




Hydro. Interrogatories

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

NOV 10 1980

MEMORANDUM FOR: Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

THRU:  James P. Knight, Assistant Director
for Components and Structures Engineering
Division of Engineering

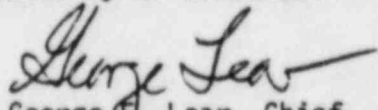
FROM: George E. Lear, Chief
Hydrologic and Geotechnical-Engineering Branch
Division of Engineering

SUBJECT: INTERROGATORIES FOR PERMANENT DEWATERING SYSTEM -
MIDLAND PLANT - UNITS 1 AND 2

Enclosed are interrogatories on the dewatering system at Midland. These interrogatories are similar to those furnished to Darl Hood, LPM on September 25, 1980. However, the form and tone of those interrogatories required additional field testing and analyses.

The form used here permits the applicant to base its responses on data and information already available.

A preliminary copy of the enclosure was provided to Darl Hood on November 7, 1980. These interrogatories were prepared by R. Gonzales.



George E. Lear, Chief
Hydrologic and Geotechnical
Engineering Branch
Division of Engineering

Enclosure: As stated

cc: w/o enclosure
R. Vollmer

w/enclosure	
G. Lear	L. Heller
J. P. Knight	J. Kane ✓
F. Miraglia	F. Rinaldi
W. Bivins	A. Cappucci
H. Levin	
D. Hood	
W. Paton	

801124049
XA (3pp)

Midland Plant Units 1 and 2
Hydrologic Engineering Section
Interrogatories
Docket Nos. 50-329/330

- 1) In your response to request 24-a, you used an error function equation to define water level rise. The equation used should have a 4 in the denominator instead of a 2 (i.e., " $4\sqrt{Kht/n_e}$ "). Have any changes been made to this equation since preparation of your response? Have any revised analyses, to determine rebound time following a prolonged dewatering system failure, been made since your response to request 24? If so, what was the effect of these reanalyses on rebound time?
- 2) Have any calculations been made to determine how failure of non-seismic pipes would affect the capability of the dewatering system to maintain water levels at a safe elevation? If so, for which pipes and at what locations did you postulate failure? What was the impact of these pipe failures on the effectiveness of the dewatering system. If failure of the circulating water pipes was not considered, why not?
- 3) In your response to request 24-b, you concluded that there is very little recharge in the area of the circulating water discharge structure. This conclusion is questionable because it is based on a pumping test whose results were subject to interpretation because of the difficulty encountered in maintaining a constant pumping rate. Have you conducted any additional tests or done any calculations to verify your conclusion? If so, describe any additional tests and the results obtained. How did

these results influence your initial conclusion that there is very little recharge in the area of the circulating water discharge structure?

- 4) In your response to request 24b, you used a specific yield coefficient of 14 percent for determining the volume of water to be removed from storage within the plant dikes. In determining average permeability, you used a value of 30 percent. Under water table conditions such as exist at Midland, the terms "specific yield" and "effective porosity" are equal. Why then were two different values used?
- 5) Have any tests been conducted to determine if Dow Chemical's Tertiary Treatment Pond, located west of the Midland Plant, could seep through or bypass the plant dike and be a source of groundwater at the plant? If not, are such tests needed? If not needed, why not?
- 6) Are there any chemical substances in the Dow pond which could reduce the effectiveness of the west plant dike or the groundwater dewatering system at the Midland plant.
- 7) On what basis do you conclude in your response to request 24-b that the intake and pump structures cut off seepage from the cooling pond? Does this conclusion recognize the existence of 5 to 10 feet of natural sand below the intake and pump structures? If not, why not?



Consumers
POWER
Company

Paton
Kra
**CPCo Responses to
SEB Interrogatories**

General Offices: 212 West Michigan Avenue, Jackson, MI 49201 • (517) 788-0550

March 9, 1981

William D. Paton
Counsel for the NRC Staff
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Paton:

Attached hereto are Responses to NRC Staff Interrogatories dated November 26, 1980. The Applicant will file Responses to the Third Set of NRC Staff Interrogatories prior to the prehearing conference presently scheduled for April 2, 1981.

Very truly yours,

James E. Brunner
James E. Brunner

Enclosure

LEGAL
DEPARTMENT
Lawrence B. Lindamer
Vice President
and General Counsel

J. Kane
Rec'd 3/17/81

Judd L. Bacon
Allen B. Bass
O. K. Peterson
William E. Wiener
Managing Attorneys

Robert J. Byers
Howard E. Clark
Beverly E. Hagen
Senior Attorneys

Francis X. Berkenmeier
J. E. Brunner
Lisley Daoud
Charles D. Dawson
James W. Dempsey
John P. Dickey
Kevin F. Duffy
R. F. Godbout
Richard L. Heines
George F. Hill
Laurene H. Horvath
Wayne A. Kirby
Albert D. McCallum
David A. Mikolonis
Paula H. Mills
Vincent P. Provenzano
Jan R. Robinson
David R. Rood
Gregory A. Sando
Jack D. Shumate
Walter Scott Sapers
A. T. Udry
Dennis L. Viglione
Theodore J. Vogel
Attorneys

II
Paton / Jones
Olmstead
FF

Copy forwarded on 3/18/81
to H. Singh for comments
~~810324076~~ 1p.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CONSUMERS POWER COMPANY'S (APPLICANT'S)
ANSWER TO NRC STAFF INTERROGATORIES DATED 11/26/80

Interrogatory 1

As a result of settlement and inadequate compaction in the fill area, you have proposed remedial actions and you have agreed to re-analyze the seismic/ structural analyses of the Category 1 structures located in this area.

1(a) Have you verified and evaluated any changes in the design safety margins available for any Category I structures by performing structural re-analysis?

Response

For the diesel generator building, a seismic re-analysis using FSAR seismic design criteria and a structural re-analysis have been completed. For the service water pump structure, the auxiliary building, and the borated water storage tanks, seismic/ structural analyses are in progress.

1(b) If the answer to (a) is yes, please provide documents related to any structural re-analysis performed.

Response

Documents pertaining to re-analyses of the diesel generator building referred to in part 1(a) will be provided for inspection at Bechtel Associates Professional Corporation in Ann Arbor in the near future. Documents respecting design analyses of other structures identified in part 1(a) will be provided when such analyses are completed.

*not responsive
1(b) asks that these
documents be
provided now*

8103260737
36pp.

- 1(c) If the answer to (a) is no, please state the reasons for not performing that re-analysis.

Response

Not applicable.

- 1(d) If the answer to (a) is no, but you plan to make such re-analysis, please state when you plan to do so.

Response

The schedule for structural re-analysis of pertinent structures is as follows:

- 6/15/81 Service water pump structure - detailed design, including structural and seismic considerations sufficient to let contracts to facilitate construction.
- 6/15/81 Auxiliary building - updated conceptual design for underpinnings, including structural and seismic consideration sufficient to let contracts to facilitate construction.
- 5/1/81 Borated water storage tanks - detailed design including structure and seismic considerations sufficient to allow initiation of remedial measures on or before this date.

It is anticipated that conceptual designs, based upon preliminary structural and seismic analyses, will be complete by 4/15/81 for the service water pump structure and borated water storage tank fixes.

Further, an update of the conceptual design for the auxiliary building underpinnings will be completed by 4/15/81, based upon preliminary structural and seismic considerations. (The above seismic analyses are being performed according to the method spelled out in the response to 1(e)).

- 1(e) Have you factored into any re-analysis information contained in, or resulting from, a letter from Robert Tedesco to Vice President J. Cook dated October 14, 1980, concerning seismological input data acceptable to the Staff?

Response

Objection was disallowed at Jan 28 Preliminary

Applicant objects on the ground that this question goes beyond the limited jurisdiction conferred by the December 6, 1979 Order, that the seismic re-analysis requested by Mr. Tedesco in the October 14, 1980 letter should be reserved for the operating license hearing, and, hence, that it is irrelevant to these proceedings. Subject to that objection, Applicant answers as follows: The pending seismic re-analysis requested in the October 14, 1980 Tedesco letter has been considered in arriving at the following approach towards designing and analyzing the remedial fixes for the auxiliary building electrical penetration area, the service water pump structure, and the borated water storage tank ring foundation: Seismic forces obtained by application of FSAR input criteria (i.e. modified Housner spectra and maximum acceleration anchored at .12 g) will be multiplied by a factor of 1.5. Forces thus determined will be combined with other loads in accordance with applicable load combinations in arriving at design. (cont'd)

what is basis of factor?

parameters for the remedial measures. In addition, with respect to the Diesel Generator Building, Bechtel is attempting to evaluate the total margin which actually exists in excess of FSAR seismic design criteria.

When discussions with the NRC Staff respecting possible redefinition of seismic criteria applicable to the entire Midland site are completed, Applicant will evaluate the necessity for seismic re-analyses of any or all Category I Structures, including those founded partly or entirely on plant fill. *will this evaluation be completed before beginning the remedial work?*

- 1(f) If the answer to (e) is yes, please provide copies of all documents relating to that re-analysis.

Response

The documents pertaining to the design analyses of the remedial fixes for the service water pump structure, the auxiliary building, and the borated water storage tank ring foundation (using the 1.5 design margin factor) as stated in the response to part 1(b) will be provided *when*. Applicant objects to providing documents relating to the analysis of total margin in excess of FSAR seismic design criteria for the Diesel Generator Building, for the reasons stated in the first sentence of Applicant's response to part 1(e). For the same reason, Applicant objects to providing in this proceeding future seismic re-analyses of Midland structures as requested by the October 14, 1980 Tedesco letter.

- 1(g) If the answer to (e) is no, please state if you plan to make an analysis incorporating that data, which structures you plan to re-analyze, and when you plan to do so.

Response

See the response to 1(e).

- 1(h) If you believe re-analysis is not required for any such category I structure, please state for each structure why such re-analysis is not required.

Response

See the response to 1(e).

- 1(i) Was the floor response spectra for the diesel generator building generated on the assumption that the shear wave velocity would not be lower than 500 feet per second?

Response

Yes.

- 1(j) If the answer to Question (i) is negative, please state the assumption used with respect to shear wave velocity.

Response

Not applicable

- 1(k) How have you assured yourself that the soil shear wave velocity will not be less than 500 feet per second for the life of the plant?

Response

See the Response to 10 CFR 50.54f Question 24 (a) regarding plant fill.

Interrogatory 2

The fill material under the northern wing of the service water pump structure has been found to provide inadequate support. While the portion of the structure over the fill material is being supported by the main structure founded on natural material, through cantilever action, it is stated in Management Corrective Action Report No. 24, Interim Report 6, issued September 7, 1978, that the total design loads cannot be supported by the main structure. Your proposed remedial action will utilize corbels attached to the side of the structural wall by bolts. The corbels are to be supported by pilings placed underneath them.

- 2(a) What alternative corrective actions did you consider for supporting the cantilevered portion of the Service Water Pump Structure?

Response

The present design proposal for the service water pump structure makes use of a continuous wall footing which penetrates to the till level. In the past the following alternatives were considered: (1) removal and replacement of fill, (2) jack piles, (3) caissons and (4) piles connected to the structure with corbels.

- 2(b) Was one of the alternatives considered to provide a stable solid foundation support of the cantilever portion of the structure down to the glacial till rather than the concentrated support design eventually chosen?

Response

Both the present proposal (wall footings) and the previous proposal (piles) would provide a stable foundation for the structure.

- 2(c) What structural analyses for each of these alternatives did you perform?

Response

A structural analysis, together with a design analysis, is being performed for the design based upon wall footings. Prior to the recent design change for the service water pump structure, Applicant had undertaken an analysis of the design which utilized a pile-corbel underpinning approach. This analysis was not fully completed at the time Applicant decided to adopt a different design proposal.

Request discussion ^{and results} on portion of analysis that was complete. Are the analysis results the basis for changing. If not, what is reason?
(See response to 2(f))

- 2(d) Please provide copies of documents relating to any analysis described in 2(c) above.

Response

Documents pertaining to the analysis of the wall footings will be provided when the analysis is completed. Documents pertaining to analyses of any other design approach are not relevant to this matter.

- 2(e) Did you factor into any analysis identified in 2(c) above the information contained in a letter from Robert Tedesco to Vice President J. Cook, dated October 14, 1980, concerning seismological input data acceptable to the Staff.

Response

See the answer to 1(e).

- 2(f) Explain why each of the alternatives identified in 2(a) above was rejected or accepted.

Response

Alternative (1) (removal and replacement of fill) was rejected for two reasons, i.e. cost and difficulty of dewatering during construction. Alternatives 2 and 3 were rejected because the continuous footings approach would provide a design which is believed to be more acceptable to the NRC Staff, although either approach would provide an adequate solution. Alternative 4 was rejected because other designs would provide larger margins for seismic forces.

- 2(g) For those alternatives that were rejected, but for which no analysis was identified in 2(c) above, give the reasons for not considering those alternatives.

Response

See 2(f).

- 2(h) What analyses have you done to assure yourselves that the long longitudinal bolts which will be used in the remedial action will withstand the force produced in the bending mode?
- 2(i) Please provide copies of documents relating to any analysis identified in 2(h).

- 2(j) If no such analysis has been performed do you plan to do an analysis and if so when?
- 2(k) Do you have a plan for pre-service and in-service inspection of the integrity of the bolts during the life of the plant?
- 2(l) If the answer to 2(k) is yes, provide a copy or description of that plant.
- 2(m) If the answer to 2(k) is no, state the reasons that such a plan is not necessary.
- 2(n) What type of bracing (if any) will be provided to assure that the vertical piling will resist horizontal forces?
- 2(o) What analysis have you done to assure the adequacy of any horizontal braces identified in 2(n).
- 2(p) Please provide a copy of any analysis identified in 2(o).

Response

Applicant objects to these questions, as they pertain to a design option which is no longer being proposed.

- 2(q) What analyses have you done to assure yourselves that the piling under the service water pump structure will provide adequate vertical support after the occurrence of a postulated earthquake (OBE)?

Response

Applicant is presently in the process of analyzing the latest design proposal for adequacy under OBE and SEE stresses. Applicant will respond to this question when such analysis is completed. Obviously, the adequacy of the pile-corbrel design is no longer relevant to these proceedings.

- 2(r) What analyses have you done to assure yourselves that the piling under the service water pump structure will provide adequate vertical support after the occurrence of a postulated earthquake (SSE)?

Response

See 2(q).

2(s) Please provide a copy of any analysis identified in 2(q) and 2(r).

Response

See the response to Question 1(a).

2(t) Did you factor into any analysis identified in 2(r) above the information contained in a letter from Robert Tedesco to Vice President J. Cook dated October 14, 1980, concerning seismological input data acceptable to the Staff?

Response

See Applicant's Response to 1(e).

Interrogatory 3

The following questions refer to the remedial actions at the service water pump structure.

- 3(a) Is the corbel design such that it depends upon a friction-fit with the service water pump structure's north wall resulting from the pre-tensioning of the long longitudinal bolts.
- 3(b) How have you assured yourselves that this friction-fit will be maintained under all the design loads for the building?
- 3(c) If the answer to 3(b) is based on tests or other analysis please identify and provide copies of the analysis or test results.
- 3(d) How have you assured yourselves that the concrete at the interface between the corbel and the Service Water Pump Structure can adequately resist bearing pressures developed as a result of pre-tensioning of the bolts.
- 3(e) If the answer to 3(d) is based on tests or other analysis please identify and provide copies of the analysis or test results.

Response

See the Response to Interrogatories 2(h) - 2(p).

Interrogatory 4

In the response to Question 15 of the NRC request, regarding plant fill, it is stated that, "differential settlement primarily induces additional strain, which is a self-limiting effect and does not affect the ultimate strength of the structural members." Additional clarification of this statement is needed.

- 4(a) Why do you classify the resulting strains as self-limiting in nature?
- 4(b) How do you reconcile your statement quoted above with your statement concerning the Service Water Pump Structure in the Management Corrective Action Report No. 24, Interim Report 6, issued September 7, 1978 that the total design loads cannot be supported by the main structure.

Response

Applicant will provide a response to this Interrogatory prior to the prehearing conference scheduled April 2, 1981.

Interrogatory 5

Your response to Questions 14, 28 and 29 of the NRC request regarding the causes of cracks due to settlement, the significance of the extent of cracks, and the consequences of cracking, addressed only the existing condition of the Category I structures.

- 5(a) Have you performed analyses which provide tension field data under design load combinations at any crack locations for each Category I structure.

Response

There is a possibility that future differential settlement could cause larger rebar stresses and new or larger cracks. In such an instance, the larger cracks may be indicative of increased rebar stresses. However, since the design analysis of the structure assumes zero tensile strength for concrete, the existence of any crack would not be significant except as an indicator of rebar stresses (and except for corrosion affects).

To account for the possibility of increased rebar stresses due to future differential settlement, Applicant has conservatively analyzed maximum rebar stresses which would be produced by future differential settlement. ^{what diff. settlement were used? basis}
The method directly predicts future rebar stresses without predicting future crack sizes.

With regard to the auxiliary building and the service water pump structure, since neither building is expected to undergo appreciable differential settlement in the future, the problem of "crack propagation", which evidences rebar stresses produced by such settlement, does not exist.

With respect to the borated water storage tank, Applicant will determine the necessity of further crack evaluation following its decision on remedial actions to be undertaken.

5(b) Provide documents relating to data or analysis described in Part(a).

Response

Applicant will provide such documents as a part of its structural re-analysis package described in the answer to Question 1(b). *Not responsive*

5(c) If the answer to (a) is no, state why it is not necessary to perform that analysis.

Response

See Response 5(a).

5(d) Have you performed any analyses to show the limiting tension field conditions in which a crack will not propagate.

Response

No.

5(e) Provide documents relating to data or analysis described in Part(d).

Response

Not applicable.

5(f) If the answer to (d) is no, state why you do not believe it is necessary to perform that analysis.

Response

The problem of crack propagation is accounted for in Applicant's present analysis by the approach taken in the response to Question 5(a), supra.

In Applicant's opinion, that analysis is equivalent to a "limiting tension field analysis", since the important result of such an analysis would be a predicted rebar stress.

5(g) What analyses have you performed prior to loading or surcharging of any structures or tanks to assure that existing cracks will not further propagate?

Response

None.

Interrogatory 6

Since the fill was replaced by other material, such as lean concrete, in the vicinity of the auxiliary building and of the feedwater valve pits, the soil properties of the foundation material have been changed.

- 6(a) Have you performed new seismic/structural analyses that utilizes the new soil properties, (e.g. damping valves and shear modules).

Response

Such an analysis is presently in process.

- 6(b) If the answer to (a) is yes, please provide documents relating to such seismic/structural analysis.

Response

Documents relevant to such analysis will be provided along with the structural re-analysis package specified in the response to Question 1(b).

- 6(c) If the answer to (a) is no, please state the reasons for not performing such new seismic-structural analysis.

Response

Not applicable.

- 6(d) If the answer to (a) is no, please state your basis for concluding that these structures will comply with current NRC criteria.

Response

Not applicable.

- 6(e) If the answer to (a) is yes, have you performed a new soils structural interaction analysis for the auxiliary building and the feedwater isolation valve pits.

Response

The seismic/structural analyses currently in progress considers the effects of soils-structural interaction.

- 6(f) If the answer to (e) is yes, please provide documents relating to that analysis.

Response

Refer to the response to Part (b) of this Interrogatory.

Interrogatory 7

Your replies to date indicate that the effectiveness of the proposed ground water well system has not yet been established. These wells will be needed to control the ground water level and ^vprevent soil-liquefaction.

- 7(a) Will the permanent dewatering system be designed to withstand the safe shutdown earthquake (SSE)?

Seek agreement w/CPCO that dewatering system will be Q-listed (is safety related but not Cat. I)

Response

No. See the response to 10 CFR 50.54 f, Question 24(c).
Pg. 24-18

- 7(b) If no, will the permanent dewatering system be designed to withstand any lesser ground vibratory motion?

Response

No.

- 7(c) If the answer to (a) is no, have you evaluated the impact of soil liquefaction on any soil supported Category I structures.

Response

No.

Liquefaction has been evaluated and found not to be a problem because of dewatering fix

- 7(d) If no, why not?

Response

As discussed in the response to NRC Question 24 and 47, the permanent site dewatering system will be designed to maintain groundwater at a sufficiently low level to preclude the possibility of soil liquefaction.

- 7(e) If the answer to (b) is yes, what ground vibratory motion has been considered?

Response

Not applicable.

- 7(f) If the answer to (a) is yes, have you performed any analysis based upon information contained in or resulting from a letter from Robert Tedesco to Vice President J. Cook dated October 14, 1980 concerning seismological input data acceptable to the Staff?

Response

Not applicable.

- 7(g) If the answer to (f) is yes, what changes in the dewatering system design and ground water drawdown levels were determined to be needed.

Response

Not Applicable.

Interrogatory 8

In connection with your seismic analysis of the service water pump structure and the diesel generator building have you developed: (1) Lump mass models (2) Stiffness value for each member (3) Mass at each nodes point (4) Spring constants used in the analysis (K_o , C_o , K_x , C_x , K_y , C_y) and (5) Seismic inputs of the modified Taft N21E 1952 record used in this analysis. As to any affirmative answer, please provide copies.

Response

For the seismic analysis of the diesel generator building, values have been developed for the following:

1. Lump mass models
2. Stiffness value for each member
3. Mass at each node point
4. Spring constants
5. Seismic inputs for the modified Taft N21E 1952 record

For the diesel building, the values will be provided along with the documents pertaining to the structural reanalysis referred to in the response to question 1(b). For the service water pump structure, this information will be supplied when the analysis has been developed. ^{non-responsive}

Interrogatory 9

With respect to the seismic Category I valve pits located in the fill adjacent of the east and west side of the diesel generator building:

- 9(a) What changes, if any, occurred to these pits during the diesel generator surcharge program?

Response

As expected, the valve pits have experienced settlement as a result of the surcharge program. The east pit has settled 0.52 inches and the west pit 1.49 inches.

- 9(b) Do any cracks exist in these pits?

Response

No cracks exceeding 5 mils have been identified in these pits.

9(c) What changes, if any, occurred in the rattle space for the piping during the diesel generator building surcharge program?

Reponse

The initial readings were taken of service water piping on 11/13/78 prior to isolating the D.G. building footings from the duct banks. The final readings were taken on 5/2/80 after removal of the surcharge.

D.G. BLDG. PEN. #	LINE #	MOVEMENT	VERTICAL		HORIZONTAL	
				MIN. GAP	MOVEMENT	MIN. GAP
1	1HBC-81	+ 1/8		1 1/4	+ 1/4	1 1/4
2	1HBC-82	+ 1/8		1 1/4	+ 3/8	1 1/4
5	2HBC-311	- 1/2		1/4	0	1 1/4
6	2HBC-310	- 3/4		7/8	0	1 3/8
8	1HBC-310	- 1/2		5/8	0	1 1/2
9	1HBC-311	- 5/8		3/4	0	1 1/4
11	2HBC-81	- 1/4		3/4	- 1/8	1 3/8
12	2HBC-82	0		1	- 1/8	1 3/8

Directions: Vertical + pipe moves up relative to penetration
- pipe moves down relative to penetration

Horizontal + pipe moves east/north relative to penetration
- pipe moves west/south relative to penetration

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	)	50-329-OL
	)	50-330-OL
(Midland Plant, Units 1 and 2))	
<hr/>		

CERTIFICATE OF SERVICE

I hereby certify that copies of "Consumers Power Company's (Applicant's) Answer to NRC Staff Interrogatories dated November 26, 1980, and attached affidavits were served upon the following persons by depositing copies thereof in the United States mail, first class postage prepaid on this 11th day of March, 1981.

Frank J. Kelley, Esq.
Attorney General of the
State of Michigan
Stewart H. Freeman, Esq.
Assistant Attorney General
Gregory T. Taylor, Esq.
Assistant Attorney General
Environmental Protection Div.
720 Law Building
Lansing, Michigan 48913

Myron M. Cherry, Esq.
One IBM Plaza
Suite 4501
Chicago, Illinois 60611

Mr. Wendell H. Marshall
RFD 10
Midland, Michigan 48640

Charles Bechhoefer, Esq.
Atomic Safety & Licensing Board Panel
U. S. Nuclear Regulatory Comm.
Washington, D. C. 20555

Gustave Linenberger
Atomic Safety & Licensing Board
U. S. Nuclear Regulatory Comm
Washington, D. C. 20555

Dr. Frederick P. Cowan
6152 N. Verde Trail
Apt. B-125
Boca Raton, Florida 33433

Michael Miller, Esq.
Isham, Lincoln & Beale
One First National Plaza
Suite 4200
Chicago, Illinois 60603

Mr. Steve Gadler
2120 Carter Avenue
St. Paul, Minnesota 55108

D. F. Judd, Sr. Project Manager
Babcock & Wilcox
P. O. Box 1260
Lynchburg, Virginia 24505

Atomic Safety & Licensing Appeal Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. C. R. Stephens, Chief
Docketing & Service Section
Office of the Secretary
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Ms. Mary Sinclair
5711 Summerset Street
Midland, Michigan 48640

William D. Paton, Esq.
Counsel for the NRC Staff
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Atomic Safety & Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Barbara Stamiris
5795 North River Road
Route 3
Freeland, Michigan 48623

Lester Kornblith, Jr.
Atomic Safety & Licensing Board
U. S. Nuclear Regulatory Comm.
Washington, D. C. 20555

James E. Brunner

James E. Brunner
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

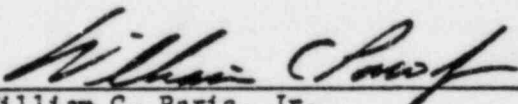
In the Matter of)
CONSUMERS POWER COMPANY)
)
(Midland, Units 1 and 2))
)
_____)

DOCKET NOS. 50-329-OM
50-330-OM
50-329-OL
50-329-OL

COUNTY OF WASHTENAW)
STATE OF MICHIGAN)ss)

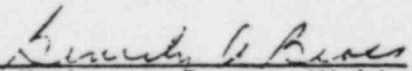
AFFIDAVIT OF WILLIAM C. PARIS, JR.

William C. Paris, Jr., being duly sworn, deposes and says that he is employed by Bechtel Associates Professional Corporation, as an Engineering Supervisor; that he is jointly responsible with Neal Swanberg for providing answers to NRC Staff Interrogatories to Consumers Power Company Number 7, and that to the best of his knowledge and belief the above information and the answers to the above interrogatories are true and correct.



William C. Paris, Jr.

Subscribed and sworn to before me this 6 day of March 1981.



Notary Public, Washtenaw County, Michigan
BEVERLY A. CROSS
NOTARY PUBLIC, WASHTENAW CO., MICH.
My Commission Expires: MY COMMISSION EXPIRES NOV. 30, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
CONSUMERS POWER COMPANY)
(Midland, Units 1 and 2))
_____)

DOCKET NOS. 50-329-OM
50-330-OM
50-329-OL
50-329-OL

COUNTY OF WASHTENAW)
STATE OF MICHIGAN) ss

AFFIDAVIT OF NEAL SWANBERG

Neal Swanberg, being duly sworn, deposes and says that he is employed by Bechtel Associates Professional Corporation, as Assistant Project Engineer; that he is responsible for providing answers to NRC Staff Interrogatories to Consumers Power Company Numbers 1, 5, 7 (jointly with W. Paris), 8, and 9c, and that to the best of his knowledge and belief the above information and the answers to the above interrogatories are true and correct.

Neal Swanberg
Neal Swanberg

Subscribed and sworn to before me this 6 day of March 1981.

Franklin A. Bess
Notary Public, Washtenaw County, Michigan

My Commission Expires: NOVEMBER 30, 1981

8 Joe - I wasn't sure you had this But

J. Keane 3/20/81 Rec'd 3/30/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

II
Polon / Jones / Brown
0/1/10/12/13
FF

In the Matter of)
CONSUMERS POWER COMPANY)
(Midland Plant, Units 1 and 2))

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

AMENDED AND ADDITIONAL RESPONSES TO
CERTAIN NRC STAFF INTERROGATORIES DATED 11/26/80

Interrogatory 4

In the response to Question 15 of the NRC request, regarding plant fill, it is stated that, "differential settlement primarily induces additional strain, which is a self-limiting effect and does not affect the ultimate strength of the structural members." Additional clarification of this statement is needed.

4(a) Why do you classify the resulting strains as self-limiting in nature?

Response

The term "self-limiting" is a shorthand expression for the behavior of a structure under strain-induced loads such as settlement in the absence of a bearing capacity failure.

Based on the characteristics of supporting soils and the imposed load from a structure, the predicted settlement of the structure can be calculated over its lifetime. To evaluate the effect of settlement on the structure, the settlement can be divided into the following:

- (1) Uniform settlement (rigid body translation)
- (2) Differential settlement
 - (a) Tilting (rigid body rotation)
 - (b) Curvature

~~82 4 6 6 7 7~~

Rigid body motion of the structure, both translation and rotation, does not cause any strain in the structure. Therefore, it is of no concern in the evaluation of structural adequacy. In contrast, curvature in the structure due to settlement will cause additional strain in the structure. Therefore, the effects of curvature induced due to settlement need to be investigated.

Curvature and Stress

When a structural element is subjected to curvature (ϕ), tensile strain is induced in the convex side and compressive strain in the concave side of the element (Figure 1). For a concrete structural element, the theoretical relationship between curvature and moment can be established based on the stress-strain relationship of concrete and reinforcing steel.

An idealized moment-curvature plot of an under-reinforced concrete section similar to those used in the Midland Diesel Generator Building is shown in Figure 2. As can be seen from Figure 2, the curvature increases linearly as the moment is increased, up to the moment M_y , corresponding to the point of yielding for the tensile steel. Beyond that point, any increase in curvature would not increase the moment in the structural element. The maximum curvature that can be induced in the element is ϕ_u , corresponding to an ultimate concrete strain of .003.

Behavior of Structures Subjected to Loads

The loads applied on a structure can be divided into two categories:

- (1) Externally applied forces
- (2) Externally applied strains

When structures are subjected to externally applied forces, internal forces and moments must be induced in the structure to restore static equilibrium between external and internal forces. An increase in curvature beyond ϕ_y^* is not useful in resisting such external forces, as no additional internal moment is mobilized due to the additional curvature.

When an externally applied strain due to settlement is applied to a structure, the structure must be capable of accommodating additional strain imposed on it without failure. Since no net external forces are applied by that process, the induced strain need not cause internal forces in the structure. Therefore, even if a structure has already reached ϕ_y due to an externally applied force, the structure can still resist externally applied strain so long as the resultant curvature is less than ϕ_u . Moreover, the behavior of the structure would be the same regardless of which influence -- the settlement strain or the external force -- is applied first.

For example, let " M_A " be the moment induced in the structure due to external forces and $\Delta\phi$ be the additional curvature induced due to settlement. In the elastic range, let ΔM be the increase in moment due to $\Delta\phi$. If $(M_A + \Delta M)$ is less than M_y , the additional curvature due to settlement will cause the additional moment corresponding to the curvature ($\Delta\phi$). (Figure 3)

On the other hand if $(M + \Delta M)$ is greater than M_y as in (Figure 4), the structure will see a moment equal to M_y with an increase in curvature equal to $\Delta\phi$. The increase in moment due to curvature in this instance (i.e.

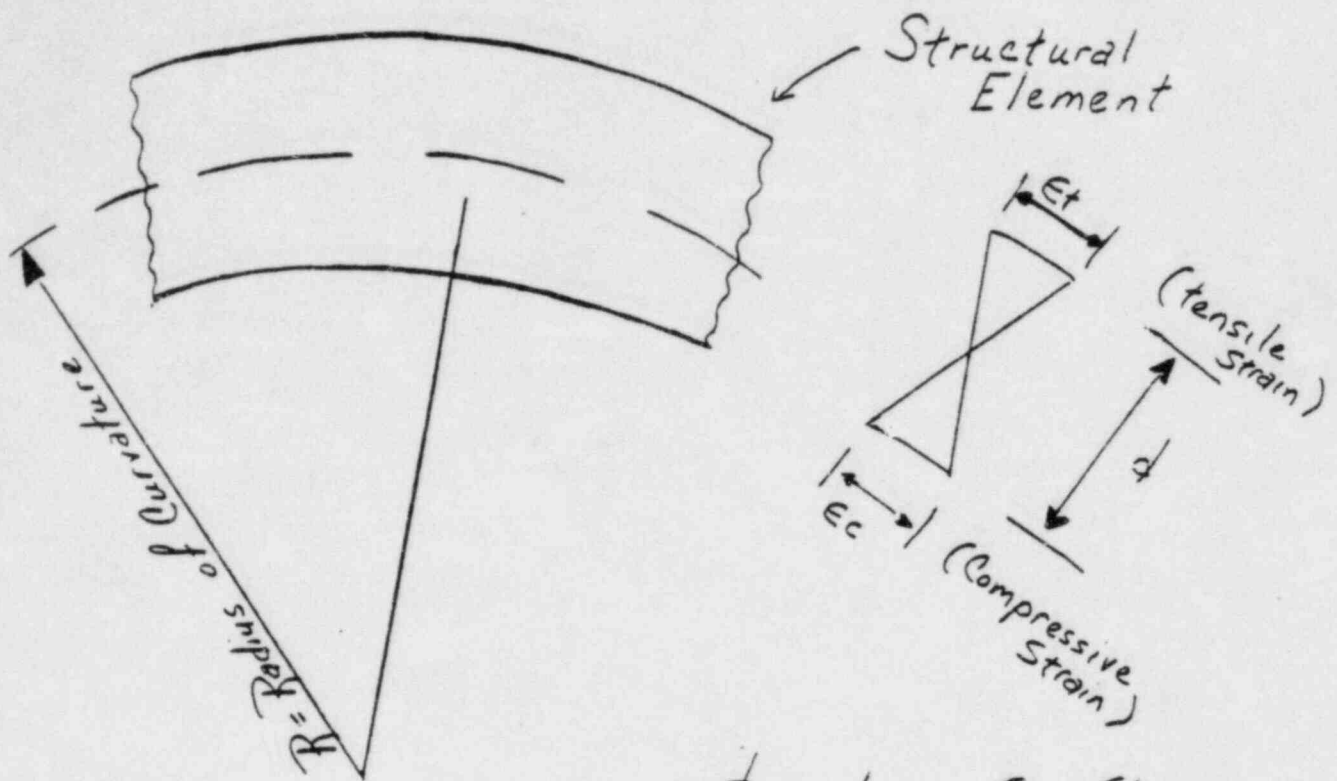
*See attached figure 2

Figure 4) is less than it would be were the yield moment high enough such that $M + \Delta M < M_y$. If $M = M_y$, there is no increase in moment. Since ΔM is not required to restore static balance, the structure will be stable even if $\Delta M = 0$, as long as the additional curvature $\Delta \theta$ does not result in a curvature of the structure greater than θ_u .

Conclusion

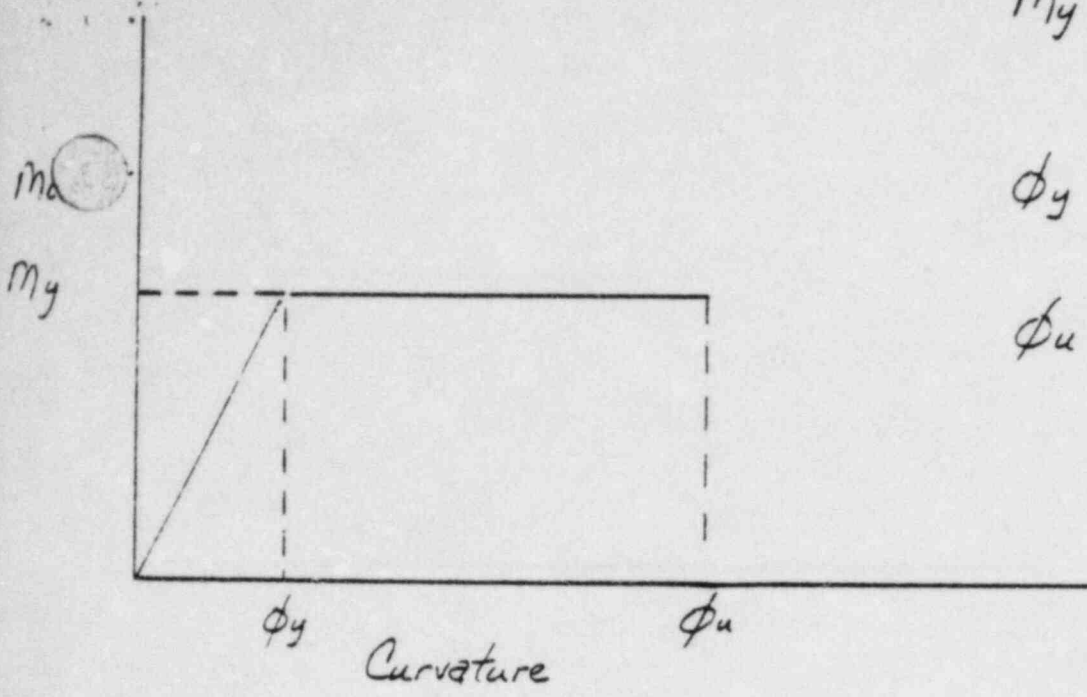
The stress induced in a structure due to settlement can vary from zero to a maximum of a proportionality constant* multiplied by the induced curvature. The actual stress is assigned by the structure itself depending on its capacity to resist stress after allowing for any stress requirements due to external forces.

* i.e. $(\Delta M / \Delta \theta)_{elastic}$



$$\phi = \frac{1}{R} = \frac{\epsilon_c + \epsilon_t}{d}$$

Figure 1



M_y = Moment Corresponding to yield stress in reinforce steel

ϕ_y = Curvature Corresponding to M_y

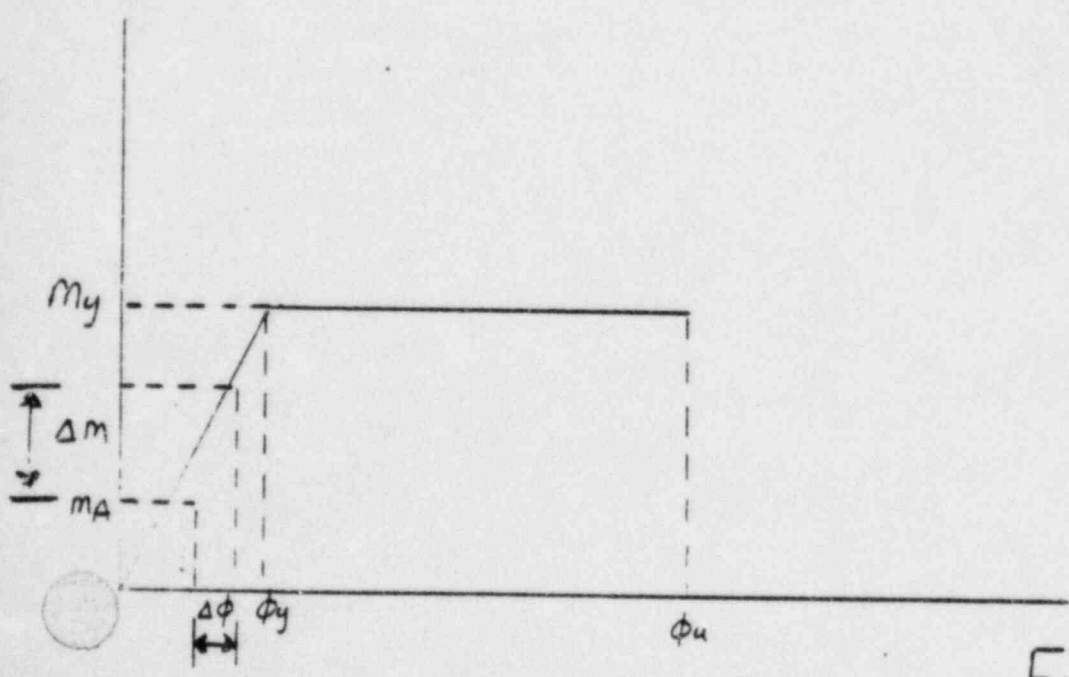
ϕ_u = Ultimate curvature corresponding to concrete strain of 0.03

$$M = K\phi$$

when $\phi < \phi_y$

Moment - Curvature Diagram
For Under-reinforced Concrete Section

Figure 2



$$\Delta m = K(\Delta \phi)$$

Figure 3

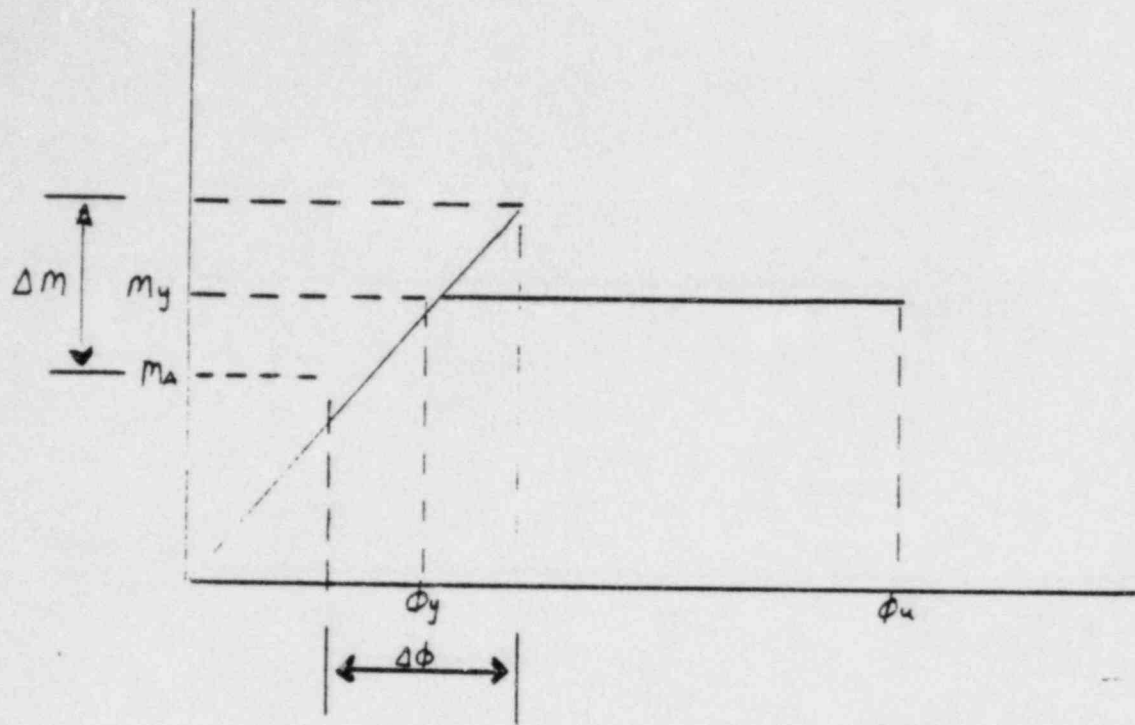


Figure 4

4(b) How do you reconcile your statement quoted above with your statement concerning the Service Water Pump Structure in the Management Corrective Action Report No. 24, Interim Report 6, issued September 7, 1978 that the total design loads cannot be supported by the main structure.

Response

For purposes of the underpinning design of the foundations of the service water pump structure, no credit was taken for any bearing capacity in the fill material. Under these circumstances the self-limiting analysis described in the Response to Interrogatory 4(a) does not apply, since the mechanism for producing possible strains in the structure is not limited to settlement.

Interrogatory 1(e) and 1(f) (Amended Responses)

- 1(e) Have you factored into any re-analysis information contained in, or resulting from, a letter from Robert Tedesco to Vice President J. Cook dated October 14, 1980, concerning seismological input data acceptable to the Staff?

Response

Applicant objects on the ground that this question goes beyond the limited jurisdiction conferred by the December 6, 1979 Order, that the seismic re-analysis requested by Mr. Tedesco in the October 14, 1980 letter should be reserved for the operating license hearing, and, hence, that it is irrelevant to these proceedings. Subject to that objection, Applicant answers as follows: The pending seismic re-analysis requested in the October 14, 1980 Tedesco letter has been considered in arriving at the following approach towards designing and analyzing the remedial fixes for the auxiliary building electrical penetration area, the service water pump structure, and the borated water storage tank ring foundation: Seismic forces obtained by application of FSAR input criteria (i.e. modified Housner spectra and maximum acceleration anchored at .12 g) will be increased by a reasonable margin. Forces thus determined will be combined with other loads in accordance with applicable load combinations in arriving at design parameters for the remedial measures. In addition, with respect to the Diesel Generator Building, Bechtel is attempting to evaluate the total margin which actually exists in excess of FSAR seismic design criteria.

When discussions with the NRC Staff respecting possible redefinition of seismic criteria applicable to the entire Midland site are completed, Applicant will evaluate the necessity for seismic re-analyses of any or all Category I Structures, including those founded partly or entirely on plant fill.

- 1(f) If the answer (e) is yes, please provide copies of all documents relating to that re-analysis.

Response

The documents pertaining to the design analyses of the remedial fixes for the service water pump structure, the auxiliary building and the borated water storage tank ring foundation (using the approach spelled out in the response to 1(e)) will be provided, as stated in the response to question (b). Applicant objects to providing documents relating to the analysis of total margin in excess of FSAR seismic design criteria for the Diesel Generator Building, for the reasons stated in the first sentence of Applicant's response to question 1(e). For the same reason, Applicant objects to providing in this proceeding future seismic re-analyses of Midland structures as requested by the October 14, 1980 Tedesco letter.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

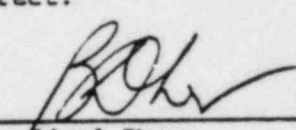
In the Matter of)
CONSUMERS POWER COMPANY)
(Midland, Units 1 and 2))
_____)

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

COUNTY OF WASHTENAW)
STATE OF MICHIGAN) ss)

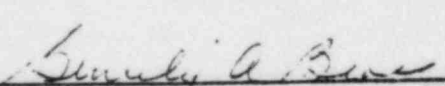
AFFIDAVIT OF BIMAL DHAR

Bimal Dhar, being duly sworn, deposes and says that he is employed by Bechtel Associates Professional Corporation, as an Engineering Supervisor; that he is responsible for providing an answer to Consumers Power Company's Answer to NRC Staff Interrogatory No. 4 dated 11/26/80, and that to the best of his knowledge and belief the above information and the answer to the above Interrogatory is true and correct.



Bimal Dhar

Subscribed and sworn to before me this 13 day of March, 1981.



Notary Public, Washtenaw County, Michigan

My Commission Expires: November 30, 1982

BEVERLY A. BROOKS
NOTARY PUBLIC, WASHTENAW CO., MICH
MY COMMISSION EXPIRES NOV. 30, 1982

Lester Kornblith, Jr.
Atomic Safety & Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Ralph S. Decker, Esq.
Route 4, Box 1900
Cambridge, Maryland 21613

Ms. Mary Sinclair
5711 Summerset Street
Midland, Michigan 48640

William D. Paton, Esq.
Counsel for the NRC Staff
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Atomic Safety & Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Barbara Stamiris
5795 North River Road
Route 3
Freeland, Michigan 48623

James E. Brunner

James E. Brunner
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

NRC Response to CPCo motion to compel answer to Interr. 13-16

04/01/81

J. Kane
P-214

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

CONSUMERS POWER COMPANY)

(Midland Plant, Units 1 and 2))

Docket Nos. 50-329-01 & 01
50-330-01 & 01.

NRC STAFF'S ANSWER IN OPPOSITION TO
CONSUMERS POWER COMPANY MOTION TO
COMPEL ANSWERS TO INTERROGATORIES

Pursuant to 10 CFR § 2.730(c), the NRC Staff answers Consumers Power Company Motion to Compel NRC Staff to Answer Interrogatories 13 through 16. The NRC Staff opposes the motion because (1) it is an attempt on Consumers Power Company (hereafter Consumers) part to force the Staff to create a compilation of a large volume of Consumers' data that is available to them but which does not presently exist in the specific format that Consumers has requested and (2) the information sought is not relevant to the issues before this Board.

BACKGROUND

On February 25, 1981 the NRC Staff filed answers to interrogatories that had been submitted by Consumers on November 12, 1980. In a separate document filed on that same day, the NRC Staff objected to Consumers interrogatories 13 through 16 which read as follows:

13. State with particularity each acceptance criteria which Consumers Power Company had up until December 6, 1979 provided to the Staff.

14. As of December 6, 1979 with regard to each criteria identified in your answer to interrogatory 13 state whether Consumers had submitted sufficient information to justify each

~~0104030356~~
7pp.

acceptance criteria. If Consumers had not submitted sufficient information, state with particularity which information Consumers had failed to supply.

15. Excluding the acceptance criteria identified in response to interrogatory 13, state with particularity each acceptance criteria which Consumers has to date provided to the Staff.

16. With regard to each criteria identified in your answer to interrogatory 15 state whether Consumers has submitted sufficient information to justify each acceptance criteria. If Consumers has not submitted sufficient information, state with particularity which information Consumers has failed to supply.

ARGUMENT

A. Consumers request is not within the limited scope of discovery against the Staff

The Appeal Board recently discussed the limited scope of discovery against the NRC Staff. After discussing discovery from parties other than the NRC Staff, the Appeal Board stated that "[d]iscovery against the Staff is on a different footing."^{1/} The Appeal Board stated that the Rules of Practice allows interrogatories addressed to the Staff only where the information is not obtainable elsewhere. The information Consumers is requesting here is from its own documents.

B. The compilation of data Consumers seeks does not exist and would have to be derived from Consumers' documents

Consumers asks for a compilation of criteria they have provided the Staff both before and after December 6, 1979. They argue that the compilation of data that they are requesting "must" exist. At page 4 of their motion they state, "therefore, the information responsive to

^{1/} Pennsylvania Power and Light Company, (Susquehanna Steam Electric Station), ALAB-613, 12 NRC 317, 323 (1980).

interrogatories 13 and 14 must have been in existence as of December 6, 1979." Also on page 4 of the motion states, "the NRC Staff must also have compiled the requested information and data [requested by interrogatories 15 and 15] in order to support that position." In fact, the compilation of data they seek does not exist.

Consumers' motion to compel demonstrates their misunderstanding of the NRC Staff's regulatory role and review process. The NRC Staff does not design nuclear power plants. As a regulator, it reviews information submitted by applicants. Applicants submit criteria for their design which the NRC audits in their reviews to determine acceptability. NRC does not review every criteria in an application. Engineering judgment is used to determine which portions of the application should be subjected to more detailed review. Thus, the information requested in Consumers' interrogatories 13 through 16 has never been compiled by the NRC.

If this Board were to compel the Staff to compile the data Consumers is requesting, the Board would, in effect, be ordering the Staff to start the review process over again and review each and every criteria - including criteria which in an audit review had not previously been reviewed. ^{2/}

Section 33.20 of Moore's Federal Practice sets forth some "general principles" with respect to interrogatories calling for investigation or compilation of data. One of those general principles is that

^{2/} In the event the Staff were compelled to make the compilation which Consumers has requested, a preliminary estimate is that it would take several months.

While a party must furnish in his answer to interrogatories whatever information is available to it, [footnote omitted] ordinarily a party will not be required to "make research and compilation of data not readily known to him" [footnote omitted] - at least if the data is equally available to the interrogating party [citing numerous cases].

In Webb v. Westinghouse Elec. Corp., 81 F.R.D. 431 (1978), a class action discrimination suit, plaintiff moved to compel answers to interrogatories. Defendants objected to requests for compilations of information on the ground that the documents from which the compilations were to be derived had already been made available to plaintiffs. The court refused to compel defendants to compile the information holding that plaintiffs were, in effect, asking the court to shift the cost of trial preparation to the defendant.

In the instant proceeding, the documents from which the compilation is sought were not merely made available to Consumers - they were created by Consumers. This Board should not compel the Staff to create a compilation of data from Consumers' own documents.

C. The information Consumers seeks is irrelevant to the issues.

The December 6, 1979 Order Modifying Construction Permits states, at page 3, that the information provided by Consumers fails to provide acceptance criteria necessary for the Staff to evaluate the technical adequacy of Consumers' proposed remedial actions. In the Staff's February 25, 1981 voluninous answers to Consumers' interrogatories, we identify the information needed by the Staff for further review of remedial actions proposed by Consumers. We identify in response to interrogatories 2, 6, 7 and 8 and appendices A and B where we have found criteria to be inadequate.

The Staff's dissatisfaction with identified criteria is what is at issue here. Those matters are fully discussed in the Staff's answers to Consumers' interrogatories.

What Consumers is seeking to discovery is not really relevant to the issues before the Board. The Staff has identified, as discussed above, all criteria found to be unacceptable and has indicated the reasons for unacceptability. The only other criteria within the Staff's possession are: (1) criteria that have been found acceptable and (2) criteria that have not been reviewed. These other criteria are not relevant to the issues before the Board. What is relevant is the dispute regarding criteria that have been submitted and have been found unacceptable.

CONCLUSION:

For the reasons stated above, Consumers motion to compel should be dismissed.

Respectfully submitted,



for William D. Paton
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 1st day of April, 1981.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF'S ANSWER IN OPPOSITION TO CONSUMERS POWER COMPANY MOTION TO COMPEL ANSWERS TO INTERROGATORIES in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 1st day of April, 1981.

*Charles Bechhoefer, Esq.
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Administrative Judge Ralph S. Decker
Route #4, Box 190D
Cambridge, MD 21613

Dr. Frederick L. Cowan
6152 N. Verde Trail
Apt. B-125
Boca Raton, Florida 33433

Frank J. Kelley
Attorney General of the State
of Michigan
Steward H. Freeman
Assistant Attorney General
Gregory T. Taylor
Assistant Attorney General
Environmental Protection Division
720 Law Building
Lansing, Michigan 48913

Myron M. Cherry, Esq.
1 IBM Plaza
Chicago, Illinois 60611

Ms. Mary Sinclair
5711 Summerset Street
Midland, Michigan 48640

Philip P. Steptoe, Esq.
Michael I. Miller, Esq.
Ronald G. Zamarin, Esq.
Alan S. Farnell, Esq.
Isham, Lincoln & Beale
One First National Plaza
42nd Floor
Chicago, Illinois 60603

*Atomic Safety and Licensing
Board Panel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

*Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

*Docketing and Service Section
Office of the Secretary
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

James E. Brunner, Esq.
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201


Jeann Linsley
Bay City Times
311 Fifth Street
Bay City, Michigan 48706

Ms. Barbara Staminis
5795 N. River
Freeland, Michigan 48623

Mr. Steve Gadler
2120 Carter Avenue
St. Paul, Minnesota 55108

Wendell H. Marshall, Vice President
Midwest Environmental Protection
Associates
RR# 10
Midland, Michigan 48640

John H. Kates
203 Washington Avenue
Saginaw, Michigan 48605



William D. Paton
Counsel for NRC Staff

NRC Response to CPG request to defer SEISMIC ISSUE

J. Keane Rec'd 4/13/81

04/07/81



UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF RESPONSE IN OPPOSITION TO APPLICANT'S MOTION TO DEFER CONSIDERATION OF SEISMIC ISSUES UNTIL THE OPERATING LICENSING PROCEEDING

On March 18, 1981, Consumers Power Company (Consumers or Applicant) filed a Motion To Defer Consideration Of Seismic Issues Until The Operating Licensing Proceeding. Pursuant to 10 C.F.R. §2.730(c), the NRC Staff hereby responds to Applicant's motion. The NRC Staff opposes the motion because (1) the instant proceeding is both an enforcement (OM)^{1/} and a licensing (OL)^{2/} proceeding, (2) Applicant's affirmative defense to the Order modifying its construction permits could involve proposed remedial actions which require seismic considerations and (3) the Licensing Board in deciding the issues in this proceeding could modify the construction permits by its findings on certain design matters which require seismic considerations.

-
- 1/ On March 14, 1980 the Commission issued a Notice of Hearing on the Order Modifying Construction Permits. 45 Fed. Reg. 18124 (March 20, 1980).
 - 2/ On October 12, 1978 the Chairman of the Board issued a Notice of Hearing on the application for a facility operating license. 43 Fed. Reg. 48089 (October 18, 1978).

DS07
3
1/1

~~8104090 534~~
G 6/81

BACKGROUND

On December 6, 1979, the Nuclear Regulatory Commission issued an Order Modifying Construction Permits No. CPPR-81 and No. CPPR-82. This Order was based on the following: quality assurance deficiencies involving the settlement of the Diesel Generator Building and soil activities at the Midland site, a material false statement in the FSAR and the unresolved safety issue concerning the adequacy of the remedial action to correct the deficiencies in the soil construction under and around safety-related structures and systems. The Order, if sustained, would prohibit Consumers from performing certain soil related activities pending approval of amendments to the construction permits.

On December 26, 1979 Consumers filed a Request for Hearing on the Order. In that Request, Consumers stated its intention to move, pursuant to 10 C.F.R. §2.716, to consolidate the OM proceeding with those issues relating to soil conditions and plant fill materials raised in the OL proceeding. Consumers filed such a Motion for Partial Consolidation on May 27, 1980. In the Prehearing Conference Order dated October 24, 1980, the Board granted the Motion for Partial Consolidation.

ARGUMENT

A. The instant proceeding is in part an operating licensing proceeding

Consumers' Motion repeatedly urges that consideration of seismic issues should be deferred until the operating licensing proceeding. This argument ignores the fact, however, that the instant proceeding is in part an operating licensing proceeding. Indeed, it was in response to a motion by Consumers that the Board ordered the consolidation of the OM

proceeding with those issues relating to soil conditions and plant fill materials raised in the OL proceeding. Thus, insofar as an evaluation of the soils and plant fill issues at the OL stage involves seismic input, the Staff submits that seismic issues must be considered in this consolidated proceeding.

B. An evaluation of Consumers' proposed remedial actions could require seismic analysis

If the scheduled hearing was restricted to the issues stated in the Order Modifying Construction Permits, the Staff concedes that seismic issues would not be relevant to that proceeding.^{3/} This concession is the only seismic "agreement" that the Staff had with Consumers. In this regard, the Staff never agreed that seismic issues would have absolutely no relevance to the consolidated OM-OL proceeding. Thus, Consumers' allegations that the Staff "renege" on an agreement and "affirmatively misled" the Applicant with respect to seismic issues are untrue.

Since the scope at the hearing will not be limited to the issues in the Order, it is likely that Consumers will raise the affirmative defense that the problems identified in the Order either have been remedied or are the subject of proposed remedial actions. In this regard, the Pre-hearing Conference Order stated that "the soil settlement aspects of the OL Proceeding . . . essentially will involve whether any 'fixes' that may be ordered in the OM Proceeding have been successfully implemented."

^{3/} Such a limitation would be appropriate in an enforcement proceeding. Public Service Co. of Indiana (Marble Hill Generating Station Units 1 and 2), CLI-80-10, 11 NRC 438, 441 (1980). However, a broader view is appropriate in this combined enforcement and licensing case. cf. Consumers Power Company (Big Rock Nuclear Plant), ALAB-636, p. 23 n. 22 (March 31, 1981).

If Consumers does raise this defense, the Board would be called upon to determine whether the "fixes" would require an amendment to the construction permits. The Board's determination would include deciding whether seismic issues are relevant to the "fixes". Consequently, they must be considered by the Board.^{4/}

For example, if Consumers proposes to remedy the settlement problems associated with the Service Water Structure by extending a wall down to the glacial till, it would be necessary to consider seismic issues in approving such an amendment to the construction permits. Specifically, the Board would have to conclude that the wall structure as proposed to be modified can reasonably be expected to withstand the Safe Shutdown Earthquake (SSE). In reaching such a conclusion, the Board must use a seismic design basis based on current seismic information rather than the 1972 seismic design basis established in the course of the construction permit proceeding.

Consumers argues that the Dairyland cases^{5/} are factually distinguishable from Midland. While the Staff agrees that Midland is not absolutely on point with the Dairyland cases^{6/} it contends that the

^{4/} It must be noted, however, that the Staff will not have completed its review of seismic issues by the start of the hearing in July.

^{5/} Dairyland Power Cooperative (LaCrosse Boiling Water Reactor), LBP-80-26, 12 NRC 367 (1980); ALAB-618, 12 NRC 551 (1980).

^{6/} Dairyland was strictly an enforcement proceeding whereas Midland is an enforcement and OL proceeding; an SSE had never been approved for the LaCrosse reactor whereas an SSE had been approved for the Midland reactors.

reasoning used and conclusion reached are applicable to the instant proceeding. In Dairyland the Board had to determine whether a dewatering system should be designed and installed on a stated schedule. The Board opined and the Appeal Board agreed that in order to produce an adequate record on the necessity of a dewatering system, it was essential that the reactor's SSE be ascertained, not assumed.^{7/} Similarly, in order to develop an adequate and complete record on any proposed remedial actions at Midland which would require an amendment to the construction permits, it is important to ascertain the current SSE rather than to assume that the 1972 SSE is still valid.^{8/}

This same view was expressed by two members of the instant Board at the prehearing conference on January 29, 1981. Mr. Linenberger stated:

The only thing I can tell you is that this Board will absolutely not ignore seismic criteria questions in arriving at its decision about the adequacy of proposed remedial actions. The considerations are not separable, and to try to separate them would be a contrivance that is not in anyone's best interest. (Tr. 790-91).

Chairman Bechoeffler, concurring with Mr. Linenberger, stated "we won't accept as a given the 1972 value." (Tr. 792). Thus, it is apparent that the Board will want to evaluate the proposed remedial actions in light of current seismic information.

^{7/} 12 NRC 367, 378; 12 NRC 551, 556 (1980).

^{8/} A letter from Robert L. Tedesco, Assistant Director for Licensing dated October 14, 1980 stated that the establishment of acceptable seismological input parameters is an open item in the NRC Staff's radiological safety review of the OL application.

C. If the Board modifies certain design bases of the construction permits, a seismic analysis would be required

Assuming arguendo, that the Board does not sustain the Order but instead decides to grant a lesser included remedy, such as certain modifications to the construction permits, that decision could require seismic analysis. In other words, depending on the nature of the ordered modification, seismic information may or may not become relevant. For example, if the ordered modification changes a design assumption that was based in part on seismic analysis, clearly the Board would have to consider seismic issues in approving that modification. Conversely, if the Board orders a modification which has no seismic implications, that order would not involve any analysis or consideration of seismic issues. Thus, the relevance of seismic information in this OM-OL proceeding depends in large part on the initial decision reached by the Board. To exclude in advance any consideration of seismic issues in the OM-OL proceeding could amount to restricting the Board decisionmaking powers. Accordingly, the Staff submits that seismic issues must be considered in the event the Board orders a modification of any seismic-sensitive design assumptions.

CONCLUSION

For the reasons stated above, Consumers motion to defer consideration of seismic issues should be denied.

Respectfully submitted,

Elen M. Brown

for William D. Paton
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 7th day of April, 1981.

Copy mailed to CPC on 1/25/81
NRC Considerations in responding to
CPC Interrog. Nos. 13-16

J. Kane
Rec'd 1/26/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF OBJECTIONS TO
INTERROGATORIES FILED BY CONSUMERS POWER COMPANY

The Staff is today filing answers to interrogatories filed by Consumers Power Company except for interrogatories 13 through 16. For the reasons stated below, the Staff objects to interrogatories 13 through 16 which read as follows:

- * 13. State with particularity each acceptance criteria with Consumers Power Company had up until December 6, 1979 provided to the Staff.
- 14. As of December 6, 1979 with regard to each criteria identified in your answer to interrogatory 13 state whether Consumers had submitted sufficient information to justify each acceptance criteria. If Consumers had not submitted sufficient information, state with particularity which information Consumers had failed to supply.
- 15. Excluding the acceptance criteria identified in response to interrogatory 13, state with particularity each acceptance criteria which Consumers has to date provided to the Staff.
- 16. With regard to each criteria identified in your answer to interrogatory 15 state whether Consumers has submitted sufficient information to justify each acceptance criteria. If Consumers has not submitted sufficient information, state with particularity which information Consumers has failed to supply.

Discussions w/ W. Obmstead on 3/19/81

Compels NRC to identify criteria
Criteria we have - found acceptable (either OK or audit review did not identify problem)

Criteria we have - unacceptable (CPC has been notified)

Criteria we don't have - we have told them in question 5 what we need

Decision of OELD
CPC interrogatories 13-16 are not discoverable (because they are asking us to compile data that is readily available to them) and is not relevant. What is relevant to the hearing is what the NRC has not accepted and what we need.

~~8102274763~~
500

The Staff objects to these interrogatories. The interrogatories are directed to information which was originally provided by Consumers. To select the requested information would require the Staff to sort through all of the voluminous documents provided by Consumers since the soil settlement problem was first reported in August 1978, and tabulate any acceptance criteria that may be found therein.

In the course of the Staff's normal review, it considers all the information submitted by Consumers, but would not ordinarily and did not in this case tabulate any acceptance criteria found in Consumers' documents.

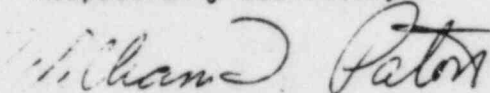
If the purpose of these interrogatories is to obtain the definition of the expression acceptance criteria, that has been provided in the answer to interrogatory 1.

The Staff has provided, in answers to other interrogatories, specific information concerning the adequacy of Consumers' responses, details as to specific information needed by the Staff, and the relevance of acceptance criteria to those matters.

In light of the above, the Staff submits that forcing the Staff to sort through voluminous documents provided by Consumers for the purpose of tabulating any acceptance criteria that may be found therein would be

an inappropriate burden on the Staff. If Consumers believes such a tabulation would assist the resolution of the issues in this proceeding, it would be more appropriate that it extract this information from documents it prepared in the first instance.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "William D. Paton".

William D. Paton
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 25th day of February, 1981

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF OBJECTIONS TO INTERROGATORIES FILED BY CONSUMERS POWER COMPANY in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 25th day of February 1981.

*Charles Bechhoefer, Esq. Atomic Safety and Licensing Board U. S. Nuclear Regulatory Commission Washington, D.C. 20555	Ms. Mary Sinclair 5711 Summerset Street Midland, Michigan 48640
*Mr. Gustave A. Linenberger Atomic Safety and Licensing Board U. S. Nuclear Regulatory Commission Washington, D.C. 20555	Michael I. Miller, Esq. Ronald G. Zamarin, Esq. Alan S. Farnell, Esq. Isham, Lincoln & Beale One First National Plaza 42nd Floor Chicago, Illinois 60603
Dr. Frederick P. Cowan 6152 N. Verde Trail Apt. B-125 Boca Raton, Florida 33433	*Atomic Safety and Licensing Board Panel U. S. Nuclear Regulatory Commission Washington, D.C. 20555
Frank J. Kelley Attorney General of the State of Michigan Steward H. Freeman Assistant Attorney General Gregory T. Taylor Assistant Attorney General Environmental Protection Division 720 Law Building Lansing, Michigan 48913	*Atomic Safety and Licensing Appeal Board Panel U. S. Nuclear Regulatory Commission Washington, D.C. 20555
Myron M. Cherry, Esq. 1 IBM Plaza Chicago, Illinois 60611	*Docketing and Service Section Office of the Secretary U. S. Nuclear Regulatory Commission Washington, D.C. 20555

James E. Brunner, Esq.
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Jeann Linsley
Bay City Times
311 Fifth Street
Bay City, Michigan 48706

Ms. Barbara Stamiris
5795 N. River
Freeland, Michigan 48623

Mr. Steve Gadler
2120 Carter Avenue
St. Paul, Minnesota 55108

Wendell H. Marshall, Vice President
Midwest Environmental Protection
Associates
RFD 10
Midland, Michigan 48640

James R. Kates
203 S. Washington Avenue
Saginaw, Michigan 48605

W. D. Paton
William D. Paton
Counsel for NRC Staff