RELATED CORRESPONDENCE

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)	

CONSUMERS POWER COMPANY'S ANSWER TO NRC STAFF INTERROGATORIES

(Dated 1/2/81)

Interrogatory 1

Your response to Question 17 in "Responses to NRC Requests Regarding Plant Fill" regarding piping founded in the plant area fill, states: "When two pipelines were parallel and in the same proximity, only one was profiled."

1(a) Define "same proximity" as used in the above quotation.

Response

As stated in the response to Question 17 of Responses to NRC Requests Regarding Plant Fill, pipelines in the "same proximity" are defined as parallel pipelines a few feet apart placed at the same elevation. The typical distance between lines ranges from 2' to 6' with the maximum being 18.5'.

1(b) In view of the random nature and varying properties of the fill, what assurance exists that the settlement of the profiled pipelines is similar to pipelines not profiled?

1(c) What assurance exists that future settlement of the profiled pipelines will be similar to pipelines not profiled?

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Response

Applicant is still evaluating available information on the matter. When such evaluations are completed, Applicant will provide responses to these questions.

Interrogatory 2

Your response to Question 17 in "Responses to NRC Requests Regarding Plant Fill" includes a Figure 17-1 showing the locations of some, but not all, of the piping listed in Table 17-1 of that response. Do you have sketches like that of Figure 17-1 identifying the location of the remaining piping listed in Table 17-1? If yes, please provide copies.

Response

Figures 17-1 and 19-1 of Responses to NRC Requests Regarding Plant Fill were intended to show only the location of pipes to be profiled. Figure 1 (attached shows the location of all buried Seismic Category I piping in the yard.

Interrogatory 3

The legend for Figure 17-1 of your response to Question 17 in "Response to NRC Requests Regarding Plant Fill" makes reference to a Note #1 and a Note #2. Neither note is shown. State the contents of these two notes, if they exist.

Response

Notes 1 and 2 were inadvertantly left off Figure 17-1 of Responses to NRC Requests Regarding Plant Fill. Notes 1 and 2 read as follows:

1. Profile measurements of the pipe inverts shown as a heavy line on this drawing shall be performed in accordance with Specification 7220-C-82(Q), Section 8.0
2. Profile measurements of the pipes shown as heavy lines shall be performed by optical methods (standard transit and level).

Interrogatory 4

Figure 17-2 of your response to Question 17 in "Responses to NRC Requests Regarding Plant Fill" regarding piping founded in the plant area fill shows some differences between profiles of a given pipe taken on different dates. Specifically, the profiles for pipeline 20" - 1HCD-169 between stations 3+00 and 4+30 show a decrease in slope changes (i.e., a smoothing out) and relocation of certain peaks when the March/April 1979 profile is compared to the July 1979 profile. How do you explain the difference of these two profiles?

Response

The accuracy of the pipe profile readings taken by Goldberg, Zoino, Dunnicliff and Associates (GZD) has been stated as being ± 0.02 feet. This accuracy would account for minor differences in profile elevations.

There were also some differences in elevations in excess of .02 feet. These are explained as follows:

1. After reviewing relevant data used in plotting the profiles for pipeline 20' - 1HCD - 169 and contacting GZD, it was discovered that a typographical error had been made in producing the April, 1979 data tables at stations 3+20 and 3+30 for pipeline 20' - 1HCD - 169. The corrected April, 1979 profile shows a close correlation with the July , 1979 profile at these locations.
2. The peak in the April, 1979 profile at station 3+90 appears to be the result of a bad reading at an elbow. With the method of pulling the pipe profile gage through the pipe, it was

possible for the profile gage to be pulled up the side of the pipe at bends or obstructions. The small diameter (20 inches) and geometry of the pipe prohibited having a person in the pipe to verify that the profile gage was on the invert. The closer spacing of readings for the July, 1979 profile shows a very smooth elevation transition around this elbow. It is highly unlikely that the pipe and elbow have experienced the extreme movements suggested by the profiles in the short time span from April to July. Therefore, it has been concluded that the elevation recorded in the April, 1979 profile for the elbow at station 3+90 is approximately 4 inches too high.

Interrogatory 5

Figure 19-1 of your response to Question 19 in "Responses to NRC Requests Regarding Plant Fill" regarding piping founded in the plant area fill shows some differences between profiles of a given pipe taken on difference dates. Specifically, the profile for pipeline 10" - OHBC-27 taken September 1979 is at a higher elevation than the profile of that same line taken in January 1979. How do you reconcile these differences.

Response

Relevant data used in plotting the profiles for pipeline 10"-OHBC-27 have been reviewed. After contacting GZD it was discovered that an incorrect reference elevation had been used in computing the September 1979 profile elevations for pipeline 10"-OHBC-27. To correct the September 1979 readings, 0.15 foot should be subtracted from all elevations except the readout point elevation. The corrected elevations still show a slight upward movement of the

pipeline. However, the movement is within the ±0.02 foot accuracy of the pipe profile gage. Drawings indicating the correct readings, along with other corrected profiles, are provided with these responses.

Interrogatory 6

Figure 19-1 of your response to Question 19 in "Responses to NRC Requests Regarding Plant Fill" regarding piping founded in the plant area fill shows some differences between profiles of a given pipe as taken on different dates. Specifically, the profile for pipeline 8" H1HBC-81 measured in September 1979 is at a deeper elevation than the profile of this pipeline taken in January 1979 and the change in slope for the September 1979 profile is not as great as for the January 1979 profile. How do you reconcile this behavior?

Response

According to Note 1 on Figure 19-1 of the response to Question 19 in Responses to NRC Requests Regarding Plant Fill, it was concluded that the readout point elevation was disturbed and moved approximately 5 inches between the time GZD profiled the line (January, 1979) and the time the reference point elevation was established by Bechtel survey. The slight change in slope along the line in the September profile can be accounted for by settlement due to the diesel generator building preload.

Interrogatory 7

Have any underground pipelines other than those for which the profiled results are reported in your responses to Questions 17 and 19 of "Responses to NRC Requests Regarding Plant Fill", and which are not provided in response to Interrogatory 2 herein, been measured for profile? As to any affirmative reply, please describe the results and any sketches of profile results.

Response

There are no underground pipelines, other than those listed in the response to Question 17 and 19 of the 10 CFR 50.54 f Request Regarding Plant Fill, which have been measured for profile in their normal operating condition. The term normal operating condition is used to refer to pipes which have been embedded and fully backfilled.

The following four pipes were surveyed optically with all overburden removed, (i.e. no backfill).

8" - 1HBC-81 (Also profiled by GZD)

8" - 1HBC-82

10" - 0HBC-28

4" - 0JBV-739 (Non-Q pipeline)

All of the above pipes were rebedded in the same trench following the preload.

Since it is impossible to determine if there was movement in the above pipe while the overburden was being removed, these profiles are not regarded as reliable indications of pipe movement during differential settlement, and were not included in the profile summary in Table 17-1.

Interrogatory 8

State the principal architectural and engineering criteria provided pursuant to 10 CFR § 50.35 to which each of the following structures and components were designed (or were to have been designed) with respect to soil properties foundation support and performance during severe natural phenomena:

(1) Diesel Generator Building

(2) Auxiliary Building

(3) Service Water Intake Structure and integral retaining walls

(4) Feedwater Isolation Valve Pits

(5) Underground seismic Category I piping and conducts

(6) Underground piping other than seismic Category I piping, located beneath or near seismic Category I structures and components

(7) Borated water storage tanks and ring support

(8) Underground diesel fuel oil storage tanks and fuel oil lines

(9) Cooling pond dikes

Response

The principal engineering and architectural criteria provided pursuant to 10 CFR 50.35 are contained in the Midland Plant preliminary safety analyses report (PSAR), which is hereby incorporated by reference in this answer.

While the PSAR contains such criteria, not all design information in the PSAR is regarded as "principal criteria." The regulation in question, 10 CFR 50.35, indicates that the principal criteria must be "included" in the PSAR, but does not exclude the addition of supplemental information to further delineate or describe design details.

The Midland plant PSAR has a summary of principal criteria in section 1.4 and appendix 1C. As stated in section 1.4, "the specific architectural and engineering criteria and design features are detailed in later sections of the PSAR."

Interrogatory 9

Identify all principal architectural and engineering criteria identified in your answer to Interrogatory 8 which will not be met unless the remedial actions proposed or completed for the soils placed and compacted at the Midland site are implemented.

Response

Applicant objects to this question on the ground that it is irrelevant to these proceedings.

The question calls for an identification of those principle criteria which would not be met without remedial action. To respond to the question, Applicant would be required to undertake a technical analysis to determine the ability of a non-applicable design to meet the principle criteria. Such an exercise would be a waste of resources from an engineering standpoint, and would produce a result which is not relevant to these proceedings, which are considering a new design based on remedial fixes.

Interrogatory 10

Midland PSAR Section 2.8.4.1, as last amended on May 28, 1969, states the following design criteria for fill and backfill: "All fill and backfill materials are adequately compacted to insure stability of the fill and to provide adequate support for structures founded on this fill without excessive settlements."

10(a) With respect to this criterion, define "excessive settlements".

Response

The term "excessive settlements" refers to settlements in structures which would produce structural stresses such that the structure's behavior is unacceptable in either normal operating or accident conditions.

10(b) With respect to this criterion, define "adequately compacted".

Response

The term "adequately compacted" refers to a state of compaction such that excessive settlements do not occur and adequate stability characteristics are achieved, and that there is reasonable assurance of such results for the future. The PSAR contains a recommended method for meeting the adequately compacted criteria, which is set out in the so-called Dames & Moore Report of March 15, 1969, as follows.

	RECOMMENDED MINIMUM COMPACTION CRITERIA	
	ON-SITE SAND SOILS	ON-SITE CLAY SOILS
PURPOSE OF FILL	PERCENT RELATIVE DENSITY*	PERCENT OF MAXIMUM DENSITY**
Support of Structures	85	100
Adjacent to Structures	75	95
Area Fill (Not supporting or adjacent to structures)	70	90

* Maximum and Minimum density of sand soils should be determined in accordance with A.S.T.M. Test Designation D-2049-64T

** Maximum dry density and optimum moisture content should be determined in accordance with A.S.T.M. Test Designation D-698, modified to require 20,000 foot-pounds of compactive energy per cubic foot of soil.

10(c) Was this design criterion met for the fills and backfills as originally placed and compacted (i.e., prior to the surcharge program) beneath or adjacent to the Diesel Generator Building?

Response

No.

10(d) Has this design criterion been met for the fills and backfills which were subjected to the Diesel Generator Building surcharge program?

Response

Yes.

10(e) Was this design criterion met for the fills and backfills as originally placed and compacted beneath or adjacent to the Auxiliary Building?

Response

No.

10(f) Will this design criterion be met once the proposed remedial action for the Auxiliary Building has been completed?

Response

With respect to portions of the structure which will be founded upon plant fill once remedial actions are taken, the answer is yes. With respect to other parts of the structure, no credit for the support provided by the fill will be taken in the foundation design, even though the fill underlying or adjacent to sections of the structure which will be underpinned does provide some support.

10(g) If the answer to Interrogatory 10(f) is no, what design criterion will be met?

Response

Not applicable

10(h) Was the design criterion quoted above met for the fills and backfills as originally placed and compacted beneath or adjacent to the Service Water Intake Structures?

Response

No.

10(i) Will the design criterion quoted above be met once the proposed remedial action for the service Water Intake Structure has been completed?

Response

No credit for any vertical support provided by the fill underlying or adjacent to the underpinned portion of the structure will be taken in the foundation design, even though such fill will provide some vertical support. The fill adjacent to the service water pump structure will provide an adequate contribution to the lateral support of the structure for normal operating and accident conditions.

10(j) If the answer to Interrogatory 10(i) is no, what design criterion will be met?

Response

See the Response to 10(j).

10(k) Did the original fill and backfills placed inside and beneath the ring supports of the Borated Water Storage Tanks meet the quoted design criterion?

Response

No.

10(l) Do the existing fills and backfills placed inside and beneath the ring supports of the Borated Water Storage Tanks meet the quoted design criterion?

Response

No.

10(m) If the answer to Interrogatory 10(l) is no, what design criterion is met?

Response

Applicant is presently evaluating remedial action for this structure. When such evaluations are completed, Applicant will provide a response to this interrogatory.

10(n) Was the quoted design criterion met for the fills and backfills placed and compacted in the vicinity of the Diesel Fuel Oil Storage Tanks?

Response

Yes.

10(o) Was all of the fill for the Diesel Fuel Oil Storage Tanks placed originally to the requirements of Zone 2 materials?

Response

Yes.

10(p) If the answer to 10(o) is no, what areas were not placed to Zone 2 requirements; on what basis was this material accepted?

Response

Not applicable.

10(q) Was the design criterion quoted above met for the fills and backfills as originally placed and compacted beneath and adjacent to the Feedwater Isolation Valve Pits?

Response

No.

10(r) Will the design criterion quoted above be met once the proposed remedial action for the Feedwater Isolation Valve Pits has been completed?

Response

The above criterion no longer applies, and will not apply to the Feedwater Isolation Valve Pits once remedial activities respecting those structures are completed.

10(s) If the answer to Interrogatory 10(r) is no, what design criterion will be met?

Response

Once remedial activities are implemented, all of the plant fill directly beneath these structures will be replaced by concrete. No credit will be taken for any suuport of fills adjacent to these structures in the foundation design for normal operating or accident conditions.

10(t) Has the design criterion quoted above been met for the cooling pond dikes? If yes, state how this was determined. If no, what design criterion was met?

Response

Applicant objects on the ground that the cooling pond dike is not related to the safety of the plant and, hence, the design criteria applicable to it are not relevant to these proceedings. (See the response to Interrogatory 13) Subject to that objection, Applicant answers as follows: Yes; see the document entitled "Discussion of Applicant's Position on the Need for Additional Borings", dated September 14, 1980.

Interrogatory 11

For all structures and components listed in Interrogatory 8, list all design bases (as design basis is defined in 10 CFR 50.2(u) of significance to safety which depend upon adequate foundation support or soil related properties and which would not be met unless remedial actions are implemented.

Response

Applicant objects, for the reasons set forth in the Response to Interrogatory 9.

Interrogatory 12

When, if ever, was your intent to include lean concrete as a Zone 2 material first conveyed to the NRC? To whom and by what means of communication was this intent conveyed to NRC?

Response

The definition of Zone 2 material as "any material free of humus, organic or other deletorious material" was provided in the Midland Plant FSAR (July 29, 1977).
If there was any doubt concerning the use of lean concrete as a Zone 2 material after the FSAR was submitted, Applicant has no record of any communication specifically dealing with the use of concrete prior to Mr. Gallagher's October 24 - 27, 1978 inspection, at which time he determined that lean concrete had been used as a part of the random fill material.

Interrogatory 13

Have you performed, or do you know of the existence of, any studies of the consequences of failure for the Midland cooling pond dike? If yes, provide copies of or a reference to these studies. If no, what is the justification for not performing such studies?

Response

Applicant objects to this question, on the following grounds: Applicant has contended, and still contends, that the cooling pond dike is not related to the safe shutdown of the plant, and, hence, is not "safety-related' as that term is used in the December 6, 1979 Order. Hence, Applicant believes the dike is outside the scope of this hearing. In the first pre-hearing conference order (dated 10/24/80), the Board indicated that the dike could not be deemed non-safety-related as a matter of law. This interrogatory apparently deals with the

environmental, as opposed to safety, aspects of the dike. In that respect, the Board made passing reference to the dike, but indicated that the issue to be considered was the "settlement" of the dike. From the limited ruling of the Board in the first pre-hearing conference, Applicant is unable to determine whether this request falls within the scope of the present hearing and reserves its response until issues concerning the dikes are clarified. Also, this question is not relevant to the only admitted contention concerning the dike, Stamiris' Contention 4B, which relates to "slope stability" of dike slopes.

Interrogatory 14

Have you performed, or do you know of the existence of, any studies of the probability of failure of the Midland cooling pond dike? If yes, provide copies of or references to these studies. If no, what is the justification for not performing such studies?

Response

See Response to Interrogatory 13.

Interrogatory 15

In your responses to NRC requests 24b and 51 concerning permanent dewatering you used a specific yield coefficient of 14 percent for determining the volume of ground water to be removed from storage within the plant dikes. In determining average permeability, you used a value of 30 percent for effective porosity. Under water table conditions such as exist at Midland, "specific yield" means the same as "effective porosity". Provide justification for using two different percentages.

Response

The 14 percent specific yield used to determine the volume of ground water to be removed from storage is a weighted average based on the proportion of saturated natural and backfill materials between elevation 595 (permanent dewatering system operating level) and elevation 625 (average ground water level prior to dewatering). It was calculated that 58 percent of the materials consist of clay or silty clay, 37 percent is sand, and 5 percent is occupied by structures. Using the corresponding specific yield values given by Davis and De Wiest, 1966, (5 percent for clay and silty clay, and 30 percent sands) results in an average specific yield of 14 percent for the saturated materials between elevation 595 and elevation 625. If the materials between elevation 595 and 625 consisted only of sand, then the specific yield would be 30 percent.

In determining the apparent permeability, the flow was assumed to occur only through the sand. Thus, an effective porosity of 30 percent for sand was used in the equation to determine the apparent permeability along the flow path, as a result of pond filling. The effective porosity for the sand in this case is the same as the specific yield for sand.

Therefore, there is no conflict between the values used, since an average specific yield of 14% was used for all saturated materials between elevation 595 and 625, and an effective porosity of 30% was used for sand in determining the apparent permeability.

REFERENCE

Davis, S., R. J. M. De Wiest, Hydrology, John Wiley and Sons, Inc., New York, 1966.

INTERROGATORY 16

In your response to Request 24 concerning permanent dewatering, you used an error function equation to define water level rise. This equation is as follows: 021642

$$h = H \left[1 - \text{erf} \frac{x}{\sqrt{\frac{4K\bar{h}t}{n_e}}} \right]$$

In applying this equation, you used 0.1 foot for h, 1.6 feet for H and 20 feet for $\bar{h}$.

In Request 49, we asked for additional information on why 20 feet had been used for $\bar{h}$ when $\bar{h}$ is defined as the average depth of water. Your response to Request 49 was that the values of h and H are much smaller because they represent the changes in head above the original potentiometric surface while the value of $\bar{h}$ is the thickness of natural sands through which the seepage from the cooling pond is assumed to flow.

The equation that you used to model groundwater flow, from Bear, 1972, assumes a horizontal impervious bottom as a datum from which the terms h, H and $\bar{h}$ are measured. It is not clear why you are using one datum, i.e., the original potentiometric surface (approximately 622 feet) to measure h and H and another lower datum (approximately elevation 607 to measure $\bar{h}$.

Have you performed any studies or do you know of the existence of any studies done using a single datum from which to measure h, H and $\bar{h}$? If yes,

(a) identify these studies,
(b) do these studies justify your use of two different datums, and
(c) if the answer to (b) is affirmative, please state the justification provided in these studies.

Provide your justification for using two different datums and show that your resultant groundwater rebound time is at least as conservative as the rebound time would be if computed using a single datum as in Bear, 1972.

RESPONSE

A single reference plane from which to measure h, H and $\bar{h}$ is discussed in Bear, 1972. The justification of the use of the two reference planes is presented below. This is followed by a discussion explaining the choice of the natural sand thickness to represent the average depth of flow.

The latter discussion is based on physical considerations on the actual flow system which had not been explicitly included with the numerical application.

Two reference planes were used in the equation given in response to NRC Question 24 to provide a more simplified description of the actual physical conditions. It can be shown that this formulation is equivalent to the one obtained using the approach taken by Bear 1972, in Paragraph 8.4.1, Example 1.

Bear 1972 considers the linearized partial differential equation for flow in the (xz) direction with no accretion and an impervious, horizontal bottom:

$$\frac{\partial^2 h}{\partial x^2} = \frac{n_e \partial h}{\bar{T} \partial t}$$ Bear 1972, Equation 8.4.5

together with the boundary and initial conditions:

$h = H_o$ (or $\eta = o$), $x > o$, $t \leq o$

$h = D$ (or $\eta = H_o - D$), $x = o$, $t > o$

where the terms are defined in Figure 8.4.1 of Bear 1972.

For the case where the cooling pond is raised, the following boundary conditions apply:

$h = H_o$ (or $\eta = o$), $x = o$ $t > o$

$h = D$ (or $\eta = H_o - D$), $x > o$, $t \leq o$

A solution to this equation which satisfies the above boundary conditions is:

$$\eta(x, t) = (H_o - D) \operatorname{erf} \alpha . \qquad (1)$$

It can be seen from Figure 8.4.1, Bear 1972, that:

$$h = H_o - \eta(x, t).$$

Thus,

$$h = H_o - (H_o - D) \operatorname{erf} \alpha. \qquad (2)$$

For the sake of clarity, let the subscript '1' designate the variables used in the equation discussed in Interrogatory 16, namely,

h_1 = Change in head at x,

H_1 = Change in head at x = o.

The above variables are shown on Exhibit 1, while the variables h, H, H_o, and D refer to Figure 8.4.1 of Bear, 1972.

We then have the relationships:

$h = h_1 + D$,

$H_o = H_1 + D$, and

$H_1 = H$.

Substitution into Equation (2) yields:

$$h_1 + D = H_1 + D - (H_1 + D - D) \operatorname{erf} \alpha$$

or

$$h_1 = H_1 (1 - \operatorname{erf} \alpha). \qquad (3)$$

Thus, Equation (3) which assumes two reference planes, is equivalent to Equation (2). The results obtained with both equations will then be identical.

The approach used in the numerical application differs from that derived from Bear 1972, in the use of $\bar{h}$, the average depth of flow. In our response, $\bar{h}$ was redefined to represent the thickness through which flow occurs, $\bar{h}_1$, as shown on Exhibit 1. Because of the large difference in permeabilities between the backfill clay (see Figure 24-5, in response to NRC Question 24) and the natural sands, effectively no flow would take place through the backfill clays.

REFERENCE

Bear, Jacob, Dynamics of Fluids in Porous Media, American Elsevier Publishing Company, Inc., New York, 1972.

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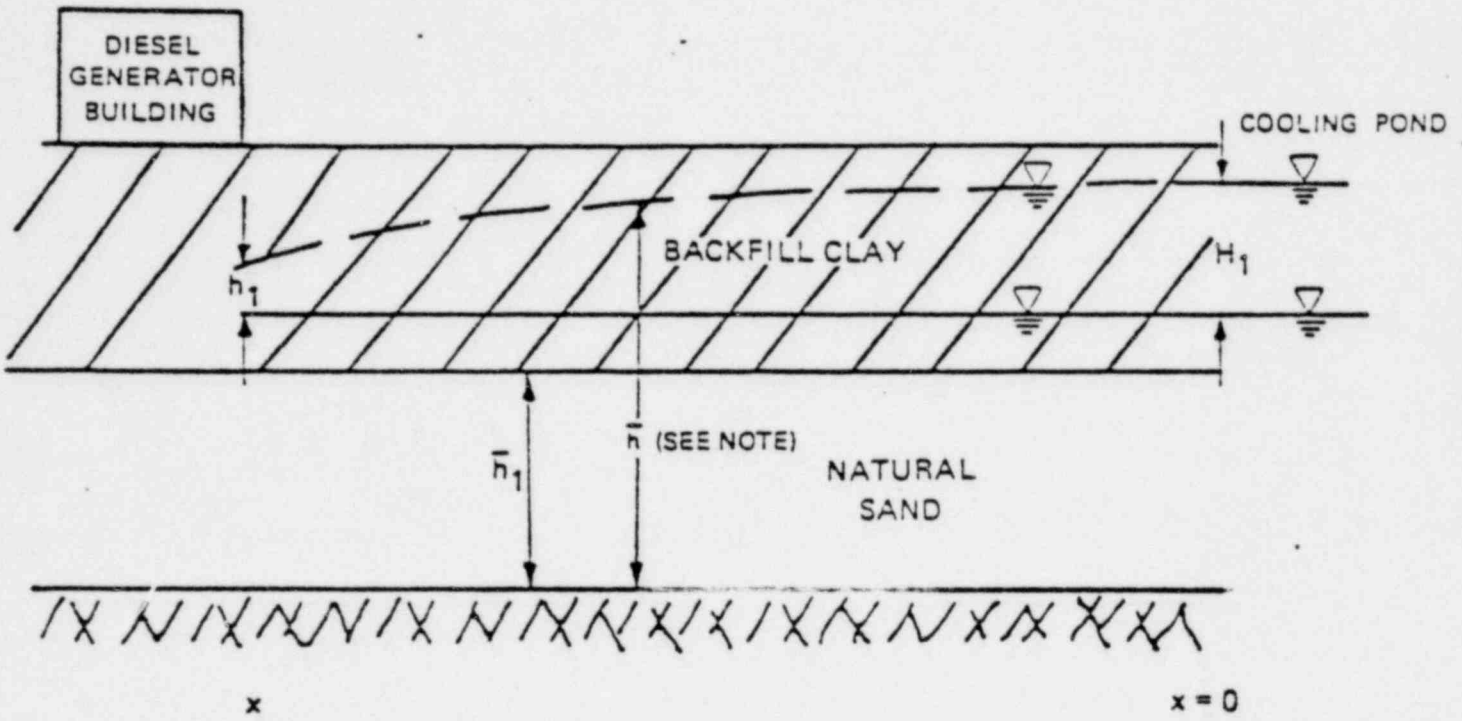


NOTE:

For the definition of $\bar{h}$ see Bear, 1972, Section 8.4.1, paragraphs 1 and 3.

BECHTEL ANN ARBOR			
MIDLAND POWER PLANT			
DEFINITION OF PARAMETERS INTERROGATORY 16			
	JOB NO.	DRAWING NO.	REV
	7220	EXHIBIT 1	0

RELATED CORRESPONDENCE

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
	)	50-329-OL
(Midland, Units 1 and 2)	)	50-329-OL
	)	
	)	

COUNTY OF WASHTENAW)
)ss
STATE OF MICHIGAN)

AFFIDAVIT OF NEAL SWANBERG

Neal Swanberg, being duly sworn, deposes and says that he is employed by Bechtel Associates Professional Corporation, as an Assistant Project Engineer· that he is responsible for providing answers to NRC Staff Interrogatories to Consumers Power Company Numbers 1 through 7 and 10 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 26 day of March 1981.

Beverly A. Bruso
Notary Public, Washtenaw County Michigan

My Commission Expires: December 31, 1982

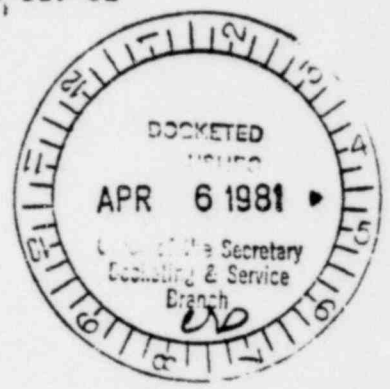
BEVERLY A. BRUSO
NOTARY PUBLIC, WASHTENAW CO., MICH
MY COMMISSION EXPIRES NOV. 30, 1982

RELATED CORRESPONDENCE

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
	)	50-329-OL
(Midland, Units 1 and 2)	)	50-329-OL
	)	
	)	



COUNTY OF WASHTENAW)
)ss
STATE OF MICHIGAN)

AFFIDAVIT OF DONALD F. LEWIS

Donald F. Lewis, being duly sworn, deposes and says that he is employed by Bechtel Associates Professional Corporation, as an Assistant Project Engineer (acting): that he is responsible for providing answers to NRC Staff Interrogatories to Consumers Power Company Number 8 and that to the best of his knowledge and belief the above information and the answers to the above interrogatories are true and correct.

Donald F Lewis
Donald F. Lewis

Subscribed and sworn to before me this 26 day of March 1981.

Sandra L. Lewis
Notary Public, Washtenaw County, Michigan

My Commission Expires: November 30, 1982

RELATED CORRESPONDENCE

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
	)	50-329-OL
(Midland Plant, Units 1 and 2)	)	50-330-OL
	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of Responses to Stamiris' 1/14/81 Discovery Request, Responses to the NRC Staff Interrogatories dated 1/2/81, and Responses to Questions 3 and 4 of Stamiris' 12/4/80 Discovery Request with attached affidavits were served upon the following persons by depositing copies thereof in the United States Mail, first class postage on this _____day of April, 1981. (Including drawings "SK - C - 745, Rev. A, SK - C - 675, Rev. C., and SK - C - 650, Rev D., with Paton copy only)

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