, 1976 inspection (Report No. 76-04).

- 6/8/76 - CP issued stop-work order for placement of safety-related concrete. Referenced in NRC letter (Keppler) to CP dated June 25, 1976.
- 6/18/76 - CP response letter to inspection findings of April-May 1976 (Inspection Report No. 76-04) 20 items.
- 6/24/76 - CP response letter relative to schedule for plan of action for items of June 18, 1976 CP letter.
- 6/25/76 - Letter, Keppler to CP. States resumption of concrete placement for safety-related structure will not start until certain items addressed in CP letter of June 24, 1976 are resolved. Memo, Jordan to Keppler, dated 8/26/76 refers to this as Immediate Action Letter.
- 7/14/76 - Memo, Seyfrit to Hunnicutt. Response to Hayes's memo of May 4, 1976, as a result of Yin-Shewmaker inspection of June 24 and 25, 1976. The strength considerations for missing/misplaced rebar is considered resolved.
- 7/27/76 - RIII informed by CP that:  
Concrete work stopped because of errors in placing rebar.  
PN-III-76-52 filed on July 28, 1976, states work stopped also in June 1976 and on three earlier occasions.  
Rebar placement error of July 1, 1976, was in Auxiliary Building.
- 8/2/76 - Keppler letter to Thompson recommending Headquarters' Notice of Violation. Notice sent August 13, 1976.

- 6/7 & 8/76 - (and May 20, 1976) meeting at CP corporate offices. Meeting involved Selby and other and Keppler and others.
- 10/18/76 - Hearing date set for November 15, 1976. Rescheduled later (11/18/76 to 11/30/76). Environmental.
- 8/13/76 - Notice of Violation issued to CP (Selby).
- 10/29/76 - CP response to Notice of Violation.
- 12/8/76 - Notice to resume Midland hearing on December 14, 1976.
- 12/16/76 - 50.55(e) on deformed (defective) component cooling water pump casings.
- 12/29/76 - Notice of resuming Midland hearing on January 8, 1977, in Chicago, Illinois.

REGULATORY GUIDES

Backup File - 1975

- 2/12/75 - J. G. Davis letter CP: acknowledge receipt of Consumers' report on reinforcing bar spacing (50.55(e)). Control No. H00419F3.
- 5/19/75 - Letter: S. H. Howell to A. Giambusso. First quarter '75 Financial Report. Page 3: QC/QA activities remain unchanged - curtailment of construction activities.
- 6/13/75 - NRC Schedule.
- 7/3/75 - Letter, R. C. Bauman (CP) to A. Schwencer. References meeting of June 24, 1975 between NRC and CP to discuss applicability of Regulatory Guides through Regulatory Guide 1.75 at Midland. List of Regulatory Guides having some disparity with Midland construction.
- 7/24/75 - Letter, Bauman to Giambusso. Refers to NRC-CP meeting of 7/22/75. Implementation of QA Regulatory Guides at Midland.
- 10/2/75 - Letter, Bauman to Boyd (NRC). Refers to tentative meeting on Materials Engineering Regulatory Guide 1.31. States Midland position.
- 10/14/75 - Letter, Cooke to Keppler, NRC Schedule.
- 11/14/75 - Letter, A. Schwencer to CP addressing additional loads on vessel support system. NRC investigating but indicate present design may be adequate.
- 11/7/75 - Letter, Bauman to NRR (Boyd). Midland position on Regulatory Guides 1.1, 1.4, 1.7, 1.13, 1.25, 1.42, 1.49, 1.52, 1.54, and 1.70.
- 11/14/75 - Letter, Cooke to Keppler. NRC Schedule.
- 11/19/75 - Letter, Schwencer to CP. NRC staff position on Regulatory Guide implementation at Midland. Refers CP letter of 9/11/75.



- 12/1/75 - Letter, Bauman to NRR (Boyd). Midland position and information to NRR on use of Regulatory Guides.
- 12/11/75 - Letter, Bauman to NRR (Boyd). Refers Schwencer's letter of 11/14/75. Supplies additional supporting information to vessel support system.
- 12/17/75 - Letter, Bauman to NRR (Boyd). Supplies additional information in response to Schwencer's letter of 11/19/75 on Regulatory Guide implementation and procurement status of plant components.
- 7/21/75 - Letter, Bauman to Schwencer (NRC). CP position on Regulatory Guide use. Refers to meeting of July 22, 1975.
- 8/8/75 - Letter, Howell to Giambusso. Financial status. No QC/QC changes. Indicates tentative change of personnel: Keeley as Midland Project Manager replaces Kessler; F. Southworth named Director of QA Services. Both effective August 1, 1975.
- 10/10/75 - Letter, Bauman to NRR (Boyd). Information on Midland Regulatory Guide positions. Refers to tentative Regulatory Guide meeting of 11/13/75.
- 10/15/75 - Letter, Bauman to NRR (Boyd). CP position on Regulatory Guide use at Midland.
- 11/10/75 - Letter, Howell to Giambusso. Financial report plus no change to QC/QA. Indicates construction escalation on January 1976.
- 1/13/76 - Letter, Schwencer to CP. Comments and request for information for use of Regulatory Guides at Midland. Refers letter, CP to NRR of 11/7/75.
- 1/13/76 - Letter, Schwencer to CP. Request for information on Regulatory Guide use at Midland. Refers to letter CP to NRR dated 10/10/75.

- 1/26/76 - Letter, Schwencer to CP. NRC comments and request for information on use of Regulatory Guides 1.26, 1.20, and 1.94.
- 2/3/76 - Letter, Bauman to NRR (Boyd). Supplies information requested in Schwencer's letter dated 12/23/75 pertaining to Regulatory Guide use - electrical engineering.
- 2/3/76 - Letter, Bauman to NRR (Boyd). Supplies information requested in Schwencer's letter dated 10/30/75 on use of Regulatory Guide 1.59.
- 2/3/76 - Letter, Bauman to NRR (Boyd). Responds to Schwencer's letter dated 1/13/76 and supplies additional information on use of Regulatory Guides.
- 2/5/76 - Letter, Bauman to NRR (Boyd). Responds to Schwencer's letter dated 1/26/76 requesting information on use of Regulatory Guides 1.26 and 1.29.
- 2/10/76 - Letter, Bauman to NRR (Boyd). Final response to Schwencer's letter dated 1/26/76 requesting information on use of Regulatory Guide 1.94.
- 3/23/76 - Letter, Kneil (NRC) to CP announcing meeting at RIII March 30, 1976, on Section V.B of Appendix I, 10 CFR 50. Also, letter, Kneil to CP dated 4/23/76. Also, letter, Kneil to CP dated 5/10/76. Also, letter, Howell to NRR dated 3/15/77.
- 3/2/76 - Letter, Howell to Rusche requesting relief from Quarterly Financial Reports established in Giambusso letter of September 13, 1974.
- 5/3/76 - Letter, Boyd to CP. Relieves CP of Quarterly Financial Report and conditions of Giambusso letter of September 13, 1974.

- 6/14/76 - Letter, Kneil to CP. Staff position on use of Regulatory Guides 1.10, 1.12, 1.15, 1.18, 1.19, 1.35, 1.60, 1.61, and 1.92. (Regulatory Guides 1.27, 1.55, and 1.59 excluded.) Refers to CP letters of 7/21/75, 8/19/75, 12/1/75, and 2/3/76.
- 7/14/76 - Letter, Vassallo (NRR) to CP. Letter requires CP do a reevaluation of vessel support systems for LOCA conditions.
- 10/8/76 - Letter, Varga to CP. Staff position on use of Regulatory Guides 1.28, 1.30, 1.37, 1.38, 1.39, 1.58, 1.64, 1.74, 1.88, and 1.94 covered in CP of October 15, 1975. Also, staff position on use of Regulatory Guides 1.54 and 1.55 covered in CP letters of November 7, 1975 and August 19, 1975.
- 10/8/76 - Letter, Varga to CP. Staff position - partial response to CP letter of October 10, 1975, for use of Regulatory Guides 1.20, 1.26, 1.29, 1.46, 1.48, and 1.67.
- 10/15/76 - Letter, Varga to CP. Staff position on use of Regulatory Guides 1.6, 1.9, 1.11, 1.22, 1.32, 1.40, 1.41, 1.45, 1.47, 1.53, 1.62, 1.63, 1.73, 1.75, and 1.81. Regulatory Guide 1.12 addressed in NRC letter of June 8, 1976. Refers to CP letters of July 21, 1975 and February 3, 1976.
- 10/12/76 - Letter, Varga to CP. Staff position on use of Regulatory Guides 1.1, 1.4, 1.7, 1.13, 1.25, 1.27, 1.42, 1.49, 1.52, and 1.59. (Excludes 1.54.) Refers to CP letters of August 19, 1975, November 7, 1975, and February 3, 1976. Staff position on Regulatory Guide 1.70 covered in NRC letter of June 2, 1976.

- 12/10/76 - Letter, Varga to CP accepts Midland Design and Construction QA Program (10 CFR 50, Appendix A). Submitted to NRC by CP on 11/9/76.
- 1/5/77 - Letter, Howell to Vassallio (NRR). Vessel support analysis due 4/77. References letters of NRR-CP; 7/14/76, and CP to NRR, 9/10/76.
- 3/15/77 - Letter, Howell to NRR (Boyd). Additional information on Appendix I. Refers to backup information on 3/23/76.
- 4/29/77 - Letter, Howell to Vassallio. Vessel support analysis due 7/77. Reference 1/5/77 and 6/8/77.
- 6/27/77 - Letter Howell to NRR (Boyd). Clarification of PSAR Amendment 32 dated 4/4/77. Electrical penetration information.
- 7/19/77 - Letter, Howell to NRR (Boyd). Addresses CP position on use of Regulatory Guides 1.10, 1.12, 1.15, 1.18, 1.19, 1.35, 1.57, 1.60, 1.61, 1.90, and 1.92. Refers NRC letter of 6/8/76. GIVES SUMMARY STATUS OF REGULATORY GUIDE USE FOR STRUCTURAL ENGINEERING.
- 7/19/77 - Letter, Howell to NRR (Boyd). Addresses CP position on use of Regulatory Guides 1.6, 1.9, 1.11, 1.22, 1.32, 1.40, 1.41, 1.45, 1.47, 1.53, 1.62, 1.63, 1.73, 1.75, and 1.81. Refers NRC letter of 9/29/76. GIVES SUMMARY STATUS FOR REGULATORY GUIDE USE FOR STRUCTURAL (ELECTRICAL) ENGINEERING.
- 7/28/77 - Letter, Howell to NRR (Boyd). Proposed FSAR Section 13.2 on Plant Staff Training for Cold Operator Training.

UNIT 2 LINER PLATE BULGE

- 2/26/77 - Bulge occurrence discovered at 11:00 p.m. (Report No. 50-330/77-02).
- 2/28/77 - 50.55(e) prompt report to RIII at 2:15 p.m.
- 3/16/77 - NRC letter with report to licensee with noncompliance regarding failure to report timely.
- 4/5/77 - Response letter. Commitment made to provide procedure "Reporting Deficiencies to NRC" No. 20-2, Revision No. 3, to prevent recurrence. Currently, Revision 3 still in review and modification stage.
- 3/23/77 - NRR representative visited site with inspector for damage briefing (50-330/77-04).
- 4/14/77 - Meeting at Ann Arbor to review actions of bulged plate removal and to review activities relative to proposed repair; D. W. Hayes and R. E. Shewmaker (77-06).
- 5/4/77 - Site visit for inspection of existing conditions of liner bulge area. D. W. Hayes and R. E. Shewmaker (50-330/77-07).
- 5/16/77 - Interim report issued per 50.55(e).
- 5/24-27/77-Special QA Program Inspection.
- 6/20/77 - Interim report issued per 50.55(e).
- 6/29-30/77-Site Inspection by R. E. Shewmaker (6/29/77) - (50-330/77-10).  
Meeting, Ann Arbor (6/30/77) R. E. Shewmaker and R. F. Heishman.  
Release for proceeding with repairs. Notify when start of repairs.
- 8/1-5 & - Site Inspection, T. E. Vandel. Witness start of repairs with  
8-9/77 first four-foot lift of liner plate installed and grouted.  
Satisfactory. (Report No. 50-330/77-11.)
- 8/15/77 - Final report issued per 50.55(e) in review by R. E. Shewmaker.  
Further site inspection planned later.

UNIT 1 TENDON SHEATH PROBLEM

4/19/77 - 50.55(e) prompt notification report to RIII made.

4/20/77 - PN-III-77-18 issued.

4/29/77 - Immediate Action Letter issued to CP. Six items of commitments:

1. Notify RIII prior to repairs or modifications. Complete (see Report No. 50-329/77-07).
2. Complete investigation of cause and implement C.A.  
Not complete, still in discussions with Bechtel regarding adequate performance.
3. Expand overview program - expanded program in process.
4. Notify NRC of placement errors for all embedments starting May 9 and for next 120 days. - 120 days completes on September 9; during that time seven separate items have been reported. See backup sheet A.
5. Review and revise QC inspection procedures. All Bechtel QCI's have undergone review. Revision in progress.
6. Training of QC engineers and field engineers expanded.  
Training program and retraining is underway.

5/5/77 - Meeting in Jackson with Keppler, Heishman, and Hayes.

5/19/77 - Interim report issued per 50.55(e).

5/24-27/77-Special QA Program Inspection. Five noncompliance items.

1. Bechtel: inadequate piping hanger support plate installation.  
Currently still open.
2. Bechtel: field engineers mark up installation drawings for hangers. Currently CA complete.
3. Consumers: audit report remain unissued (4). Currently CA complete.
4. Consumers: trends analysis procedure unimplemented. Currently CA complete.

5. Champion (Batch Plant): defective batch scale not tagged per procedure. Currently CA complete.

Additional CA for items 3 and 4. CP to reorganize and provide additional manpower. Currently new organization in effect and most all personnel additions completed in August to be reviewed further later. (See organization chart backup sheet B.)

6/27/77 - Interim report issued per 50.55(e).

6/29-30/77-Site Inspection by R. E. Shewmaker (6/29/77) - (50-329/77-07).

Meeting in Ann Arbor (6/30/77). R. E. Shewmaker and R. F. Heishman. Release for proceeding with repairs.

8/1-5 & - Site Inspection, T. E. Vandel. Report No. 50-329/77-08.

8-9/77 Complete record review of repairs to tendon sheaths. No problem areas identified. Installation was accomplished as proposed.

8/12/77 - Final report issued per 50.55(e). Review is completed and thank you letter states that we have no further questions.

BACKUP SHEET A

1. Tendon Sheathing, 5/19/77 *identified errors on*  
Vertical Sheaths - notified on 5/24/77 (NCR-803) C
2. D. W. Hayes - 6/22/77, 9 #11 bars missing (QF-169)
3. I. T. Yin - 7/15/77, 2 #11 bars missing (NCR-863)
4. D. W. Hayes - 7/28/77, 2 bars missing (QF-175) C
5. T. E. Vandell - 8/15/77, 8 #8 wall dowels missing (QF-176) C
6. D. W. Hayes - 8/16/77, 4 cut bars not replaced (NCR-898)
7. C. E. Jones - 8/17/77, pipe restraint controls omitted - reactor  
building (NCR-910)

*C = Complete*



(B)

QUALITY ASSURANCE -  
 PROJECTS, ENGINEERING & CONSTRUCTION  
 B. W. Marguglio, Director  
 J. M. Biels, Secy.

QUALITY ENGINEERING -  
 MIDLAND PROJECT  
 H. W. Slager (H)  
 H. W. Slager +  
 L. J. Bidol, Secy. +

INSPECTION, EXAMINATION &  
 TEST VERIFICATION-MIDLAND  
 M J. L. Corley (H)  
 M P. Golombek, Secy.

QUALITY ENGINEERING -  
 OTHER PROJECTS  
 P H. W. Slager (H)+  
 (Pending)  
 P L. J. Bidol, Secy. +  
 P D. A. Taggart (H)+  
 (Acting)  
 P D. A. Taggart +

INSPECTION, EXAMINATION &  
 TEST VERIFICATION-OTHER  
 P H. W. Slager (H)+  
 (Pending)  
 P D. A. Taggart +  
 (Acting)  
 C E. G. Adams  
 C J. M. Decker

AUDIT &  
 ADMINISTRATION  
 P J. H. McClure (H)  
 (Acting)  
 P D. D. Thorne,  
 Clerk  
 P G. M. Bell  
 P D. Jones  
 P P. E. Love  
 P O. E. Shaw

CIVIL  
 Vacancy  
 D. E. Horn (Acting) (S)  
 G. B. Johnson

M  
M  
M  
M  
M  
M

CIVIL  
 R. G. Wollney (S)  
 G. T. Black  
 D. A. Blumenthal\*  
 D. A. Deans\*  
 M. F. DeWitt  
 P. Kraus\*

ELECTRICAL/ELECTRONICS  
 D. H. Becker (S) (8/15)  
 P. W. Jacobsen

M

ELECTRICAL/ELECTRONICS  
 P. R. Kyner (S)  
 W. H. Benkert  
 D. Pomeroy\*

M  
M

FLUIDS & MECHANICAL  
 Vacancy  
 R. E. Whitaker  
 Vacancy

P  
M  
P

FLUIDS & MECHANICAL  
 D. R. Keating (S)  
 Vacancy  
 Vacancy  
 Vacancy\*  
 Vacancy\*

M  
M  
M  
M  
M

NONDESTRUCTIVE EXAMINATION  
 H. S. Garcha (8/22)  
 J. L. Wood

P  
P

RELIABILITY &  
 MAINTAINABILITY  
 Vacancy

P

M  
M  
M

NONDESTRUCTIVE  
 EXAMINATION  
 Vacancy  
 Vacancy  
 Vacancy\*

(H) = Section Head  
 (S) = Group Supervisor  
 P = Pennell Location  
 M = Midland Location  
 C = Campbell Location  
 \* = Contract Personnel  
 Date = Expected Report Date for New Hire  
 + = Dual Capacity

BACKUP SHEET B

Other Items

- A. May 27, 1977 - Final report per 50.55(e) regarding the surveillance specimen holder tubes (provided by B&W)  
Follow-up agreements were outlined in our letter of thanks dated June 21, 1977.
- B. May 27, 1977 - Final report per 50.55(e) regarding component cooling water pump casings.  
No comment by RIII, since casings have been rejected and will not be used for Midland.
- C. May 24, 1977 - PN-III-77-30, Industrial Accident - Death of Construction Worker (no repercussions)
- D. March 22, 1977 - Meeting in RIII offices with B. W. Marguglio, CP Director of Project Quality Assurance Services regarding contemplated independent inspection of NSSS installations.
- E. November 14, 1975 - Vessel support LOCA loading adequacy - question.  
Analysis is due July 1977 to NRR.

Inspect Report File 100

(1)

Rebar Omissions Problem

Dec 5, 1974 CP identified rebar spacing noncompliance for unit 2 containment wall Issued GF-36 & stop work FSW-6 Dec 6, 1974 Inspection conducted on Dec 11-13, 1974 Insp Rpt No. 74-11

Feb 5-7, 1975

Insp. Rpt 75-01

More info requested for stress analysis for the rebar spacing of Dec 5, 1974 Tentative submitted March 15, 1975 NRC refuted existing analytical work.

Feb 26, 1975

Insp Rpt. 75-02

NRC reviewed stress analysis on rebar spacing nonconformance. NRC refuted (CPCO agreed with NRC) analysis Another analysis report due March 28, 75

April 8-9, 1975

Insp. Rpt. 75-03

NRC accepts Bechtel engineering justification Resolves rebar spacing of Dec 5, 1974. for rebar in unit 2 containment.

\* Any building rebar deviations - found by CPCO on March 5+10, 1975  
NRC accepts the licensee computations

Inspection Report File

(2)

Rebar Omission

Oct 23-24, 1975

Insp Rpt 75-07

August 21, 1975, NRC notified of rebar  
not installed in aux. bldg.

NRC accepts CFCO analysis -

April 19-21, May 3, 6-7, 13-14, & 20, June 7-8, 1976

Insp Rpt 76-04

\* Bechtel concluded missing rebar in  
aux bldg will not affect integrity

Referred to HQ

June 24, 25, 30 & July 1, 1976

Insp Rpt 76-05

IE: HQ did not identify any deficiency  
with aux bldg rebar omission.

→ QA inspection

license ltr June 18, 1976

" " June 24, 1976

Insp Rpt 76-05 states revised & new  
work procedures for concrete placement  
acceptable. Covered under license

th of June 24, 1976 under "activities to  
be completed prior to resumption of Q'-tested  
concrete placement"

Bechtel Trend Analysis not accepted

by NRC - found acceptable in 76-07 dt Nov '76

→ Nov 16-19, 1976 Bechtel Trend Analysis  
accepted by NRC

Inspection Report File

3

## Rebar Omission

Aug 9 - Sept 23, 1976

Inspection Report 76-08

Completes some license commitments  
from 76-04,

Nov 16-19, 1976

Inspection Report No. 76-09

Inspector review of "Beckle Trend Analysis"  
was found to be acceptable and  
considered resolved.

①

## Letter File

December 5, 1974

CPCO quality assurance coordinator found rebar spacing out of specification on containment wall of Unit 2

December 6, 1974

Stop work order issued by CPCO

December 11-13, 1974 site inspection

June 10, 1975

Meeting by Mr. Yin with Mr. Slager, CPCO staff. Meeting held in R.III offices. Meeting to review unresolved and/or open items from R.III inspection reports from 1970 to present.

November 18, 1975

Meeting at HQ between R.III, HQ, & CPCO to discuss implementation of Regs. 1.20, 1.26, 1.29, 1.46, 1.48, 1.67, 1.72

Feb. 9, 1976

Meeting scheduled for 2/9/76 between R.III, HQ, + CPCO. Meeting to review noncompliance items and unresolved items identified during I.E.III inspection of Jan. 14-16, 1976.

Inspections:

- 1) No assurance temperature limits were exceeded on concrete pours
- 2) No measures to identify non-conforming aggregate
- 3) Nonconforming aggregate not disposed of as required

Letter File

February 4, 1976

Meeting at CFCO Corporate offices between CFCO, Hunnicutt and Hayes.

The meeting reviewed noncompliance & unresolved items from Jan 13-16, 1976 (Inst Rpt 76-01). Meeting discussed effectiveness of QA/QC effectiveness.

Response responded to March 5, 1976

April 28, 1975

Memo of 'Yis' to file.

'Yis' review of BAPC report claims that rebar spacing problem in Unit 2 containment is considered resolved.

March 5, 1975 > CFCO notify NRC of  
March 10, 1975 missing rebar in aux building.

Re April 16, 1975 Keppeler - CFCO Ref.

Ref to Meeting at CFCO Corporate office with Hunnicutt, Hayes & LeDoux  
Meeting to discuss: Rebar spacing in Unit 2 containment & missing rebar in aux bldg.

CFCO committed to:

- 1) complete safety evaluation & eng review for rebar spacing discrepancy
- 2) continue review of safety implications and reportability considerations for missing rebar
- 3) complete formulation and implementation of corrective measures

(2)

Letter file

Feb 26, 1975

Inspection at BAPC, Ann Arbor.

NRC refuted analysis

→ In April 28, 1975 - (Yin Memo) analysis accepted.

→ 1976

March 16-18 24-26, 1976 - Inspection 76-02

Addresses continued rebar omission

discussed with D. Hayes on April 13, 1976

Report ltr dtd April 20, 1976

Ltr March 5, 1976 CFCO - Keppeler

Responds to citations of inspection of

Jan 13-16, 1976

Citations: concrete temp

aggregate control

disposal of aggregate

May 4, 1976

Memo Hayes to Seifrit

Refer to HQ for review & evaluation of

missing / misplaced rebar for periods

of 2/76, 3/76 10/74, 7/74 ---

May 20, 1976

Scheduled meeting at Jackson CFCO

Corporate to discuss non compliance

of April 19 - May 20 inspection (76-04)



Letter File

June 8, 1976

CPCO issued stop work for placement of safety related concrete - referenced in NRC letter (Keppler) to CPCO dtd June 25, 1976

June 18, 1976

CPCO response <sup>ltr</sup> to Insp findings of April-May 1976. (Insp Rpt 76-04)  
20 items

June 24, 1976

CPCO response ltr relative to schedule for plan of action for items of June 18, 1976  
CPCO ltr.

June 25, 1976

ltr Keppler to CPCO  
States resumption of concrete placement for safety related structure will not start until certain items addressed in CPCO ltr of June 24, 1976 are resolved. Memo Jordan to Keppler, dtd 6/26/76 refers to this as immediate action letter

July 14, 1976

Memo Seybrit to Annunicutt  
Response to Hayes memo of May 4, 1976  
As result of Yin-Shewmaker inspection of June 24 & 25, 1976 The strength considerations for missing/misplaced rebar is considered resolved

Letter File

July 27, 1976

R: III informed by CPCO that:  
Concrete work stopped because of errors  
in placing rebar

PN-III-76-52 filed on July 28, 1976

States work stopped also on June 1976  
and on 3 earlier occasions

Rebar placement error of July 1976 was  
in our bldg.

Aug 2, 1976

Keppler th to Thompson recommending  
HQ notice of Violation - Notice sent 8/13/76

June 7+8 (and May 20) 1976 meeting

at CPCO corporate office

Meeting involved Selby + others

and Keppler + others

Oct 18, 1976

Hearing date set for Nov 16, 1976

Rescheduled later (11/8/76) to Nov 20, 1976  
Environmental

August 13, 1976

Notice of Violation issued to CPCO (Selby,

Oct. 29, 1976

CPCO response to Notice of Violation

(6)

Letter File

December 8, 1976

Notice to resume Midland hearing  
on Dec. 14, 76

Dec. 14, 1976

50.55(e) on deformed (defective)  
component cooling water pump casings

Dec 29, 1976

Notice of Resuming Midland Hearing  
on Jan 8, 77 in Chicago, Ill.

Feb 7, 1977

# Reg. Guides

(1)

## Back Up File - 1975

Feb 12, 1975 J.G. Davis ltr CFCO: Acknowledge  
(2/12/75) receipt of Consumer report on  
reinforcing bar spacing (SO.55C)  
Control No. H00 919F3

5/19/75 Ltr S.H. Howell to A. Giambusso  
First quarter '75 Financial Report.  
Page 3: QC/QA activities remain  
unchanged - curtailment of construction  
activities.

6/12/75 NRC Schedule

7/3/75 Ltr R.C. Bauman (CFCO) to A. Schwencer  
References meeting of June 29, 1975  
between NRC & CFCO to discuss  
applicability of Reg Guides through  
R.G. 1.75 at Midland.  
List of R.G's Midland subscribes to  
and those R.G's having some  
disparity with Midland construction

7/29/75 Ltr Bauman to Giambusso  
Refers to NRC - CFCO meeting of 7/22/75  
Implementation of QA Reg Guides at  
Midland

10/2/75 Ltr Bauman to Boyd (NRC)  
Refers to tentative meeting on  
Materials Eng. Reg Guide 1.31. States  
Midland Position.

Backup File - 1975

10/14/75 Ltr Cooke to Keppeler: NRC Schedule	
11/14/75 Ltr A. Schwencer to CPCO addressing additional loads on vessel support systems. NRC investigating but indicate present design may be adequate.	Ltr CPCO-NRR dtd 12/11/75 NRC-CPCO dtd 7/14/76 re-evaluate Ltr NRC-CPCO 6/25/76 Ltr CPCO-NRC dtd 9/10/76
* 11/7/75 Ltr Bannan to NRR (Boyd) Midland position on Reg Guide 1.1, 1.4, 1.7, 1.13, 1.25, 1.42, 1.49, 1.52, 1.59 + 1.70.	
11/4/75 Ltr Cooke to Keppeler NRC Schedule	
11/19/75 Ltr Schwencer to CPCO NRC Staff position on Reg Guide implementation at Midland. Refers CPCO Ltr of 9/11/75	Ltr CPCO-NRR dtd 12/17/75
12/1/75 Ltr Bannan to NRR (Boyd) Midland position + info to NRR on use of Reg Guides.	NRC-CPCO Ltr 6/14/76
12/11/75 Ltr Bannan to NRR (Boyd) Refers Schwencer's Ltr of 11/11/75 supplies additional supporting info to vessel support system.	NRR-CPCO dtd 11/14/75 NRC-CPCO 7/14/76 re-evaluation NRC-CPCO dtd 6/25/76 CPCO-NRC dtd 9/10/76

Backup File - 1975

12/17/75 Ltr. Bauman to NRR (Boyd)  
Supplies additional info in  
response to Schwencera ltr of 11/19/75  
on Reg Guide implementation and  
Procurement Status of Plant Components.

\* 7/21/75 Ltr Bauman to Schwencera (NRC)  
CPCs Position on Reg Guide use  
- refers to meeting of July 22, 1975

AIRC-CPCO  
dtd 6/14/76

\* 8/8/75 Ltr Howell to Giambusso  
Financial Status  
No QC/QA Changes. Indicates  
tentative change of personnel  
Keeley as Midland Project Manager  
Replaces Kessler  
F. Southworth named Director  
of QA Services  
Both effective Aug 1, 1975

\* 7/19/75 Ltr Bauman to NRR (Boyd)  
Info on Midland Reg. Guide  
Positions. Refers to tentative  
Reg. Guide meeting of 11/13/75

\* 10/15/75 Ltr Bauman to NRR (Boyd)  
CPCs Position on Reg Guide use at  
Midland

11/10/75 Ltr Howell to Giambusso -  
Financial Report plus No change to QC/QA  
Indicates construction escalation on  
- Trm 1976.

BACKUP 1976

<p>1/13/76 Ltr Schwencer to CPCo  Comments and request for info  for use of Reg Guides at Midland  Refers ltr CPCo to NRR of 11/7/75</p>	
<p>1/13/76 Ltr Schwencer to CPCo  Request for info on Reg Guide use  at Midland - Refers to ltr CPCo  to NRR dtd 10/10/75</p>	<p>CPCo - NRR  dtd 2/3/76</p>
<p>1/26/76 Ltr Schwencer to CPCo  NRC comments and request for  info on use of Reg Guide 1.26, 1.29  + 1.94.</p>	<p>CPCO - NRR  dtd 2/5/76  &amp; dtd 2/10/76</p>
<p>2/3/76 Ltr Bauman to NRR (Boyd)  Supplies info requested in  Schwencer's ltr dtd 12/23/75  pertaining to Reg Guide use - electrical  engineering.</p>	<p>NRC - CPCo  dtd 6/14/76</p>
<p>2/3/76 Ltr Bauman to NRR (Boyd)  Supplies info requested in  Schwencer's ltr dtd 10/30/75 re  use of Reg Guide 1.59.</p>	
<p>2/3/76 Ltr Bauman to NRR (Boyd)  Responds to Schwencer's ltr, dtd  1/13/76 and supplies additional  info on use of Reg Guides</p>	

BACKUP - 1976

2/5/76 Ltr Bauman to NRR (Boyd)  
Responds to Schwencers ltr dtd  
1/26/76 requesting info on  
use of Reg Guide 1.26 and 1.29

2/10/76 Ltr Bauman to NRR (Boyd)  
Final response to Schwencers  
ltr dtd 1/26/76 requesting  
info on use of Reg Guide 1.94

3/23/76 Ltr Kneil (NRC) to CPC - announcing  
meeting at Ro: III March 30, 1976 on  
Section V. B of Appendix I 10 CFR 50  
- also ltr Kneil to CPC dtd 4/23/76  
- also ltr Kneil to CPC dtd 5/10/76  
- also ltr Varga to CPC dtd 12/1/76  
- also ltr Howell to NRC dtd 5/15/76

3/2/76 Ltr Howell to Rusche requesting  
relief from Quarterly Financial  
Reports established in Guambasso  
ltr of Sept 13, 1974  
↳ ltr NRC-CPC  
dtd 5/3/76

5/3/76 Ltr Boyd to CPC -  
Relieves CPC of Quarterly Financial  
Report and conditions of Guambasso  
ltr of Sept. 13, 1974

6/14/76 Ltr Kneil to CPC  
Staff position on use of R.G. 1.10,  
1.12, 1.15, 1.18, 1.19, 1.35, 1.60, 1.61  
& 1.92. (R.G. 1.27, 1.55, 1.59 excluded)  
Refus CPC ltrs of 7/21/75, 8/19/75,  
12/1/75, + 2/3/76



BACKUP - 1976

7/14/76 Ltr Vassallo (NRR) to CPCO  
Ltr requires CPCO do a reevaluation  
of vessel support systems for  
LOCA conditions

10/3/76 Ltr Varga to CPCO  
Staff position on use of R.G's  
1.28, 1.30, 1.37, 1.38, 1.39, 1.58,  
1.64, 1.74, 1.88 & 1.94 covered  
in CPCO of Oct 15, 1975. also  
staff position on use of Reg Guide  
1.54 & 1.55 covered in CPCO  
Ltr of Nov 7, 1975 & Aug 19, 1975

10/8/76 Ltr Varga to CPCO  
Staff position - partial response  
to CPCO Ltr of Oct 10, 1975 - for  
use of R.G's 1.20, 1.26, 1.29, 1.46,  
1.48, & 1.67  
R.G 1.72 doesn't apply  
Refer CPCO Ltr of Oct 10, 1975,  
Feb 3, 1976, Feb 5, 1976 &  
HO meetings of Nov 18, 1975 &  
May 21, 1976

10/15/76 Ltr Varga to CPCO  
Staff position on use of R.G's  
1.6, 1.9, 1.11, 1.22, 1.32, 1.40, 1.41,  
1.45, 1.47, 1.53, 1.62, 1.63, 1.73,  
1.75 & 1.81. R.G 1.12 addressed in  
NRC Ltr of June 8, 1976  
Refer CPCO Ltr of July 21, 1975 & Feb 3, 1976

(4)

BACKUP - 1976

10/12/76 Ltr. Varga to CPCO

Staff position on use of R.G.'s

1.1, 1.4, 1.7, 1.13, 1.25, 1.27, 1.42,

1.49, 1.52 + 1.59. (Cycles 1.54)

Refer CPCO ltr Aug 19, 1975 + Nov 7, 1975 + Feb 3, 1976

Staff position on R.G. 1.70 covered  
in NRC ltr of June 2, 1976

12/10/76 - Ltr Varga to CPCO accepts

Midland Design + Construction

QA Program (10 CFR 50 Appendix A)

submitted to NRC by CPCO on 11/9/76

(1)

### BACKUP - 1977

1/5/77 Ltr Howell to Vassallo (NRR)  
 Vessel support analysis due 4/77  
 Ref ltr of NRR-CPCO-7/4/76 +  
 CPCO to NRR-9/10/76

3/15/77 Ltr Howell to NRR (Boyd)  
 Additional info on Appendix I  
 Refer Backup info on 3/22/76

4/29/77 Ltr Howell to Vassallo  
 Vessel support analysis due 7/77  
 Ref. 1/5/77  
 Ref 6/8/77

6/27/77 Ltr Howell to NRR (Boyd)  
 Clarification of PSAR Amend 32 dtd 4/4/77  
 re electrical penetration info.

7/19/77 Ltr Howell to NRR (Boyd)  
 Addresses CPCO Position on use of  
 Reg Guide 1.10, 1.12, 1.15, 1.18, 1.19,  
 1.35, 1.57, 1.60, 1.61, 1.90 & 1.92  
 Refers NRC ltr of 6/8/76  
 \* GIVES SUMMARY STATUS OF REG GUIDE  
 USE FOR STRUCTURAL ENGINEERING

7/19/77 Ltr Howell to NRR (Boyd)  
 Addresses CPCO Position on use of Reg Guides  
 1.6, 1.9, 1.11, 1.22, 1.32, 1.40, 1.41, 1.45,  
 1.47, 1.53, 1.62, 1.63, 1.73, 1.75 & 1.81  
 Refers NRC ltr of 9/29/76  
 \* GIVES SUMMARY STATUS FOR R.G. USE FOR  
 STRUCTURAL & (ELECTRICAL) ENGINEERING

17

BACKUP - 1977

7/28/77 Ltr Howell to NRR (Boyd)  
Proposed FSAR Sect. 13.2 on Plant  
Staff Training for Cold Operator Training

1

## Unit 2 Liner Plate Bulge

- Febr. 26, '77 - Bulge occurrence discovered @ 11:00pm  
(report 50-330/77-02)
- Febr. 28, '77 - 50.55(e) prompt report to R:III @ 2:15pm
- March 16, '77 - NRC letter w/report to licensee with  
Noncompliance regarding failure to report  
timely
- April 5, '77 - Response letter - Commitment made  
to provide procedure "Reporting  
Deficiencies to NRC" No. 20-2  
revision No. 3 to prevent recurrence  
Currently rev. 3 still in review  
and modification stage. -
- March 23, '77 - NRR representative visited site with  
inspector for damage briefing -  
(50-330/77-04)
- April 14, '77 - Meeting @ Ann Arbor to review  
actions of bulged plate removal  
and to review activities relative  
to proposed repair D.W. Hayes &  
R.E. Showmaker  
( /77-06
- May 4, '77 - Site visit for inspection of existing  
conditions of liner bulge area.  
D.W. Hayes R.E. Showmaker (50-330/77-0
- May 16, '77 - Interim report issued per 50.55(e)
- May 24-27, '77 - Special QA Program Inspection

June 28, '77

Interim report issued per SO.55(e) 2

June 29-30, '77

Site Inspection by R.E. Shewmaker  
(6-29-77) SO-330/77-10

Meeting Ann Arbor (6-30-77)

R.E. Shewmaker & R.F. Heisaman  
release for proceeding w/  
repairs - Notify when start  
repairs -

Aug. 1-5 & 8-9, '77

Site Inspection TEV  
witness start of repairs  
with 1st 4 ft. lift of  
liner plate installed and  
grouted. Satisfactory  
(report SO-330/77-11)

Aug. 15, '77

Final report issued per  
SO.55(e) in review by  
R.E. Shewmaker - ~~SO.55(e)~~

Further site inspection planned  
later, -

Unit 1 Tendon Sheath Problem

Apr 19, '77

50.55(e) prompt notification report to R:III made

Apr 30, '77

PN-III-77-18 issued

May 29, '77

Immediate Action Letter issued to CP.

Six items of Commitments

1. Notify R:III prior to repairs or mends.  
Complete (see Unit 50:22/77-07)
2. Complete investigation of cause and implement C.A. -  
Not complete, still in discussions with Bechtel regarding adequate performance
3. expand overview program -  
expanded program in-process
4. Notify NRC of placement errors for all embedments starting May 9 and for next 120 days, -  
120 days completes on Sept. 9 during that time seven separate items have been reported see back up sheet A.
5. Review <sup>QC</sup> insp. procedures  
All Bechtel QCI's have undergone review, revision in progress
6. Training of QC Engrs. & Field Engrs.  
expanded training program and retraining is under way.

(2)

Meeting in Jackson w/ Koppke,  
Heishman, Hayes

7  
Interim report issued per 50.55(e)

7, '77

Special QA Program Insp.

5 noncompliance items

1 - Beditel: inadequate piping hanger  
support plate installation -  
currently still open

2 - Beditel: Field Engrs. work  
up installation dwgs. for  
hangers. -  
Currently CA complete

3 - Consumers: Audit reports  
remain unissued (4) -  
Currently CA complete

4 - Consumers: Trends Analysis  
procedure now implemented -  
currently CA complete

5 - Champion (Batch Plant): Batch  
batch scale not tagged per  
procedure -  
currently CA complete

Additional CA for items 3 & 4  
C.P. to reorganize and provide  
additional manpower. -

Currently new Org. in effect  
and most all ~~people~~ personnel  
additions completed in August  
to be reviewed further later  
(see Org. Chart back up sheet)

77

Interim report issued per 50.55(e)

29-30, '77

Site Insp. by R.E. Shewmaker  
(6-29-77) 50-329/77-07  
(relates to present yr.)



(3)

Meeting in Ann Arbor (6-20-77)  
R.E. Shewmaker & R.F. Heisler  
release for proceeding w/  
repairs.

Aug. 1-5 & 8-9, '77

site inspections T.E.V.  
report 50-329/77-08  
complete record review of  
~~the~~ repairs to kitchen  
shelters. - No problem  
areas identified - installation  
was accomplished as per

Aug. 12, '77

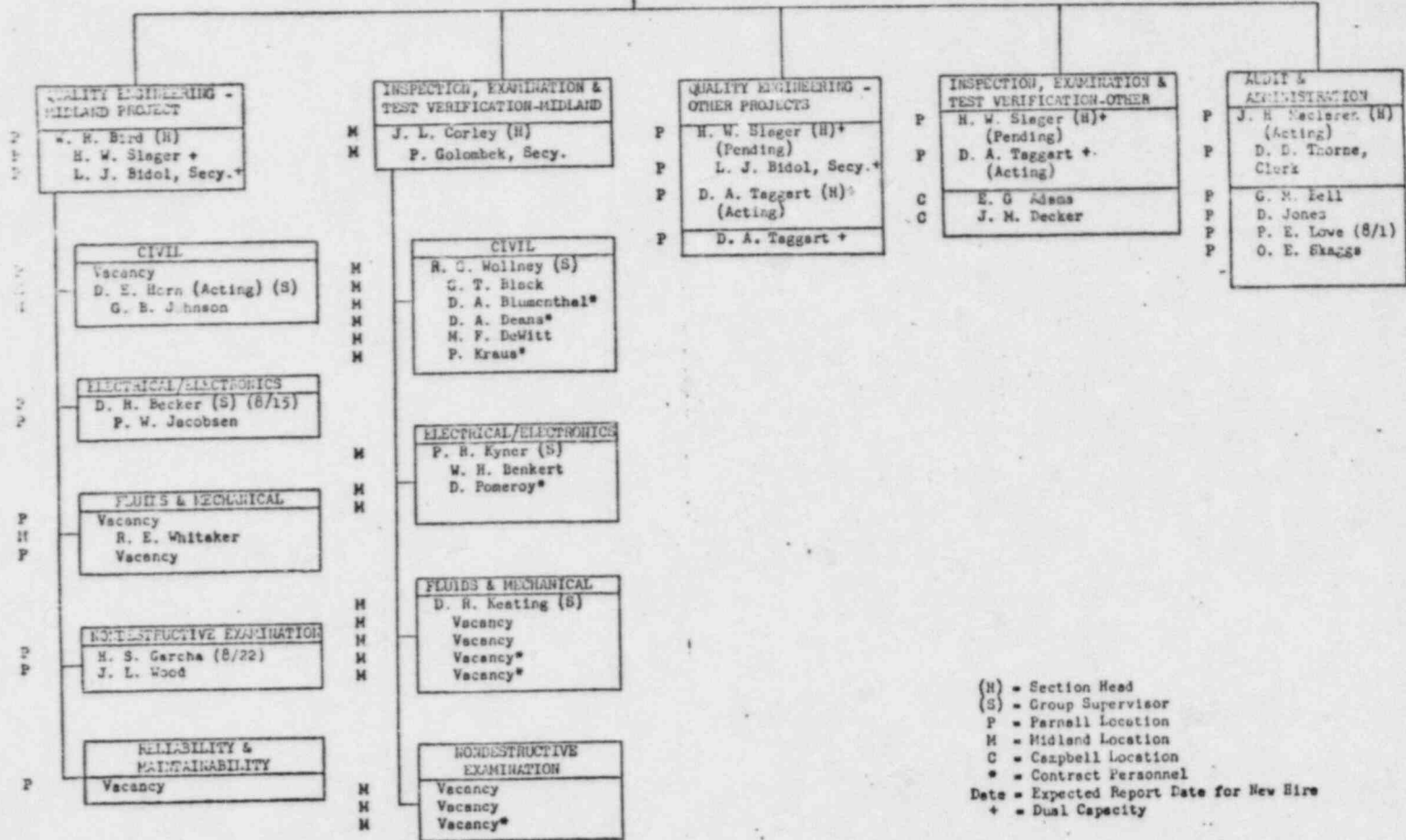
Final report issued per  
50.55(e) review is completed  
and thank you letter states  
that we have no further  
questions.

(A)

1. Tendon Sheathing 5-17-77  
Vertical sheaths. notified on 5-24-77  
(NCR 803) c
2. DWH = 6-22-77 9 #11 bars missing  
(~~QF~~ QF-169)
3.  $\frac{1}{2}$ " 7-15-77 2 #11 bars missing  
(NCR 863)
4. DWH 7-28-77 2 bars missing  
(QF-175) c
5. TZV 8-15-77 8 #8 Wall Dowels  
missing, -  
(QF-176) c
6. DWH 8-16-77 4 cut bars not  
replaced  
(NCR 898)
7. Cecil Jones 8-17-77 Pipe restraint embed.  
reactor bldg. - omitted  
(NCR-910)

(8)

QUALITY ASSURANCE -  
PROJECTS, ENGINEERING & CONSTRUCTION  
E. W. Murgoglio, Director  
J. M. Biele, Secy.



## Other Items.

~~June 21, 1977~~

A. May 27, '77 final report per 50.55(e)  
regarding the  
Surveillance specimen holder tube  
(provided by B & W)

Followup agreements were outlined  
in our letter of thanks dated  
June 21, 1977.

B. May 27, 1977 final report per 50.55(e)  
regarding component  
cooling water pump casings

No comment by R:III since  
casings have been rejected and  
will not be used for Midland

C. May 24, '77 PN-III-77-30 Industrial  
Accident - Death of Construction  
Worker (No inspections)

D. March 22, '77 Meeting in R:III  
offices w/ B.W. Marquello  
CP Director of Project Quality  
Assurance Services re:  
contingent ~~the~~ independent  
inspection of NSSS installation

Analysis is due 7-77  
to NRR.

E. 11-14-75 Vessel support LOCA loading

MIDLAND UNITS 1 AND 2

Major Events Ladder

- December 5, 1974 - Rebar spacing nonconformance identified for Unit 2 containment by licensee.
- March 5 & 10, 1975 - Rebar deficiencies in Auxiliary Building identified by licensee; RIII accepts justification.
- April 9, 1975 - Bechtel engineering justification for rebar spacing in Unit 2 containment accepted by RIII.
- April 16, 1975 - Meeting at Consumers Power Company, Hunnicutt, Hayes, and LeDoux.
- August 21, 1975 - RIII notified of rebar omitted in Auxiliary Building; RIII accepts engineering justification.
- April 28, 1975 - Unit 2 containment rebar spacing reanalysis accepted.
- May 4, 1976 - Bechtel conclusion, that missing rebar in Auxiliary Building will not affect integrity, referred to Headquarters; Hayes to Seyfrit.
- June 7 & 8, 1976 - Meeting, Consumers Power Company, Jackson; Keppler vs Selby and others.
- June 18 & 24, 1976 - Licensee letters of response committing to 21 items of corrective action in response to report 76-04.
- June 25, 1976 - Keppler to Consumers Power Company; Immediate Action Letter per Jordan to Keppler memo 8/26/76.
- July 14, 1976 - IE concurred with the Bechtel conclusion regarding missing rebar in Auxiliary Building, Seyfrit to Hunnicutt.
- July 28, 1976 - PN-III-76-52 issued on concrete work stoppage due to further rebar placement errors found as a result of Consumers' overview program instigated in late June 1976.

- August 2, 1976 - Keppler letter to Headquarters recommending Headquarters' Notice of Violation be issued. Notice sent 8/13/77.
- October 29, 1976 - Consumers Power Company responded to Headquarters' Notice of Violations.
- November 30, 1976 - Hearings take place on environmental matters. Completed in January 1977.
- December 10, 1976 - Consumers Power Company's Midland QA Program accepted by NRR.
- December 16, 1976 - 50.55(e) notice of component cooling water pump casings.
- \*July 1977 - Staff commenced responding on Consumers Power Company's Regulatory Guide use.
- February 26, 1977 - Bulge occurrence of Unit 2 containment liner discovered - reported on February 28, 1977.
- April 14, 1977 - Meeting, Ann Arbor, to review activities of bulged liner plate repair.
- April 19, 1977 - Tendon sheath omission of Unit 2 reported.
- April 29, 1977 - Immediate Action Letter issued.
- May 5, 1977 - Meeting, Consumers Power Company, Jackson; Keppler, Heishman, and Hayes.
- May 24 - 27, 1977 - Special QA inspection.
- May 24, 1977 - PN-III-77-30 issued on industrial accident death.
- May 27, 1977 - Final 50.55(e) reports for: (1) surveillance specimen tube holder, and (2) component cooling pump casings.
- June 30, 1977 - Meeting, Ann Arbor; R. F. Heishman and R. E. Shewmaker; release to proceed for tendon sheath omission and for bulge repair.

August 1-5 & 8-9, 1977 - Site inspection to witness start of repairs for bulge liner and review records of completion of tendon sheath.

August 12, 1977 - Final 50.55(e) report on tendon sheath.

August 15, 1977 - Final report on liner plate repair.

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Midland Units Leg 2  
Major Events Log

I

- Dec. 5, '74 Rebar spacing nonconformance identified for unit 2 containment by licensee
- March 5 & 10, '75 Rebar deficiencies in Auxiliary building identified by licensee R:III accepts justification
- April 9, '75 Bechtel engineering justification for rebar spacing in Unit 2 containment accepted by R:II
- April 16, '75 Mtg. @ CP ~~Kepler~~ Hunnicutt Hayes LeDoux
- April 21, '75 R:III notified of rebar omitted in Aux. bldg. R:III accepts engineering justification
- April 28, '75 Unit 2 Containment rebar spacing reanalysis accepted
- May 4, '76 Bechtel conclusion, that missing rebar in aux. bldg. will not affect integrity, referred to IE:HQ. Hayes to Seifert
- May 20, '76 Mtg. CP Jackson Kepler Hunnicutt
- June 18, '76 Licensee letters of response committing
- June 24, '76 21 items of corrective action in response to report 76-04 to Kepler to CPCo. Immediate Action Letter <sup>transmission to IE:HQ</sup>
- June 25, '76 IE:HQ concurred with the Bechtel conclusion regarding missing rebar in aux. bldg. Seifert to Hunnicutt
- July 28, '76 PN-III-26-52 issued on concrete work stoppage due to further rebar placement errors found as result of CP exercise program instigated in late June '76, -
- June 7 & 8, '76 Mtg. CPCo. Jackson Kepler & Selby
- Aug 2, '76 Kepler letter to IE:HQs. recommending HQs notice of violation be issued  
Notice sent 8-11-77

Oct. 29, '76 CP Co. responded to Hqs. Notice of Violations. —

~~Nov. 30, '76~~ Hearings take place on Environmental matters. — Completed in Jan '77.

Dec. 16, '76 50,55(e) notice of Complaint Cooling water pump bearings. —

Dec. 10, '76 CP Co. midland QA program accepted by NRR. —

\* July '77 Staff <sup>was</sup> ~~was~~ <sup>successful</sup> regarding our PPLC req guide work.

Feb. 26, '77 Bulge occurrence of Unit 2 containment liner discovered. — reported on Feb. 28, '77

April 14, '77 Mtg. Ann Arbor to review details of bulged liner plate repair

April 19, '77 Tenkon sheath commission of Unit 2 reported.

April 29, '77 Immediate Action letter issued

May 5, '77 Mtg. CP Co Jackson Kopple, Hickman Hayes.

May 24-27, '77 Special QA Inspection

May 24, '77

PN-III - 77-30 issued on Indusian  
Accident death

May 27, '77

Final 50.55(e) reports for  
(1) Surveillance specimen tube holder  
(2) Component cooling pump casing

June 30, '77

Mtg. Ann Arbor R. F. Heishman  
L. E. Shewmaker release to proceed  
for tendon sheath emission and for  
bulge repair

Aug. 1-5 & 8-9, '77

Site inspection to witness  
start of repairs for bulge liner  
and review records of completion  
of tendon sheath

Aug. 12, '77

Final 50.55(e) report on tendon  
sheath

Aug. 15, '77

Final report on liner plate repair

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

17 1984

133

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

MEMORANDUM FOR: The Atomic Safety and Licensing Board for  
Midland Plant, Units 1 and 2  
(C. Bechhoefer, J. Harbour, F. Cowan)

FROM: Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

SUBJECT: SUPPLEMENTAL BOARD NOTIFICATION REGARDING MIDLAND  
DIESEL GENERATOR BUILDING (BN 84-010)

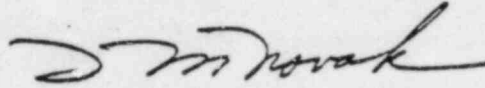
This Notification is provided in accordance with NRC procedures regarding Board Notifications and is deemed to provide information material and relevant to safety issues in the Midland OM/OL proceeding. The appropriate Boards and parties are being informed by copy of this memorandum.

On December 2, 1983, the NRC staff sent this Licensing Board a supplemental Board Notification (83-185) regarding the Midland diesel generator building which contained geotechnical engineering review comments on the Applicant's proposed findings, Corps of Engineers memoranda on the diesel generator building, comments by Joseph Kane on the October 21, 1983 task group report and an evaluation by Frank Rinaldi of evidence on the diesel generator building.

We enclose a document entitled "Meeting Notes" by John P. Matra, Jr., of the Naval Surface Weapons Center, a staff consultant. The document responds to concerns expressed by Joseph Kane contained in the information sent to the Board on December 2, 1983. We wish to emphasize that the staff's review of the Task Force report is on going and the views expressed in the December 2, 1983 Board Notification and in the enclosed document are preliminary.

The NRC staff's re-examination is also proceeding with the benefit of a recent report by the TERA Corporation entitled "Structural Evaluation of the Diesel Generator Building". That report provides an assessment of the structural performance capability and serviceability as potentially affected by settlement-induced cracking. The report was performed in accordance with TERA's Independent Design and Construction Verification Program as part of their broader assessment of the diesel generator standby electric power system. Copies were forwarded to this Licensing Board and hearing parties under TERA's cover letter dated January 4, 1984.

During the evidentiary hearing on December 3, 1983, this Board stated that it would postpone its decision on reopening the record with respect to the diesel generator building pending receipt of further information from the staff (Tr. 22,687). As soon as that information is available we will forward it to the Board.



Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

Enclosure:  
J. Matra Meeting Notes  
SECY(2)  
OPE  
OGC  
EDO

## MEETING NOTES

ATTENDEES: Joe Kane  
Chen P. Tan  
John P. Matra Jr.  
Bill Paton (Came in near end of discussion)

Talked to Joe Kane - Started by telling Joe that the total completed structure has never nor will ever undergo the predicted differential settlement. In my analyses I have agreed only for academic purposes to place the measured and or predicted settlement values on the Diesel Generator Building (DGB) to determine the stresses in the structure under these conditions if they ever existed. Pointed out that as the analyses was performed, reinforced concrete that has not been installed (for the complete time period) would be subjected to stresses resulting from the settlement values of earlier time periods. The structure stiffnesses are also changing with each pouring of a new slab of concrete. To correct this a lot more (>100) analyses steps need to be performed. It was also concluded that though it is possible to perform a finite element analyses of the DGB using as input the measured settlement data, a lot more measured settlement data points as well as finer construction details and material property data is required before an accurate analyses can be made. It was stated that rarely any building is designed in partial stages of construction and to impose these measured deflection for each of the stages of construction as was done; is not only unheard of, but can lead to large fictitious errors.

Because of the rigidity of the structure it required hypothetical, imaginary forces to deform the structure to match the nominal measured values. I stated that for this to happen, certain areas of the soil would have to be pulling the structure down to make the model exactly fit the measured values, which is a physical impossibility.

It was for these reasons that I could not put any credence to these analyses, but will still discussed the analyses with him.

The discussion then turned to Joe Kanes concerns. Joe stated that his comparison of my results and crack mapping records indicated that the calculated high stresses at most locations of structure and cracks locations were in good agreement. However, I stated, that the analyses also showed that other areas of the DGB still have high stress and in all probability should also be cracked (in the conclusion of my report) but no cracks were observed in these areas. Again I pointed out to him that the construction time frame, crack mapping survey time frame as well as the analyses time frame, must be the same before any comparisons or results of the analyses can be concluded. You can not have the building being constructed to a given elevation (therefore time frame), the analyses done at the end of the time frame and the crack mapping survey done at a later time frame and expect to get good correlation between analytical and actual results.

Joe then mentioned that one of the reasons that I got tension in the soil is the fact that I did not include the surcharge load in the analysis. I told him that the way I ran the analysis, I do not have to put the surcharge as a load on the model. What I do is pull the structure down (deform the



structure) to the measured and/or predicted, deflection and the program calculates the stresses. The density of the material therefore the weight of the structure is included. To account for the surcharge only a change in density is required and the program will do the rest. I also told Joe that this tension force also exist after the surcharge is removed how do you explain this? He stated that after the structure is deformed it stays deformed and does not completely bounce back and therefore, some form of load still exist in structure. I told him I just don't see how this effect can cause the amount of residual load required to keep the structure in equilibrium. Once you remove the surcharge I continued; this load is gone-you may have some residual stress-though this is small and will never equal the large tensil force that must exist to pull the structure down-still a physical impossibility.

The discussion then went back to the crack map comparison with the analytical results. Again I reiterated my concerns with using the analysis this way and we again reached an impasse.

About this time Bill Paton entered the room, I tried to explain to Bill our problem-but before this was done-discussion broke up-with no satisfication as far as Joe Kane was concerned. Since I only pointed out the highest stresses in each wall, I told Joe-if I get a chance I will show the high stresses in other parts of the wall further justifying my conclusion-thus the discussion ended.

MIDLAND (For BNs)

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

cc: Stewart H. Freeman  
Assistant Attorney General  
State of Michigan Environmental  
Protection Division  
720 Law Building  
Lansing, Michigan 48913

Ms. Julie Morrison  
Midland Daily News  
124 McDonald Street  
Midland, Michigan 48640

Mr. R. B. Borsum  
Nuclear Power Generation Division  
Babcock & Wilcox  
7910 Woodmont Avenue, Suite 220  
Bethesda, Maryland 20814

Mr. Don van Farrowe, Chief  
Division of Radiological Health  
Department of Public Health  
P. O. Box 33035  
Lansing, Michigan 48909

U.S. Nuclear Regulatory Commission  
Resident Inspector's Office  
Route 7  
Midland, Michigan 48640

Mr. Paul A. Perry, Secretary  
Consumers Power Company  
212 W. Michigan Avenue  
Jackson, Michigan 49201

Mr. Walt Apley  
c/o Mr. Max Clausen  
Battelle Pacific North West Labs  
Battelle Blvd.  
SIGMA IV Building  
Richland, Washington 99352

James G. Keppler, Regional  
Administrator  
U.S. Nuclear Regulatory Commission,  
Region III  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Mr. Ron Callen  
Michigan Public Service Commission  
6545 Mercantile Way  
Lansing, Michigan 48909

Geotechnical Engineers, Inc.  
ATTN: Dr. Steven J. Poulos  
1017 Main Street  
Winchester, Massachusetts 01890

Billie Pirner Garde  
Director, Citizens Clinic  
for Accountable Government  
Government Accountability Project  
Institute for Policy Studies  
1901 Que Street, N.W.  
Washington, D. C. 20009

Commander, Naval Surface Weapons Ctr.  
ATTN: P. C. Huang  
White Oak  
Silver Spring, Maryland 20910

Mr. L. J. Auge, Manager  
Facility Design Engineering  
Energy Technology Engineering Center  
P. O. Box 1449  
Canoga Park, California 91304

Mr. Neil Gehring  
U.S. Corps of Engineers  
NCEED - T  
7th Floor  
477 Michigan Avenue  
Detroit, Michigan 48226

Mr. J. W. Cook

- 2 -

cc: Mr. I. Charak, Manager  
NRC Assistance Project  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

ATTN: Clyde Herrick  
Franklin Research Center  
20th & Race Streets  
Philadelphia, Pennsylvania 19103

Mr. Patrick Bassett  
Energy Division  
Norwest Bank Minneapolis, N.A.  
8th and Marquette  
Minneapolis, Minnesota 55479

DISTRIBUTION LIST FOR BOARD NOTIFICATION

Midland Units 1&2,  
Docket Nos. 50-329/330

Charles Bechhoefer, Esq.  
Ms. Lynne Bernabei  
James E. Brunner, Esq.  
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Mr. Ronald C. Callen  
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Frederick C. Williams, Esq.

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

November 21, 1983

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

MEMORANDUM FOR: The Atomic Safety and Licensing Board for  
the Midland Plant, Units 1 and 2

FROM: Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

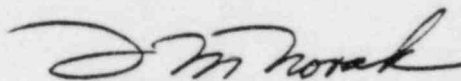
SUBJECT: BOARD NOTIFICATION REGARDING MIDLAND AUXILIARY  
BUILDING UNDERPINNING (BN 83-174)

This Notification is provided in accordance with NRC procedures regarding Board Notifications and is deemed to provide new information material and relevant to safety issues in the OM-OL proceeding. On September 14 and 15, 1983, the NRC and its consultants audited revised calculations for the design adequacy of the Midland Auxiliary Building reflecting the results of an underpinning pier load test. The test results had indicated that the soil modulus for the base of the underpinning should be 1500 KSF rather than the 3000 KSF used in the original analysis; thus, Bechtel revised its structural analysis using  $\frac{1}{2}$ " of settlement rather than  $\frac{1}{4}$ ". The audit meeting was summarized by R. Warnick's letter of October 5, 1983, and copies were provided to the ASLB and hearing parties. During the course of this audit, the NRC received additional information which calls into question the validity of the assumptions upon which the staff's acceptance of the underpinning design was based. The additional information is reflected in paragraphs d, e and g of R. W. Warnick's memorandum of October 11, 1983 (Enclosure 1). The information concerns (1) the manner in which differential settlement has been applied in the applicant's structural stress calculations, (2) the absence of limits for upward movement of the structure during jacking operations, (3) the acceptability of the actual measured upward movement due to jacking, and (4) the extent to which settlement stresses can be jacked out of the completed structure.

Paragraph d of Enclosure 1 notes that the stress calculations for  $\frac{1}{4}$ " of differential settlement at the southern edge of the Control Tower results from a settlement gradient that begins at the center of the main Auxiliary Building, rather than a point at the northern edge of the Control Tower. Application of the  $\frac{1}{4}$ " gradient over this longer distance is inconsistent and non conservative with respect to the prior review performed by the staff which led to acceptance of the  $\frac{1}{4}$ " differential settlement in Supplement 2 to the SER, page 2-40. The staff is presently evaluating the effects of this recent information and believes a solution can be reached by establishing a future differential settlement limit in the Technical Specifications that will be based on field monitoring records. The limit to be established will assure the integrity of the involved structures.

Paragraphs e and g of Enclosure 1 call into question 1) what should be the upward movements of the structures during jacking operations and 2) whether or not the stresses due to settlements prior to and during underpinning construction can be completely jacked out of the completed structure. With respect to the upward movements, the staff understands that the east EPA has been jacked to 91 mils of upward movement and the west EPA has been jacked to 70 mils. Upward movement in excess of 30 mils has not been reviewed by the staff. On the issue of stresses due to settlement, and underpinning operations, the allowable jacking loads are limited by a concern for redistribution of stresses following upward movement of the structures. The applicant's analysis, relied upon by the staff, assumed no significant residual stress due to earlier settlements for the completed underpinned structure and, therefore, may not be sufficiently conservative. We understand that Region III has verbally imposed a hold on further jacking in excess of that previously reviewed by the NRC staff pending establishment of allowable jacking limits.

The issues associated with this and other information from the September design audit are presently being reviewed by NRR in accordance with R. Warnick's request by Enclosure 1. The staff's response to Enclosure 1, once available, will be provided to the Board.



Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

Attachment:

R. Warnick memo dated October 11,  
1983.

cc: See next page

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Midland Units 1&2,  
Docket Nos. 50-329/330

Charles Bechhoefer, Esq.  
Ms. Lynne Bernabei  
Lee L. Bishop, Esq.  
James E. Brunner, Esq.  
Dr. John H. Buck  
Myron M. Cherry, P.C.  
Dr. Frederick P. Cowan  
T. J. Creswell  
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Mr. Wayne Hearn  
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Christine N. Kohl, Esq.  
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Ms. Mary Sinclair  
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Dr. Chester P. Siess  
Mr. David A. Ward

Atomic Safety and Licensing  
Board Panel  
Atomic Safety and Licensing  
Appeal Panel  
Docketing and Service Section  
Document Management Branch

MIDLAND (For BNs)

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

cc: Stewart H. Freeman  
Assistant Attorney General  
State of Michigan Environmental  
Protection Division  
720 Law Building  
Lansing, Michigan 48913

Mr. Paul Rau  
Midland Daily News  
124 McDonald Street  
Midland, Michigan 48640

Mr. R. B. Borsum  
Nuclear Power Generation Division  
Babcock & Wilcox  
7910 Woodmont Avenue, Suite 220  
Bethesda, Maryland 20814

Mr. Don van Farrowe, Chief  
Division of Radiological Health  
Department of Public Health  
P.O. Box 33035  
Lansing, Michigan 48909

U.S. Nuclear Regulatory Commission  
Resident Inspectors Office  
Route 7  
Midland, Michigan 48640

Mr. Paul A. Perry, Secretary  
Consumers Power Company  
212 W. Michigan Avenue  
Jackson, Michigan 49201

Mr. Walt Apley  
c/o Mr. Max Clausen  
Battelle Pacific North West Labs (PNWL)  
Battelle Blvd.  
SIGMA IV Building  
Richland, Washington 99352

Mr. I. Charak, Manager  
NRC Assistance Project  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

James G. Keppler, Regional Administrator  
U.S. Nuclear Regulatory Commission,  
Region III  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Mr. Ron Callen  
Michigan Public Service Commission  
6545 Mercantile Way  
P.O. Box 30221  
Lansing, Michigan 48909

Geotechnical Engineers, Inc.  
ATTN: Dr. Steven J. Poulos  
1017 Main Street  
Winchester, Massachusetts 01890

Billie Pirner Garde  
Director, Citizens Clinic  
for Accountable Government  
Government Accountability Project  
Institute for Policy Studies  
1901 Que Street, N.W.  
Washington, D. C. 20009

Commander, Naval Surface Weapons Center  
ATTN: P. C. Huang  
White Oak  
Silver Spring, Maryland 20910

Mr. L. J. Auge, Manager  
Facility Design Engineering  
Energy Technology Engineering Center  
P.O. Box 1449  
Canoga Park, California 91304

Mr. Neil Gehring  
U.S. Corps of Engineers  
NCEED - T  
7th Floor  
477 Michigan Avenue  
Detroit, Michigan 48226

ATTN: Clyde Herrick  
Frenklin Research Center  
20th & Race Streets  
Philidelphia, Pennsylvania 19103

Mr. Patrick Bassett  
Energy Division  
Norwest Bank Minneapolis, N.A.  
8th and Marquetts  
Minneapolis, MN 55479





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

OCT 1 1 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR  
FROM: R. F. Warnick, Director, Office of Special Cases  
SUBJECT: NRC AUXILIARY BUILDING AUDIT

On September 14 and 15, 1983, an NRC team comprised of Messrs. J. Kane and F. Rinaldi of NRR; Mr. R. Landsman of RIII and Consultants S. Poulous and G. Harstead, audited the licensee reanalysis of the Midland Auxiliary Building. This audit was performed at the Bechtel Office in Ann Arbor, Michigan. As a result of the audit, the team identified several design concerns and issues requiring resolution. These are referred to the Office of Nuclear Reactor Regulation for action as appropriate.

- a. The design of the remedial soils slab fix at Elev. 659 (i.e. the eye bars) was performed to ACI 318 and not to ACI 349. The acceptability of the licensee's decision to use ACI 318 in lieu of ACI 349 needs to be evaluated.
- b. In view of the critical nature of the eye bars, the question arose as to the need for some type of monitoring on this fix (i.e. strain gages) due to the anticipated settlement over the life of the plant. Do monitoring requirements need to be imposed?
- c. Because of the anticipated differential settlement expected to occur during the life of the plant, the control tower will be pulling away from the main auxiliary building. Has the mechanical branch determined that equipment between the two buildings can withstand this elongation?
- d. The licensee performed an analysis on differential settlement of the buildings that was different from that which the NRC anticipated. The staff expected the differential settlement to be measured between the edge of the main auxiliary building and the edge of the control tower. In reality, the licensee performed an analysis using the center of the main auxiliary building as one point instead of the edge. Thus, for the requested 0.25" differential settlement analysis, the actual value was 0.17", and for the requested 0.50" differential, the actual value was 0.24". Is the licensee's analysis acceptable to NRR?
- e. There appears to be a lot of confusion as to what upward building movements the licensee and NRC staff should allow during underpinning. What are the allowable upward movements during jacking operations?
- f. The licensee stated that existing structures were analyzed according to ACI 318 as agreed to with NRR. The SSER #2 states that the buildings have been checked against ACI 349. Is this acceptable to NRR?

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OCT 11 1983

- g. The analysis of the existing structures has been performed by assuming that the existing settlement stresses will be removed during the permanent underpinning jacking. The audit team feels that the existing stresses cannot be jacked out in their entirety and must be included in the final analysis of the building. What is the NRC position in regards to including existing settlement stresses in the analysis?

Should you or members of your staff need additional information, please feel free to contact R. Landsman (388-5587).

*RFWarnick*

R. F. Warnick, Director  
Office of Special Cases

cc: J. C. Stone, IE  
E. G. Adensam, NRR  
J. D. Kane, NRR  
F. Rinaldi, NRR

CCP 5-11-82  


James W Cook  
Vice President - Projects, Engineering  
and Construction

General Offices: 1245 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

September 10, 1982

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

J G Keppler  
Administrator, Region III  
US Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, IL 60137

MIDLAND NUCLEAR COGENERATION PLANT  
MIDLAND DOCKET NOS 50-329, 50-330  
QUALITY PROGRAM IMPLEMENTATION FOR SOILS REMEDIAL WORK  
FILE: 2.0 SERIAL: 18845

This letter summarizes recent discussions with NRC management regarding implementation of soils remedial construction and presents the Company's documentation of those discussions.

BACKGROUND

The 1980/1981 SALP Report, presented to Consumers in late April of this year, indicated that activities in the soils area should receive more inspection effort on the part of both the NRC and CP Co. Follow-up discussions with the NRR staff and Region III Inspectors led to the conclusion that the Quality Program and its definition was adequate; however, there was concern that certain aspects were not being or might not be satisfactorily implemented.

Consumers Power has performed an in-depth review of all aspects of the implementation plans for the Midland Soils work activities. This review included the areas of design and construction requirements and plans, organization and personnel, project controls and management involvement. The results of this review and the proposed steps to assure the successful implementation of the Quality Program were discussed with the NRC management in a meeting held in Chicago on September 2, 1982.

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STEPS TO IMPROVE IMPLEMENTATION

A number of new steps have or are being taken by Consumers Power Co to enhance the implementation of the quality program with regard to the soils remedial work. These measures touch upon all aspects of the work, from design to post-construction verification and include the following:

- (1) Retaining a third party to independently assess the implementation of the auxiliary building underpinning work;
- (2) Integrating the soils QA and QC functions under the direction of MPQAD;
- (3) Creating a "Soils" project organization with dedicated employees and single-point accountability to accomplish all work covered by the ASLE order;
- (4) Establishing new and substantially upgraded training programs, including a special quality indoctrination program, specific training in underpinning activities, and the use of a mock-up test pit for underpinning construction training;
- (5) Developing a quality improvement program (QIP), specifically for soils remedial work;
- (6) Increasing senior management involvement in the soils remedial project through weekly, on-site management meetings wherein both work progress and quality activities are reviewed;
- (7) Improving systems for tracking of and accounting for design commitments.

What follows is a description of the soils quality program implementation plan, as it will be carried out using the new approaches outlined above, together with other specific aspects which we believe will be critical to the successful performance of the job. The discussion is limited to the implementation features specific to soils, is divided into areas roughly describing the progression of the job from design to completion and ends with a description of organizations, management involvement and NRC overview.

DESIGN ADEQUACY AND IMPLEMENTATION

The design for the required remedial activities is in an advanced state; design details and adequacy have been reviewed by numerous organizations. A special ACRS Subcommittee reviewed the soils activities and commented favorably on the thoroughness and conservatism of the review and remedial approaches. Numerous submittals to the NRC have been presented to clarify the design intent. It is our understanding that the Staff is completing its detailed review of all design aspects and is in the process of issuing an SSER. This advanced state of design has permitted the early development of a thorough planning effort and assisted in the organization and development of a detailed training effort. Following-up on design activities, the Project has assigned to the site a design team comprised of experienced structural and geotechnical engineers under the Resident Engineer. This team will monitor

and review the field implementation, resolve on a timely basis routine construction questions requiring engineering response and administer the specific contingency plans immediately if any problem should arise during the underpinning work.

#### IMPLEMENTATION OF DESIGN FEATURES AND COMMITMENTS

All soils activities covered by the ASLB Order of April 30, 1982 are "Q-listed" and covered under soils-specific QA plans. These plans require that appropriate procedures are in place to accomplish the work in a quality manner and that detailed inspection plans and over-inspection plans have been developed and are utilized. Additionally, a Work Authorization Procedure and Work Permit System insure that NRC and CP Co have specifically approved and released the work. Under this system, the NRC reviews proposed work details, asks for additional information when necessary and specifically approves construction activities in advance. CPCo then authorizes the work to proceed.

To further assure that all commitments made to the NRC are properly accounted for in design documents, Consumers Power and Bechtel review the written records of commitments and insure that they are incorporated in design detail. The Project is currently undertaking a review of past correspondence to create a computer listing of all commitments not already reflected in the construction documents. This computer list will be periodically reviewed to insure that commitments are incorporated in design or construction documents in a timely fashion.

#### PERFORMANCE OF PROJECT CONSTRUCTION, QUALITY ASSURANCE AND QUALITY CONTROL ACTIVITIES

To assure that project construction, quality assurance and quality control personnel correctly carry out their appointed tasks, a number of measures have been taken, including a reorganization of quality control, substantially upgraded training programs, direct Company involvement in construction scheduling and control, and utilization of a contract format to minimize any cutting of corners by contractors. These elements of enhanced performance are described more specifically below.

First, the project has reorganized the Soils QA-QC effort, creating an integrated organization with single-point quality accountability under the MPQAD. This new organization is expected to improve QC performance, increase CPCo involvement in the management of the quality control function and improve QA-QC interfaces.

Second, training programs in relation to the soils underpinning work have been developed to be quite comprehensive. The training program, which includes all the major organizations involved, covers both general training in quality and specific training relative to the construction procedures. More specifically, the majority of the personnel associated with Remedial Soils work have attended a special Quality Assurance Indoctrination Session. This includes Bechtel Remedial Soils Group, CP Co, QC, MPQAD, Mergentime and Spencer, White and Prentis (SW&P) personnel down to the craft foreman level. This training consists of one three-hour session covering Federal Nuclear Regulations, the

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NRC, Quality Programs in general and the Remedial Soils Quality Plan in detail. In addition to the aforementioned training, both Mergentime and SW&P Procedures for Quality Related Training require specific training prior to initiating any quality related construction activity. The extent of this training, and identification of individuals to receive it, are spelled out in procedures pertaining to specific construction activities. Completion of the specific training requirements is a QA hold point which must be satisfied before work can proceed.

In further recognition of the importance of training to the underpinning work, the Company is utilizing a mock-up test pit as part of its training program for underpinning construction. The purpose of this test pit is to provide specific training in the construction of a pier, bell and grillage assembly from initial issuance of design drawings through completion of construction. This allows supervisory and craft personnel to perform work under the conditions, requirements and restraints which will be encountered when the actual underpinning starts. It also allows the various quality organizations to inspect the work and insure that their concerns and requirements are properly reflected in the procedures.

Third, to further enhance the performance of key project organizations, Consumers Power will maintain day-to-day control over scheduling, both through the construction approval process and by frequent meetings with the involved contractors and subcontractors. Each week, underpinning subcontractors will present proposed construction work to the Company. In addition, to assure the best quality work, the major subcontracts were entered into on a time-material basis. This should improve subcontractor attention to detail and acceptance of owner direction in the performance of specific construction activities.

Last, the Company has established a new Quality Improvement Program (QIP) for the soils project. To launch this effort, an indoctrination program will be presented to all individuals, stressing the absolutes of Quality and the concept of "Doing it right the first time." Measurements specific to soils will be developed for those critical areas which are indicative of a "quality product". Tracking these activities will provide an indication of the effectiveness of the program. The QIP will provide mechanisms for individual "feedback" from all individuals involved, including the craft personnel.

#### INDEPENDENT ASSESSMENT

A third party will be retained to independently appraise the initial phases of the construction of the auxiliary building underpinning. This party will be mobilized as soon as possible and, after familiarizing itself with the design, will evaluate the auxiliary building underpinning construction work at the site. (Work performed after the date of this letter but before arrival on site of the independent appraisal group will be examined and verified by the group upon arrival on site.) If significant problems or adverse trends are observed, the third party assessment program will be extended in both scope and duration until a satisfactory conclusion can be drawn. The initial evaluation will be carried out over a three-month period.

The independent assessment will be conducted by a team of nuclear plant construction and quality assurance experts. This team will be supplemented by the addition of an underpinning consultant who will review the soils design documents, construction plans and construction itself to assure not only that the design intent is being implemented but also that the construction is consistent with industry standards. The assessment will further assure that the QA Program is being implemented satisfactorily and that the construction is being implemented in accordance with the construction documents. Arrangements are being made with Stone and Webster Engineering Corp to assume the lead role in this appraisal. They will be assisted by Parsons, Brinkerhoff, Quade and Douglas, Inc who will provide underpinning expertise. The NRC will be apprised of all findings of this independent assessment in a timely manner.

#### ORGANIZATION, MANAGEMENT INVOLVEMENT AND NRC OVERVIEW

The project organization formed for the performance of the soils remedial work incorporates single-point accountability, dedicated personnel, minimum interfaces-particularly at the working level, and a quality organization integrating QA and QC. The soils project organization is peculiarly tailored to the task at hand. The entire organization, including quality assurance and quality control are staffed with well qualified, experienced personnel, augmented by design consultants and construction subcontractors nationally recognized in the underpinning field.

The soils remedial effort will also include a high level of senior management involvement. Project senior management will conduct weekly in-depth reviews on site of all aspects of the work including quality and implementation of commitments. The Company's CEO is briefed on a regular basis and schedules bi-monthly briefings on all aspects of the project including soils. During the bi-monthly briefings, the CEO normally tours the Midland site.

Complementing the CPCo management role, NRC Region Management overview of the construction process will be enhanced by monthly meetings, agreed upon by the Region, to overview the results of the quality program and the progress of the soils project. These meetings will cover any or all aspects of the project of general or special interest to the NRC management.

#### CONCLUSION

Based on the discussion outlined above, CP Co believes that the soils program has been thoroughly and critically evaluated and that all prerequisites for successful implementation have been or are being accomplished. The Company's program, with the initial overview from the independent implementation assessment, and the continuing overview by the NRC staff and management should provide adequate assurance that the remedial soils activities will be successfully completed.

JWC/JAM/bjw

- 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
  - RELandsman, NRC Region III
  - WHMarshall
  - JPMatra, Naval Surface Weapons Center
  - WOtto, Army Corps of Engineers
  - WDPatton, Esq
  - SJPoulos, Geotechnical Engineers
  - FRinaldi, NRC
  - HSingh, Army Corps of Engineers
  - BStamiris



BCC RCBauman, P-14-312B  
AJBoos, Bechtel, w/a  
JEBrunner, M-1079, w/a  
WJCloutier, P-24-611, w/a  
EMHughes, Bechtel, w/a  
RwHuston, Washington, w/a  
JKMeisenheimer, Midland, w/a  
JAMooney, P-14-115A, w/a  
DBMiller, Midland, w/a  
MIMiller, IL&B, w/a  
KBRazdan, P-14-419, w/a  
JARutgers, Bechtel, w/a  
JRSchaub, P-14-3-5, w/a  
PSteptoë, IL&B, w/a  
TJSullivan/DMBudzik, P-24-624A, w/o  
RLTeuteberg, P-24-505, w/a  
TRThiruvengadam, P-14-400, w/a  
DJVandewalle, P-24-414, w/a  
FCWilliams IL&B, w/a  
GBSlade, Midland  
DLSowers, P-13-407  
DMTurnbull, Midland  
RAWells, P-14-113A  
NRC Chron File

CONSUMERS POWER COMPANY  
Midland Units 1 and 2  
Docket No 50-329, 50-330

Letter Serial \_\_\_\_\_ Dated \_\_\_\_\_

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits

CONSUMERS POWER COMPANY

By \_\_\_\_\_  
J W Cook, Vice President  
Projects, Engineering and Construction

Sworn and subscribed before me this \_\_\_\_ day of \_\_\_\_\_.

\_\_\_\_\_  
Notary Public  
Jackson County, Michigan \*

My Commission Expires \_\_\_\_\_



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ANALYSIS OF CURRENT AND FUTURE QUALITY ACTIVITIES  
WITH REGARD TO REMEDIAL SOILS WORK

At the April 26, 1982 SALP meeting Region Administrator, Mr J G Keppler, expressed concern that his staff had informally characterized the ongoing soils and foundation work as only minimally acceptable. Mr Keppler asked CP Co's management to comment on its impression of this characterization and to provide its suggestion as to how this assessment could be improved.

The following consists of a brief analysis of what Consumers Power perceives to be the basis for this informal characterization and a description of some of the current organizational and programmatic features of the soils activities that lead us to conclude that prospects are excellent for the satisfactory execution of the remaining soils and foundation work.

The soils-related activities at the Midland job site are currently at a relatively low level pending completion of the NRC staff's technical review and release, by the NRC, of the major portion of the remedial work still to be undertaken. The work that has been done thus far in 1982 is concentrated in two areas. First, a significant number of wells have been drilled at the site, as part of the plant dewatering systems, as part of the freeze wall associated with the auxiliary building underpinning activity and to support the site drawdown tests. Second, the major contractor for the auxiliary building underpinning work was mobilized; the initial work on the access shaft was completed; and, in parallel the detailed underpinning construction planning and continuing technical review with the NRC staff of subsequent work was carried out. Very little work in the other remedial soils areas has been accomplished during this period.

In responding to Mr Keppler's comments at the SALP meeting, we believe that the basis for the staff's informal negative comments regarding the current soils quality assurance activities can be traced to one specific area of concern and one more broadly-based general concern. A discussion of each of these follows.

A specific area of work which may have been of concern to the staff, and one of immediate concern to Consumers, relates to the controls on the drilling and excavation activities that have been recently carried out. Because the number of NCR's that had been written in this specific area and the severity of the most recent occurrence (drilling into an electrical duct bank), the Company concluded that even with the formal controls that were previously in place, additional controls were required. As a result on April 28, the Company issued a stop work on all drilling. (This Consumers Power stop work direction preceded the ASLB Order of April 30, 1982.) As of May 12, the stop work order had not been removed, nor will it be until a new detailed drilling and excavation control procedure has been fully reviewed and accepted by Consumers Power Company. While there had been other corrective action taken prior to the CP Co stop work order, the Company is confident that the comprehensive revisions to the prior control procedures on drilling and excavation will preclude errors of the type recently experienced, and will assure that future

drilling and excavating work will be carried out in a satisfactory and controlled manner.

The general and considerably more significant area of inferred NRC concern can only be identified as the lack of timely agreement between the Company and the NRC on the specific quality assurance coverage requirements to be imposed on the remedial soils work, particularly those to be imposed on the underpinning work. The lack of timely resolution of this issue, the apparent misunderstanding regarding the Company's commitments, and the contentious atmosphere at the March 10, 1982 meeting on this subject and at the subsequent inspection undoubtedly contributed to the negative rating informally expressed by the staff.

When the auxiliary building underpinning work started with the first partial NRC release for construction of the vertical access shaft, CP Co presented a special quality assurance plan encompassing, in our opinion, appropriate portions of the underpinning work. This plan was initially presented to the staff at a meeting in Region III headquarters on January 12, 1982 and documented in a letter dated January 7, 1982. While the initial staff response to the plan appeared to be favorable, no official NRC conclusion was expressed. It became evident during the time between January and early March that at least one individual within the NRC staff believed that an extensive modification of the program coverage under the QA plan, MPQP-1, should be required. This preference for expanded NRC requirements became an NRC staff working level position, formally expressed to the Company at the meeting on March 10, 1982. As a result of that meeting, the NRC Region III inspector apparently concluded that Consumers had committed to fully accepting the NRC Staff position that essentially all to-go underpinning work should be Q-listed, unless exceptions are agreed upon. The NRC's meeting minutes reflect no such commitment. In fact, no commitment was made. This misunderstanding, and others arising out of follow-up discussions with the staff, has apparently affected Region III's feelings toward our soils quality assurance program and personnel. It is, therefore, not surprising that the NRC Region III staff considers the quality assurance activities in the soils and foundation area to be in need of improvement based on its recent experience. (It should also be noted that the NRC SALP Board held its second and final meeting on March 23, 1982.) The Company also agrees that it is extremely difficult to avoid regulatory difficulties unless both parties have a common understanding and agreement as to the scope of applicable requirements. The major issue with regard to QA program coverage was resolved at the management level meeting held on March 30, 1982 in Glen Ellyn and documented by the April 5, 1982 letter of J W Cook to J G Keppler, in which the Company agreed to "Q" list essentially all of the to-go underpinning work. However, the staff has still not formally acknowledged its concurrence with that letter. This concurrence would be of significant assistance in documenting the conclusion of the staff's review of program requirements and permitting the redirection of resources from program definition to successful program execution.

Resolution of the concerns noted above will make a significant contribution to the remaining soils work. In addition, the following considerations should provide added confidence that excellent results will be obtained in the remaining soils construction activities.

Dedication of a high quality professional staff to the underpinning and other soils work is of paramount importance to its successful completion. Because of the complexity and importance of the underpinning work as the dominant factor in the soils remedial program, a mini-project of dedicated groups has been set up to focus attention on the soils activities, with particular emphasis on the underpinning. The technical qualifications of the individuals staffing these activities emphasize previous related experience. At the site, specific underpinning groups have been formed within Bechtel construction, Bechtel quality control and MPQAD, all staffed with individuals having significant applicable technical experience and academic credentials. Both Bechtel resident engineering and Bechtel engineering in Ann Arbor have dedicated remedial soils groups. The onsite resident engineering office will have four geotechnical engineers and at least two structural engineers dedicated to supporting the field activities. Consumers Power Company home-office soils activities are currently staffed with two experienced geotechnical engineers and several experienced structural engineers who have been active in the design reviews and prior licensing evaluations and who will continue to follow the soils remedial work throughout the duration of the construction. The overall Consumers Power Company project management of soils is also organized as a mini-project, and the senior Consumers Power Company individual has had significant nuclear power plant experience at the project manager level.

In addition to the on-staff individuals for Consumers Power Company, Bechtel and the major subcontractors, significant consulting resources are also integrated into the soils work. The design consulting firm for the auxiliary building underpinning has a staff man onsite to coordinate with his home office personnel. All the major consultants will be asked to periodically review the job progress as the underpinning work proceeds.

To assist some of the technical specialists in fully understanding all of the quality requirements on the job, some additions to the staff are also planned. The Bechtel underpinning construction group leader, who oversees and interacts with the underpinning subcontractors, will have a quality consultant on his staff to assist him in any and all quality-related matters. It is also anticipated that the underpinning quality control organization will be augmented to enhance its breadth of leadership.

We believe that the NRC themselves can significantly assist in the successful completion of the underpinning and other soils remedial activities by expanding the presence of their lead inspector on the site as the work progresses. Specific steps to facilitate this NRC interaction were agreed upon, as documented in the April 5, 1982 letter referenced above, and complemented by day-to-day working agreements.

A second area which should significantly assist in the successful completion of the remedial soils work, particularly the underpinning activities, is the degree of design completion prior to the work entering the major construction phase. Because of the extent and thoroughness of the NRC staff review, there is a more complete design for the underpinning activities than is normally in place for other construction activities. Essential completion of the calculations for the underpinning work before the major construction phase

begins will minimize the kind of major design changes that can occur in nuclear plant structural design process because of calculation revisions. There will, of course, be design changes as the work progresses, but the degree of calculation completeness reached prior to initial drawing release will significantly contribute to the stability and success of the construction process.

In addition to the degree of completeness in the underpinning design activity, the interface review called for by the quality assurance plan for the underpinning activity, MPQP-1, is also substantial. These reviews will also contribute to both the validity of the design and the general understanding of design requirements and quality attributes by all persons participating in the underpinning activities. In addition, MPQP-1 directly inserted quality assurance (and through quality assurance, quality control) comments into the design review cycle, a significant requirement above and beyond the quality assurance program for the balance of the plant.

The number of procedural controls that have been or are being instituted for this work should also engender confidence that the critical underpinning activities will be satisfactorily controlled. Judging from the work to date, there will be more than 50 specific work procedures developed for the underpinning work. MPQP-1 calls for integration of inspection hold points directly in these construction work procedures. As a result of these steps, the procedural controls for the underpinning work will be more extensive than those for any other activities, with the possible exception of NSSS primary loop activities, covered by the QA program for the balance of the project. The extent of the construction procedures automatically increases the scope of the training activities and of the inspection plans which are developed based on the specific work procedures.

Finally, as a result of the extensive discussions with the NRC staff regarding the coverage of the "Q" program, MPQP-1 is being applied to essentially all of the underpinning work still to be done. While this application may or may not be completely consistent with a strict definition of what is "safety-related," it should lend added assurance that the work in total, and the safety-related work in particular, will be carried out successfully.

In light of the foregoing, it is hoped that the Region III management can gain an appreciation of Consumers Power Company's perception of recent events and that both the Region III management and staff can develop added confidence that the to-go soils work, particularly the extensive underpinning activities, can and will be carried out up to the expectations of both the applicant and the NRC.

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CONSUMERS  
POWER  
COMPANY

DRAFT

James W Cook  
Vice President - Projects, Engineering  
and Construction

General Offices: 1947 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

September 10, 1982

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

James G Keppler  
Regional Administrator  
US Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

MIDLAND NUCLEAR COGENERATION PLANT  
QUALITY PROGRAM IMPLEMENTATION  
File: 0485.16 Serial:

REFERENCE: CPCo Letter Serial 19158, 9/ /82, "Quality Program Implementation  
for Soils Remedial Work"

The referenced letter summarized Consumers Power Company's discussions with the NRC management regarding the implementation of the Quality Program for the Midland soils remedial work. In addition to the discussions specifically related to soils, the total Midland Quality Program implementation was reviewed and areas were identified where additional efforts should be directed to insure successful overall project quality implementation and the performance of the primary inspection function (QC) on site. In response to these concerns Consumers Power made two significant new commitments which are conceptually described in the following paragraphs. Additional documentation will be provided as the details of these commitments are worked out.



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### Quality Control Function

In order to improve the performance of the Quality Control function and to make it more responsive to direction from the Quality Assurance organization, the responsibility for directing the entire Quality Control function will be assumed by Consumers Power. The Quality Control group will functionally report to MPQAD. The programmatic aspects now in place will continue to be used and the combined inspection resources of both Bechtel and CPCo will be integrated. This reorganization will be fully implemented as soon as the appropriate procedural changes are finalized. The integration of the QC resources for soils into MPQAD has already been accomplished as a separated action.

### Independent Verification - Total Project

Consumers Power proposes a new and expanded approach which will give a broader overview than the "vertical slice" assessment currently being recommended by the NRC for other NTOL plants. The assessment which is suggested for Midland will combine an INPO type construction project evaluation, which is a broad "horizontal" type review of all aspects of current project operations with the detailed "vertical slice" review of all aspects, current and historical of a critical plant system or subsystem. The entire review will be performed by one or more independent contractors which are currently being selected. The details of this extensive independent assessment will then be finalized with the assistance of the selected contractor(s) and presented to NRC management for concurrence. The INPO portion of the program will be initiated immediately to comply with the INPO schedule and industry commitments except that an independent contractor rather than utility personnel will carry out

the INPO evaluation. The results will then be overviewed by the INPO staff to assure adequacy and consistency with other evaluations. The Company expects to meet with the NRC shortly and finalize this proposal.

#### Additional Assessment Programs

In addition to the above, Consumers Power has proposed to retain a qualified third party for an assessment of the underpinning activities as detailed in the referenced letter.

Consumers Power Company has also initiated other appraisals to assess the adequacy of the Quality Assurance Program. Two major recent examples of this practice that have occurred are as follows.

In 1981, Management Analysis Company (MAC) conducted an assessment which focused on performance in three major areas as follows:

1. Adequacy and timeliness of both part and process corrective actions taken on a sample of "big ticket" hardware problems.
2. The degree to which the physical characteristics of selected significant supplied components and parts meet their respective quality requirements.
3. The overall adequacy of the Quality Assurance Program to include corrective actions, effectiveness of the supplier documentation review efforts, checkout and preoperational testing activities and personnel qualifications.

This assessment was completed, the results were positive and all open items have been resolved and closed. The final report has been previously submitted to the NRC.

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A Bechtel Corporate Staff project evaluation was initiated in April 1982. A report on the results of this assessment is being finalized at this time. The purpose of this evaluation was to review the Midland engineering activities to determine if design criteria have been implemented and if the design assumptions, design methods, and the design processes are satisfactory. To assure independence, the assessment team was specifically chosen to be independent from the Bechtel Ann Arbor office. This team consisted of Senior experienced personnel with appropriate expertise having previously performed similar work on other projects. The final report will be sent to the NRC upon completion and whatever other documentation or discussion as may be requested will be provided.

#### Conclusion

Based on the discussion outlined above and in the reference letter, Consumers Power believes that steps have been taken to insure both successful implementation of the remaining work to complete the plant and verification program, including both quality records, test program results, and third party assessments, that will certify the adequacy of the plant as constructed.