

September 23, 1983

Note to: Darl Hood
Project Manager - Midland

From: William D. Paton
Michael N. Wilcove
OELD

SUBJECT: STATUS OF MIDLAND FINDINGS

This is a report on the status of our efforts with respect to Staff findings which are due on November 15, 1983.

Consumers Power Company (CPC) filed its proposed findings on technical issues (they exceeded 300 pages) on Friday, August 5, 1983. We had a copy in our hands on Monday, August 8, 1983 and had copies made and distributed to all witnesses and reviewers during the week of August 8. We spent some time talking to George Lear, witnesses, and reviewers to describe the type of help we needed to review CPC's proposed findings and prepare adequate responses. Last week we received Ray Gonzales' comments with respect to dewatering. Ray agreed in full with CPC's proposed findings except for one portion of paragraph 456. Ray gave us a complete explanation of that problem.

Last week we also received Jeff Kimball's comments with respect to seismology. Jeff gave us 30 comments and each one pointed out the precise portions of the record that were involved. His comments were very helpful.

Joe Kane and Frank Rinaldi have committed to giving us 60% of their comments by the end of September. They have also stated that they will provide us before that time whatever comments they can. In fact, we have already received a number of comments from Joe. Frank advised that he has finished 30% of his effort and expects to have that report to us this week.

Paul Chen (piping) is presently in limbo because apparently there is no contract between NRC and ETEC. The mechanical engineering branch offered hope that this can be resolved by the first of October. That will likely present a time problem.

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PDR FOI/
RICE84-96 PDR

We recognize that the Staff has other commitments. However, as you can see from the above, we are not in good shape. Half of the fourteen weeks available are gone. We would like to discuss this with you at your earliest opportunity.

W. D. Paton
William D. Paton

M. N. Wilcove by WDP
Michael N. Wilcove

cc:

E. Adensam
M. Hartzman (3 copies)
J. Brammer
P. Chen
D. Hassell
P.T. Kuo
N. Wright

J. Kane (5 copies)
P. Hadala
S. Poulos
R. Samuels
H. Singh
G. Lear

F. Rinaldi (4 copies)
G. Harstead
P. Huang
J. Matra
J. Rutberg
M. Wilcove

J. Kane's Position with respect to placing a structure on both natural soils and a compacted fill.

This type of construction has the potential to result in differential soil settlement problems. However, if the design is based on a proper engineering evaluation of the compacted fill material properties (e.g. compressibility and shear strength) and the natural soil properties which are ^{then} correctly used as input into a structural analysis - then this type of construction would result in a safe design that is acceptable to the engineering profession.

Questions to be asked of Ross Landsman :

Clarify that it is his personal opinion that the cantilevering of the Auxil. Bldg & SWPS are "design deficiencies" but that he has not discussed these deficiencies with NRR to know whether they consider them to be ^{design} deficiencies.

Discussion with M. Wilcove on Midland's Findings of Fact

Filing date for NRC is Nov. 15, 1983.

Imp't. for Staff to identify the correct ASLB findings & not CPC findings if we are not in agreement w/ CPC. NRC can not later appeal CPC findings if we initially do not object to them.

Promised M. Wilcove to provide review comments that will indicate what sections of CPC Findings of Facts that we (Kane, Singh & Poulos) are in agreement with and where we have problems (we are to list the problems). By Sept. 23, 1983 if no hearing this week
By Sept. 30, 1983 if hearing (week of Sept. 27)

M. Wilcove ^{requested} we provide comments in piecemeal fashion, if possible to permit him to get started on NRC findings, rather than waiting until our entire review is completed.

M. Wilcove to provide exhibits to reviewers. (excluding Q/A exhibits)

OELD will prepare statement that summarizes stipulations and makes conclusion for ASLB that the Dec. 6, 1979 order was justified. It is not necessary that reviewers provide input giving details in support of stipulations.

J. Kane to check listing of reviewers for specific pages of findings

NRC Findings of Facts - Midland

Nov. 15, 1983 Due to ASLB from NRC

Identify sections of CPC Findings of Fact where NRC has problems
State why disagreement (problems)

OELD suggests piecemeal fashion of NRB submissions to OELD

Sept. 15, 1983	30% of input	} From Lear Thru Knight to Paton w/ copies to DL Label "Draft Input" Provide copy of comments to SES
Sept. 30, 1983	60% of input	
Oct. 15, 1983	100% of input	

Brookhaven
Charles Miller
Costantino
Rich
Mike Popopoulos

Copy mailed to W. Paton & N. Wright on

8/11/83

1st
J. Kane

Discussions w/ OELD on proceeding with Findings of Fact & Conclusions of Law
(Paton, Wright & Kane - NMSS @ 10:30)

Tentatively the following procedure will be followed:

- Each staff reviewer will review the Findings by CPC for the portions applicable to their area of responsibility (J. Kane was asked by W. Paton to identify the reviewer(s) for each paragraph)
- Reviewers are to indicate which paragraphs ~~are~~ ^{for the ones they are} responsible for) are found acceptable and which paragraphs are not.
- For paragraphs found unacceptable, the reviewer is asked to identify the ^{problems and} specific items which are not acceptable (e.g. inaccurate statements, omissions, misleading statements, not accurate or reasonable representation of staff positions, etc)
- OELD will research the transcripts for those areas where problems have been identified by the staff reviewer and write NRC findings on those aspects. OELD prepared findings will then be discussed with Staff reviewers. If OELD determines that differences are significant and warrant new findings.

Other items discussed:

- NRC Findings will present the ^{NRC} Staff's position and also individual reviewers positions, if different from official staff position.
- Dec. 15, 1983 is estimated date for NRC completing their findings in view of voluminous hearing records, on-going review of DGB concerns, additional ASLB hearing sessions now scheduled and other work assigned to staff reviewers.
- Problems of J. Kane w/ CPC Findings (Pages 75, 76, 81, 71, 72, 73)

RECORD OF TELEPHONE CONVERSATION

DATE: 4/21/83 PROJECT: Midland
 RECORDED BY: J. Kane CLIENT: _____
 TALKED WITH: W. Paton OF CELD

ROUTE TO:	INFORMATION	ACTION
	<u>L. Heller</u>	_____
	<u>G. Lear</u>	_____
	<u>J. Kane</u>	_____

MAIN SUBJECT OF CALL: To inform GES of support required by CELD on Midland's Findings of Facts

ITEMS DISCUSSED: W. Paton informed J. Kane that Consumer's Findings of Fact are to be submitted on June 10, 1983. Following this submittal J. Kane will be asked to review CPC Findings and then meet with CELD to decide in what manner NRC wishes to follow in completing their findings. At this time the extent of GES involvement could better be identified.

ACTIONS TO BE TAKEN:

1. CELD will prepare memo to J. Knight identifying what efforts by GES & SES are needed and in what time frame this work is to be completed.
2. CELD will forward to J. Kane a list of transcript records (indicated to be in excess of 10,000 pages) for J. Kane to identify what transcripts are needed for our review of the findings of fact. The identified transcripts would then be provided by CELD.

Stamiris Findings of Fact

J. Kane
Rec'd 1/3/84

DOCKETED
USNRC

U.S. NUCLEAR REGULATORY COMMISSION

'83 DEC 19 11:13

Before the Atomic Safety and Licensing Board

In the Matter of
CONSUMERS POWER CO.
Midland Plant, Units 1&2

Docket Nos. 50-329 OM-OL
50-330 OM-OL

INTERVENOR PROPOSED FINDINGS OF FACT AND CONCLUSIONS
OF LAW ON REMEDIAL SOILS ISSUES

December 16, 1983

Barbara Stamiris

Barbara Stamiris
5795 N. River
Freeport, Mich. 48623

~~831200107-001016~~
PDR ADOCK 05000329
G PDR

~~831200107~~
1300.

TLC

Intervenor Barbara Stamiris submits the following brief response to the Applicant's Proposed Findings of Fact and Conclusions of Law. The roman numerals in parentheses correspond with those sections of the Applicant's Proposed Findings.

INTRODUCTION

The history of the soil settlement problems at Midland (II) should indicate that the Applicant first became aware of the fill soil deficiencies in 1977 as a result of studies and audits following the settlement of the Administration Building(1) which occurred prior to, not subsequent to the settlement at the DGB. In fact the Applicant was aware of fill soil testing, compaction, and placement deficiencies prior to beginning construction of the DGB, BWST, and portions of the SWPS on fill. (2)

The voluntary workstop by the Applicant in Feb. 1980. (VII). did not stop all soils remedial actions (3) and it was not until later in the hearing that the Applicant verbally committed to obtain Staff review and concurrence for any further soils remedial work.(4) Because of continuing problems of CPC-NRC interface over permissibility of soils related work in 1982, and to impose tighter CA controls, the April 30, 1982 Board Order was issued.

Although Intervenor Stamiris specifically suggested in the May 5, 1982 Conference Call that the "prior explicit approval" for soils remedial work required by the Board's April 30th Order should be written prior explicit approval, to avoid further communication

Problems or abuses; we declined to adopt that suggestion agreeing with the Staff and Applicant that some flexibility was needed in such interface.

Subsequent to the April 30, 1982 Order, several instances of abuse of its terms (to be the subject of CA Findings), necessitated the establishment of the Work Authorization Procedure in August 1982. The Work Authorization Procedure which remains in effect today, requires the prior written approval of the NRC for all soils remedial work.

THE SOILS REMEDIAL FIXES

The technical findings proposed by the Applicant and the NRC Staff regarding the soils remedial issues represent testimony on the proposed fixes presented in 1981 and 1982 prior to the inception of the soils remedial underpinning work on Dec. 9, 1982. Therefore, these findings portray the remedial program on paper only--the proposed remedial plans to remedy the soil settlement problems, not the actual remedy. Given the history of this case: that Consumer's problems have always been not with their conceptual programs, but with the implementation of those programs(5) and given the performance in the soils work to date(6), this becomes an important distinction which must be addressed.

Both the Applicant and the Staff acknowledge the limitations of their own findings in this regard by their conclusions that the remedial measures in question are adequate and sufficient to address contentions and safety functions only "if properly implemented". To address the question of the adequacy of the remedial fixes apart

from their implementation would be logical only if the soils remedial work had been suspended and was awaiting a go-ahead decision as the Dec. 6, 1979 Order Modifying Construction Permits had intended. In that case it would be a necessary evil. But to address the question of the adequacy of the remedial fixes apart from its implementation when the very work in question has been going on for a year is an empty exercise at best and an evasion of regulatory responsibility to protect public health and safety at worst.

Therefore we reject the Applicant's statement (IX, p.7) that "we have not allowed the status of plant construction, including the partial completion of soils remedial work, to influence our decision as to whether Applicant's soils remedial measures are adequate to protect the public health and safety" as an incautious and incomplete approach to our responsibilities in deciding the issues before us in this proceeding.

Due to the foregoing considerations, and due to the numerous problems encountered in the remedial underpinning work to date (7), we consider the technical findings as submitted to be of very limited value. All parties agree that "the important question of whether Applicant can carry out the soils remedial measures in accordance with design and quality assurance requirements" (X) will be addressed in our Partial Initial Decision on CA and Management Attitude Issues. We will further address this question in upcoming hearing sessions assessing CA implementation (8) and their decisions. Since a decision on the technical adequacy of the proposed remedial fixes can only be meaningful in conjunction with a decision on the adequacy of their

implementation, we will combine these Partial Initial Decisions.

AUXILIARY BUILDING

Intervenor Stamiris agrees with the exceptions noted by the NRC regarding paragraphs 215-242. Intervenor Stamiris submits that while "dwelling on the causes of the cracks is not necessary"(p.16 NRC Findings), the establishment of their cause is necessary. Indeed the Applicant's reluctance to face up to the plausible explanation that the cracking at the Auxiliary Bldg. is a result of its differential settlement and stress(p.15 NRC), and the NRC's attempts (p16) to skirt this issue altogether, are indicative of a tendency to be less than forthright about soils problems by the Applicant and acceptance of this attitude by the Staff.

Intervenor Stamiris agrees with the NRC that the issues regarding the problems with the Pier II Load test (p.19NRC) should have been discussed. Similarly, problems regarding the cracking of the FIVP (9), the unexpected rising of the EPA wings (10), and the chronic water seepage problems (11) should also have been discussed in these technical findings.

Based upon recent documentation of and discussions of problems with the soils remedial underpinning operation, as proposed and executed by the Applicant (BN 83-167 10/28/83, BN83-155.10/24/83, BN83-174 11/21/83, possibly BN83-181 11/21/83, and statements at the 11/10/83 S&W meeting on cracking), and based on earlier problems cited in the preceding paragraph, Intervenor Stamiris does not agree that the Applicant has "adequately and conservatively taken into account

the dynamic responses of the control tower, the EPAs, and FIVPs with regard to dewatering effects, differential soil settlement and seismic effects in the design and evaluation of those remedial soils measures" (par.242 CPC).

In light of the NRC Staff's "questions about whether the Applicant has adequately taken into account differential soils settlement at the Auxiliary Bldg" as raised at the Sept. 14-15, 1983 design audit (NRC p. 21) and their commitment to bring the resolution of these issues before the Board; and based on the related issues raised by Intervenor Stamiris in these findings, we find it imperative to require further testimony explaining the reasons for and the effects of the following outstanding issues regarding the Auxiliary Bldg. underpinning operation :

- 1) The discovery that the bearing capacity of the base soils for the underpinning is $\frac{1}{2}$ that used in the original analysis (EN83-174)
- 2) The discovery of incorrect and unconservative calculations of differential settlement between the Auxiliary Bldg. and the Control Tower (EN 83-174)
- 3) The lack of criteria and assessments of upper movements of structures and the related structural stresses (EN 83-174)
- 4) The Applicants decision to substitute ACI 318 for ACI 349 and the related monitoring of the eye bars or other components affected (EN 83-174)
- 5) The effects of expected elongation on equipment between the Auxilliary Bldg. and the Control Tower. (EN 83-174)
- 6) Why alert levels for cracking (and movement?) have been exceeded and not properly reported to the NRC. (11/10/83 Stone & Webster meeting, upcoming BN on excessive NCRs discussed by D. Hood 12/3/83)
- 7) The continuation of repeated drilling incidents despite past controls and commitments intended to rectify this problem (BN 83-155 Stopwork and 10/5/83 memo)

- 8) The deficiencies in the design change procedures and and document control problems involving remedial soils work. (EN 83-167 Stopworks)
- 9) The continued water seepage problems in the underpinning excavations (Stone & Webster Weekly Reports)

According to the terms of the Dec. 6, 1979 Order, we must resolve the issues of the adequacy of CA implementation, the Material False Statement, and the adequacy of the technical fixes for the soils settlement problems. We can only resolve these issues by addressing the significant questions which remain unresolved regarding the soils remedial work undertaken and the state of CA performance to date.

The safety issues related to the adequacy of CA implementation and the adequacy of the soils remedial measures which are cited in the Dec. 6, 1979 Order, remain unresolved and have even expanded today in the face of what NRC testimony has called a deteriorating performance record in soils related work, as evaluated in the annual SALP Reports.

(12)

Public health and safety issues cannot be resolved by a decision assessing the adequacy of soils remedial fixes based upon theory alone and upon proposed plans without regard for implementation of those plans, as the Applicant would have us do (IX, p.7 CPC). Neither the NRC Staff (p. 19-21 NRC), the Intervenor, nor this Board consider that the OM-AL Proceeding can be closed out without resolution of the safety related issues regarding the Auxiliary Bldg. underpinning operation.

UNDERGROUND PIPING

Contrary to statements in Applicants proposed findings, the Condensate piping below the DGB was only disconnected at one end, and stress was induced in the piping. (Stamiris Findings 12/10/81

Intervenor Stamiris agrees with the exceptions cited by the NRC to Applicants proposed findings on underground piping. However Intervenor Stamiris is not satisfied with Applicant's strain and settlement monitoring program, because, due to the variable soil properties, maximum differential settlement could occur at any point along the length of the piping. (tr. 7364-5, 7765-6) CPCs unconservative assumption (par. 336) that "the maximum differential settlement along the longitudinal axis of buried piping is anticipated to occur at anchor points" leads to a false sense of assurance that potentially unsafe conditions are being monitored.

Furthermore we believe that the inherent difficulties with the reliability of the sensitive instruments of the pipe monitoring system, (tr. 7880-7881); the concerns about whether strain gauges can function for the forty year lifetime of the plant (tr. 7763-4); and the Applicant's past record of improper and unconservative reporting practices (of Ad. Bldg. -DGB settlements, of surcharging instrumentation- Sondex data elimination and bldg. settlement readings, an most recently of the failure to report properly the excessive cracking at the Aux. Bldg) give us no choice but to reject the Applicant's settlement and strain monitoring program as proposed in these findings.

CORROSION

Intervenor Stamiris agrees with the exceptions noted by the NRC to the Applicant's proposed findings regarding the effects of corrosion on underground piping. Since the corrosion-inhibiting protective wrappings described by the Applicant (par. 385) are subject to degradation due to differential settlement bending, the combined effect of pipes

weakened by bending and by corrosion at the same locations are the conditions we must here consider. We note that neither the Applicant nor the Staff has addressed this concern raised by Judge Decker at the February 1982 hearing session. (13) The Applicant's statements that the protective wrappings are inherently flexible and should not fail (par.392), are unsupported assumptions. (footnote 675 does not correctly address the wrappings themselves)

We further note that neither the Applicant nor the Staff has addressed the concern raised by Resident Inspector Ron Cook that if a galvanic protection system is improperly installed it can actually promote corrosion problems.(14) The problems with anodes being encased in concrete (tr. 9223-9226) and with carbon steel lugs being welded to stainless steel pipes (15) constituted unconservative and potentially unsafe practices which make Mr. Cook's concern more than a hypothetical.

The Applicants finding (par. 391) that corrosion would not be serious even without the galvanic protection system or protective wrappings, "for periods of up to at least six months", offers no assurance of safety in that: the corrosive effects would be cumulative, "the galvanic protection system has periodically shut down for extended periods" during plant construction, like the six months in 1982 (CPC footnote 674), and because there is no practical way to observe cumulative corrosion effects on buried piping.

The Applicant's assertion that the severe pitting corrosion found in the stainless steel condensate lines (Stamiris Ex. 35) was due to stray welding currents is faulty and represents an unconservative assumption. (par.393) The 1979 Condensate Pipe Corrosion Study performed to assess this problem (Stamiris Ex. 36) addressed and ruled

out this very theory on the basis that "there were no known electrical sources in the vicinity of the corroded section of the pipe. There were no adjacent buried pipes or power lines nor was there any field welding performed in the immediate vicinity of the corroded section". (p.3, Stamiris Ex. 36)

Applicants explanation that "it is unlikely that this pitting would have been caused by interaction between the piping and the soil" in view of the good soil chemistry at the Midland site (par. 393) is also faulty. The 1979 Corrosion Study states that "based upon the results of the analytical chemistry tests which were conducted on the sand samples, corrosion products and pipe metal, it is not possible to establish the cause of the corrosion." (p.2. Stamiris Ex. 36)

Furthermore the existance of "several areas of reddish brown surface stain" composed of corrosion products (p.6 Ibid) would tend to indicate the existance of a more benign or gradual corrosive agent, such as chemical as opposed to "welding current" causes acting on the Condensate lines. The fact that the Corrosion Studies were based upon the examination of only two local sand samples, unscientifically collected, and one "clean" sample, (p.6, 2 Ibid) contributes to the inability of this study to rule out chemical contamination.

The second Corrosion Study conducted on a stainless steel nitrogen line three months later in January 1981 (Stamiris Ex. 37) which concludes that both this corrosion and that in the first study were caused by stray welding currents (despite the contrary evidence in the first report), represents a classic case of interpreting data to support a preconcieved conclusion: that stray welding currents were

the cause of the corrosion. This conclusion afforded a more ~~control-~~ able problem than what the second study calls "the ubiquitous suggestion of random contamination" established by the first study. (p.2, Ibid)

Based upon the foregoing inadequacies in the Applicant's analyses and the Staff's essential concurrence, we reject their conclusion that corrosion, by itself or in conjunction with differential settlement effects, does not pose a significant threat to the integrity of the function of the underground safety piping at Midland. Although selected portions of buried piping have been examined for corrosion, the potential for undetected damage to buried piping whether caused by past welding practices, chemical contamination, or other agents, is too great to be ignored or condoned if regulatory safety requirements are to be upheld.

PROPOSED CONCLUSIONS OF LAW

- I. Absent a decision upholding the adequacy of the Applicant's implementation of the soils remedial work undertaken to date, we do not have reasonable assurance that the remedial measures described in the foregoing findings are adequate and sufficient to correct the safety concerns at issue in this proceeding, or to enable the affected safety systems to perform their intended function.
2. Absent resolution of unresolved safety issues which were not adequately addressed in these findings regarding the Auxillary Bldg. underpinning operations, or were raised as a result of the

September 14-15, 1983 Audit, we conclude that the Applicant still has not provided the Staff or the ASLB with the appropriate technical information and acceptance criteria necessary to accept the proposed remedial measures.

3. Based on the submitted findings, we conclude that the Auxiliary Bldg. underpinning operations do not provide reasonable assurance that this structure and its related systems can perform their required safety functions.
4. Based upon the submitted findings, we conclude that the underground safety piping cannot be reasonably expected to perform its required safety functions due to differential settlement, corrosion, and the inadequate means of monitoring these problems.
5. As a result of the foregoing conclusions, we will combine the assessment of QA implementation of our upcoming P.I.D. with this P.I.D. on technical issues, to provide a more meaningful decision.
6. As a result of the most recent unresolved safety issues regarding underpinning work, (Conclusion 2. and the nine issues listed on Stamiris p. 7,8) we hereby prohibit further underpinning work from occurring until we have had the opportunity to hear and assess these issues.
7. On the bases of these findings and conclusions, we will hold the OM-OL Hearing open until the safety issues of Conclusion 6 are resolved before this ASLB.

FOOTNOTES

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BRANCH

1. 1977 Ad. Bldg. Settlement Report, attached Stamiris 10/5/83 motion; Audit F-77-32, Board Ex. 3
2. Keeley tr. 1313-14; Keeley prep. testimony p.4; Gallagher tr. 2573-4 Hood testimony p.12, fol. tr. 1560, -DWST; SWPS- ?
3. Kesley tr. 1210-12; Howell tr. 2826-27; 7/7/91 testimony
4. 4/15/82 Spessard memo; tr. 7784-88; unauthorized drilling & excavati cited in 4/30/82 Order
5. Gilray testimony p.2, fol.tr. 3718; tr. 3834; tr. 3719-21
6. Stamiris 9/4/82 motion, attachment A; ENs 83-155, 83-167, 83-174, 83-106, and 82-98; SALP II & SALP III Soils & Foundations; Stamiris Ex. 40-44, 76, 78, 89, 92, 97, and 103
7. Ibid
8. 11/1/83 tr. 2312, 2321
9. Landsman Cook tr. 14632-14658
10. 1/19/83 NRC memo; Landsman tr. 14671-14680; Stamiris Ex. 52
11. CPC ex. 33
12. SALP III, p. 8, part b., Stamiris Ex. 55
13. *
14. *
15. *

* The appropriate transcripts were missing from the library, therefore I have no way to find the correct citations at this time

Records in folder labeled
"Midland - Violation of ALB Order
Nov. 13, 1983 Hearing" maintained
by Joseph Kane.

Duplicates - 11

XA - \emptyset