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THE UNITED STATES

NUCLEAR REGULATORY COMMISSION

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In the Matter of:

CONSUMERS POWER COMPANY  
(Midland Plant, Unit 1 and 2)

----- -X

Bechtel Associates, P.C.  
777 East Eisenhower Parkway  
Ann Arbor, Michigan

Thursday, October 30, 1980

Deposition of

SHERIF EL-SAYED AHMED AFIFI,

the deponent, called for examination by the staff of the  
Nuclear Regulatory Commission, pursuant to notice, at 9:15 a.m.,  
when were present on behalf of the respective parties:

For the Nuclear Regulatory Commission..

WILLIAM D. PATON

BRADLEY JONES

JOSEPH KANE

DARL HOOD

RONALD ERICKSON, Army Corps of Engineers

JAMES W. SIMPSON, Army Corps of Engineers

HARI N. SINGH, Army Corps of Engineers

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On behalf of Consumers Power:

ISHAM, LINCOLN & BEALE  
1 First National Plaza  
Chicago, Illinois 60603  
By: ALAN S. FARNELL, ESQ.  
JAMES BRUNNER, ESQ.

C O N T E N T S

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WITNESS:

EXAMINATION

Sherif El-Sayed Ahmed Afifi (Resumed)

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300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 554-2345

P R O C E E D I N G S

MR. PATON: Dr. Afifi, you have been previously sworn.

This is the second day of the deposition of Dr. Sherif Afifi, and we will follow our practice of asking each person in the room to identify himself. I guess we skipped over you, yesterday.

SHERIF EL-SAYED AHMED AFIFI

having been previously duly sworn, was examined and testified as follows:

MR. PATON: Would you start, Dr. Afifi?

A Sherif El-Sayed Ahmed Afifi, and I am with Bechtel.

MR. FARNELL: Alan Farnell, and I am representing Consumer's Power.

MR. BRUNNER: James Brunner with Consumers Power.

MR. SIMPSON: James W. Simpson, Army Corps of Engineers, North Central Division.

MR. KANE: Joseph Kane, U. S. Nuclear Regulatory Commission.

MR. PATON: William Paton, attorney for the NRC staff.

MR. JONES: Bradley Jones, attorney for the NRC staff.

MR. SINGH: Hari N. Singh, U. S. Army Corps of Engineers, Detroit.

MR. ERICKSON: Ronald Erickson, U. S. Army Corps of Engineers, Detroit.

MR. PATON: Darl Hood, D-a-r-l, H-o-o-d, is with us,



1 but he stepped outside for a minute.

2 EXAMINATION

3 BY MR. PATON:

4 Q Dr. Afifi, do you understand that you are still under  
5 oath?

6 A Yes, I do.

7 MR. FARNELL: Bill, before we start, Sherif has  
8 something he'd like to say.

9 A Yesterday you requested the name of the consultant  
10 that replaced -- is to replace Chuck Gould on the underpinning  
11 matter for the Auxilliary Building, and here is the name of the  
12 company. I'll give you the piece of paper and I'll read it for  
13 the record. It's Johnson and Desmond Consulting Engineers. The  
14 name of the two persons who are involved are Jim Gould and  
15 Ed Burke.

16 BY MR. PATON:

17 Q Dr. Afifi, are you able to distinguish what construction  
18 activities were performed by Canonie as opposed to the construction  
19 activities performed by Bechtel?

20 MR. FARNELL: Are you talking just soils?

21 MR. PATON: Let's start there.

22 A Not exactly.

23 BY MR. PATON:

24 Q What do you know about it?

25 A I know that, I understand that Canonie did the entire

5

1 dikes around the plant, the dikes, and done some work in the  
2 extension of the dikes around the plant. I do not know the  
3 exact zones of what areas Canonie has done and the areas Bechtel  
4 has done. That would be construction, construction would be able  
5 to answer that.

6 Q Who in Construction would know that answer?

7 A I believe it would be A. Boos. That's the person that  
8 I would refer you to. I'm not sure he'd have the detailed  
9 information, but he's the one.

10 Q Do you know the name of the organization he is with,  
11 I mean what section, group, branch?

12 A My understanding, at the time, Mr. Boos was with the  
13 Bechtel Power Corporation at the Midland Construction job site.

14 Q He's with Bechtel at the site?

15 A At the site.

16 Q He's in something you call Construction?

17 A Yes, right, the Construction group.

18 Q Construction group; is that what you call it?

19 A It's what I call it, yes. He is with Bechtel  
20 Construction at the site.

21 Q I want to ask you whether you know the name of the  
22 specific name of the organization at the site that he's with?

23 A I believe it is Bechtel Power Corporation. I believe  
24 that's the name of the company.

25 Q That, I understand, but I want to know what section,

1 group, branch?

2 A I wouldn't know that.

3 Q Did there come a time that Bechtel became dissatisfied  
4 with Canonie's work?

5 A I'm not aware of this.

6 Q Do you know whether Canonie continued the work that they  
7 had contracted for, or was their work cut short prior to the end  
8 of the contract period?

9 A I don't know.

10 Q Who would know that?

11 A That would be either Bechtel Construction or Bechtel  
12 Engineering. I referred you to A. Boos, as far as the Con-  
13 struction. The engineering department would be another source for  
14 information.

15 Q Who might know that in Engineering?

16 A I would have to refer you to the Project Engineer at  
17 that time, R. L. Castleberry, and he would know who would be able  
18 to answer this question best.

19 Q Dr. Afifi, do you have any responsibility to know what  
20 is going on during plant fill operations at the site?

21 MR. FARNELL: What time are you talking about?

22 MR. PATON: During plant fill operations.

23 MR. FARNELL: Plant fill operations were going on for a  
24 long time.

25 MR. PATON: That's fine.

1 BY MR. PATON:

2 Q Did you have any responsibility during plant fill  
3 operations to know what was going on at the site?

4 A I would like to try and identify the period, if you  
5 would.

6 Q During plant fill operations.

7 A You mean at the time the plant fill was originally  
8 placed?

9 Q During the time that the plant fill operations were  
10 going on.

11 MR. FARNELL: You're talking from 1973 --

12 MR. PATON: No, that's all right. I don't think you  
13 should testified. I'll ask the witness.

14 MR. FARNELL: I'm telling you --

15 MR. PATON: If the witness does not know when plant  
16 fill operations were going on, that's his business.

17 BY MR. PATON:

18 Q Do you know when plant fill operations were going on?

19 A I wouldn't know exactly when it was going on, but I can  
20 tell you that after the discovery of the Diesel Generator  
21 Building problem, sometime after that, the Geotechnical group  
22 became involved in assisting the remaining fill work at the site.

23 Before that, I'm not aware of any involvement on our  
24 part in the plant fill placement.

25 Q After the discovery of the settlement problem at the

Diesel Generator Building, did you have any responsibilities to know what was going on at the site with respect to plant fill?

A For sometime after the problem, the Geotechnical group was not involved in the fill placement, but at some later date, we became involved, and I don't recall exactly. Mr. Wanzek was assigned as a coordinator, and his responsibility was to provide engineering guidance to the onsite Geotechnical soil engineer.

Q Did Mr. Wanzek report to you, activities at the site?

A Mr. Wanzek reported to me activities as he felt necessary, yes.

Q After the discovery of the problem at the Diesel Generator Building, approximately how often would you visit the site yourself, approximately?

A I have visited the site probably two or three times a year except for meetings that I had to go to with NRC. That's about the approximately the number of times I have been at the site.

Q Do you consider that the frequency of your visits to the site have been sufficient for you to carry out your professional responsibilities with respect to the Midland Project?

A I rely on the services of Mr. Wanzek who was assigned to this job, and he is supposed to be watching all these activities.

Q You say he was supposed to be watching?

A He is watching these activities for me.

Q So that the information you obtained from Mr. Wanzek, you believe is sufficient for your knowledge of activities at the

1 site to enable you to carry out your professional responsibilities?

2 A Yes.

3 Q You don't feel that your work suffers any by your  
4 isolation from the site?

5 MR. FARNELL: He didn't say he was isolated from the  
6 site. That question was asked and answered, and I don't want  
7 you to argue with the witness.

8 BY MR. PATON:

9 Q Can you answer the question?

10 MR. FARNELL: He didn't say he was isolated.

11 MR. PATON: Are you instructing him not to answer?

12 MR. FARNELL: No.

13 A I believe that Mr. ~~Wanek~~ sufficiently qualified to oversee  
14 the work and if any need for further involvement on my part, I  
15 would have undertaken that involvement.

16 BY MR. PATON:

17 Q Do you know whether Canonie placed the plant fill  
18 initially under the Diesel Generator Building?

19 A I do not know for a fact whether he participated, but I  
20 have heard statements that some of that fill was placed by  
21 Canonie, but I do not know for a fact.

22 Q If you have heard that some of the fill was placed by  
23 Canonie, have you heard that some other part of the fill was  
24 placed by someone else?

25 A Yes, I have heard some other part was placed by someone



1 else.

2 Q Who?

3 A I believe it is Bechtel. That's my understanding. I,  
4 again, don't know that for a fact myself.

5 Q Do you know anything more than what you have already  
6 stated about the division of work between Bechtel and Canonic with  
7 respect to plans: fill as to who did what?

8 A I don't recall anything other than what I told you  
9 already.

10 Q All right. Dr. Afifi, I'd like to show you a document  
11 that has been covered with three attached pages. On the cover,  
12 it's dated August 3rd, 1979. It's from T. E. Johnson of Civil/  
13 Structural -- and there may be another word that follows that, but  
14 it's covered over, at the Ann Arbor Office. It's to --  
15 distribution is to E. Rumba, K. Weidner, J. Milandin, P. Martinez,  
16 R. Castleberry, B. Dhar, spelled D-h-a-r, S. Blue, and S. Afifi.

17 Let me show you that document and ask you if you have  
18 seen it.

19 Why don't I mark that NRC Deposition Exhibit 2, 10-30-80  
20 (Afifi).

21 A I couldn't read all of the last page. The copies are  
22 not quite clear.

23 MR. PATON: Could we ask for another copy of Page 3?  
24 If you will do that, I'll abandon that line of questioning right  
25 now.

1 MR. FARNELL: I'll note for the record that that is one  
2 of the documents we produced in response to the Notice of  
3 Deposition. We produced those documents Monday morning at  
4 approximately 11:30.

5 BY MR. PATON:

6 Q Dr. Afifi, do you know whether data and drawings con-  
7 cerning separation of Canonie's work from Bechtel work by  
8 Construction were ever forwarded to Geotechnical Services for  
9 review?

10 A I recall sometime that an attempt was made to do that,  
11 but I don't -- I am not fully -- I can't completely remember if it  
12 was ever completely done.

13 Q If it was forwarded to Geotechnical Services to whom  
14 would it have been forwarded?

15 A I believe the person that would know most about it would  
16 be Mr. Wanzek.

17 (Discussion off the record.)

18 BY MR. PATON:

19 Q Dr. Afifi, I want to hand you a document which is  
20 numbered in the lower right hand corner beginning with SB 801725  
21 and ending with SB 801745. It's dated August 20, 1979. It has  
22 the words, "Work File" written in the upper right hand corner,  
23 and immediately below that, Bechtel Associates, professional  
24 corporation. It's from Karl Wiedner, W-i-e-d-n-e-r of Engineering  
25 at Ann Arbor. It is addressed to Distribution. There are seven



1 names, the first one is, copies to P. Becnel, B-e-c-n-e-l, with  
2 attachment. The subject is Midland Diesel Generator Task Group  
3 Meeting Notes.

4 I turn to the second piece of paper which is numbered  
5 SB 801726 and ask you to read the two sentences at the bottom of  
6 the page beginning "This item enclosed," and follows another  
7 sentence.

8 Have you read the two sentences, Dr. Afifi?

9 A Yes, I have read them.

10 Q As a matter of fact, I think for ease of reference, I'll  
11 read the second sentence into the record since this may not be an  
12 exhibit.

13 "The data and drawings concerning separation of  
14 Canonie's work from Bechtel work by Construction have been for-  
15 warded to Geotechnical Services for review."

16 Does your reading those two sentences refresh your  
17 recollection on whether the data and drawings referred to were, in  
18 fact, ever sent to Geotechnical Services?

19 A Only that I recollect that the attempt was made, and  
20 I'm not sure if such drawings were actually produced and sent, but  
21 this says that they were sent, so as I say, the person who would  
22 be most familiar with these is Mr. Wan. It's not inconceivable  
23 that they had been forwarded and may be available someplace.

24 Q If they were available, would they be with Mr. Wanzek  
25 or under his control?

1 A I would believe that they would be in the drawing files.

2 Q Where are the drawing files located?

3 A The Geotechnical Group Files, the Central Files, if  
4 they exist, such drawings exist.

5 Q Who has custody of those files?

6 A The custody of the Central Files is under the manager.

7 Q Who is that?

8 A S. L. Blue. These files are department files.

9 MR. PATON: Are you willing to let us look at those  
10 files?

11 MR. FARNELL: Well, I think you have put it in -- we'll  
12 entertain any request but I think we'd like it in writing and in  
13 an appropriate manner.

14 MR. PATON: You are not willing to let us look at those  
15 files without an appropriate written request?

16 MR. FARNELL: Right.

17 MR. PATON: Is that a change in the approach to discovery  
18 that we have discussed?

19 MR. FARNELL: I thought that both sides would give a  
20 formal document production request that differentiated from the  
21 request to produce that accompanied each deposition notice.

22 Are you talking about looking at these today, or in the  
23 near future?

24 MR. BRUNNER: Do you know which document you want to see?  
25 If you'd place a request for specific drawings, we'll attempt to

14

1 locate them for you.

2 MR. PATON: Would you be willing to provide us today  
3 with an index to design and construction drawings related to  
4 soil structure foundations, to soils and structure foundations?

5 (Discussion off the record.)

6 MR. FARNELL: At lunch time we'll attempt to ask the  
7 appropriate people if there is such an index, and if there is,  
8 I'll locate it and provide it to you.

9 MR. PATON: We would like to accept the offer, and to  
10 ask that one of the Corps of Engineers, one or two of the Corps  
11 of Engineer people with us to look at the specific data and  
12 drawings referred to in this paragraph.

13 MR. FARNELL: I don't know if we can get that for you  
14 in two seconds or I don't know if we can get it for you today.

15 MR. PATON: Will you see, and if it is available, he can  
16 -- you have that request under advisement, or are you considering  
17 that last request?

18 MR. BRUNNER: I don't -- I must have lost the page you're  
19 referring to.

20 MR. PATON: The two sentence paragraph at the bottom of  
21 the second piece of paper.

22 MR. BRUNNER: The record should reflect that the re-  
23 quested drawings, the data and drawings concerning separation of  
24 Cananomie's work from Bechtel work by construction and their  
25 identified on document dated August 1st, 1979 entitled Meeting

1 Notes Number 1018, Midland Plant, Units 1 and 2.

2 I'm not certain we'll be able to find the drawings  
3 but I thought you were referring to a specific set of drawings  
4 and these may or may not be identified.

5 MR. PATON: It seems to me they referred to some  
6 specific drawings. We're asking you to see if that is true, and  
7 if it is, could we look at those drawings?

8 MR. BRUNNER: The problem is that I am not sure who  
9 separated out these drawings and from this document, it's not  
10 clear who is in possession of the drawings.

11 MR. PATON: Okay, we're just asking you to make an  
12 attempt. If you can't do it, you can't do it.

13 (Discussion off the record.)

14 BY MR. PATON:

15 Q I am marking as NRC Staff Deposition Exhibit 3, dated  
16 10-30-80 (Afifi). It's a document that has a number at the lower  
17 right hand corner, SB 80233 and continues to a document with the  
18 numbers SB 800238 dated September 13, 1974. It appears to be  
19 from S. Afifi, but there are lines drawn through S. Afifi, and it's  
20 to R. L. Castleberry. The subject, Plant Area Fill, and there are  
21 copies to five people and copies to 1320 and 3410, which I don't  
22 know what that means.

23 I hand you that document and ask you if you have ever  
24 seen that before?

25 MR. FARNELL: Do you want him to read the whole thing?

16

1 MR. PATON: Off the record.

2 (Discussion off the record.)

3 MR. FARNELL: He has seen the document.

4 BY MR. PATON:

5 Q Do you recall yesterday that we had a discussion, some  
6 questions and answers concerning compaction criteria?

7 A Yes, sir.

8 Q And do you recall there came a time in 1974 when you  
9 said you advised people, you advised someone what you thought  
10 was the correct compaction criteria?

11 A Yes, sir.

12 Q Is NRC Staff Deposition Exhibit Number 3 the document  
13 in which you advised others what you thought was the correct  
14 compaction criteria?

15 A Yes, sir.

16 Q And I direct your attention to a sentence, the second  
17 to last sentence in this document -- excuse me, the second to last  
18 paragraph which appears on Page SB 300235. I'll read it and then  
19 I'll hand it to you.

20 "This information will allow a complete evaluation of  
21 any in-place fill for its proposed function in addition to pro-  
22 viding information which will be needed for the FSAR. It should  
23 also clear up any questions as to how fill should be placed in  
24 the future."

25 Do you agree that that's what that second to last

17  
1 paragraph says?

2 MR. FARNELL: You're asking him if he read it  
3 correctly?

4 MR. PATON: Yes.

5 A I believe you read the paragraph correct, yes.

6 BY MR. PATON:

7 Q Let me ask you this, based on all of the knowledge you  
8 have today, is it your opinion that this document cleared up any  
9 question as to how fill should be placed in the future?

10 MR. FARNELL: Would you read that back?

11 (Record read.)

12 MR. FARNELL: The document speaks of any questions and  
13 you said question.

14 MR. PATON: Your exception is to the fact that --

15 MR. FARNELL: I'm saying that I thought you were trying  
16 to read off that document and you didn't have it phrased right.

17 MR. PATON: I said question instead of questions; is  
18 that the problem?

19 MR. FARNELL: Yes.

20 MR. PATON: Okay, I'll ask it again.

21 BY MR. PATON:

22 Q Based on all of the knowledge you have today, is it your  
23 opinion that this letter -- excuse me, this Inter-Office  
24 Memorandum cleared up any questions as to how fill should be  
25 placed in the center?

1           A     Can you just explain it a little more, what the  
2 question is, please?

3           Q     All right. Dr. Afifi, am I correct that you wrote in  
4 this letter, "It should also clear up any questions as to how fill  
5 should be placed in the future"? Are those your words?

6           A     I believe they are my words. The memo is signed by me.

7           Q     What does that mean?

8           A     Okay, I believe the intent of the sentence is that it  
9 sets forth the percent compaction that should be used for fill  
10 supporting structure. That's the intent of the sentence in my,  
11 my -- the best of my recollection.

12          Q     What does it mean when it says, "It should also clear  
13 up any questions"?

14          A     The question at the time was, should it be 1557  
15 Method D, and that is referred to in the first paragraph of the  
16 letter.

17          Q     Specifically referring to this sentence, I want to ask  
18 you what does it mean, "It should also clear up any questions as  
19 to how fill should be placed in the future"? What did you mean  
20 by that?

21          A     I thought I stated I believe the sentence means that  
22 now you know, in my opinion, how fill should be placed below  
23 structures, I mean, to what degree of compaction it should be  
24 placed.

25



19

1 Q You say, now you know; now who knows?

2 A The project, in my opinion.

3 Q In your opinion?

4 A Yes.

5 Q In your opinion this document should clear up any  
6 questions as to how fill should be placed in the future. And my  
7 question was, did it accomplish that; did it clear up any  
8 questions as to how fill should be placed in the future?

9 A From reading the document you presented to me yesterday,  
10 the summary document and all of those various questions about fill  
11 placement, I don't believe that the questions were clear. The  
12 intent of the document was to convey my opinion to the project  
13 engineer, and then the project engineer from then on would  
14 proceed with the required action.

15 Q Would you agree that, in fact, this document did not  
16 clear up questions as to how fill should be placed in the future?

17 MR. FARNELL: I think he already answered that.

18 BY MR. PATON:

19 Q Would you answer that?

20 A From my standpoint, the intended purpose of the memo  
21 was to advise the project engineer so that action would be taken.  
22 To my knowledge, based upon the information you showed me, it  
23 appears the action was not taken.

24 Q All right. Now from the documents I showed you --

25 A And also the fact that the fill was not, the percent of



1 compaction was not used on site past that date.

2 Q When did you first come to realize that questions as  
3 to how the fill should be placed were not resolved after this  
4 memo?

5 A I found out for sure during the FSAR operation process.

6 Q When was that?

7 A I don't recall when we started and that was in the year  
8 '76, '77 when we started working on the FSAR and started requesting  
9 information, detailed information as to what methods were used and  
10 all that. Then it became evident that method was not used.

11 Q Is your statement correct: It was not until approximately  
12 two years after you sent out a memo which states, "It should also  
13 clear up any questions as to how fill should be placed in the  
14 future" that you first discovered that questions as to how fill  
15 should be placed were not resolved; is that an accurate statement?

16 MR. FARNELL: Would you read that back.

17 (Record read.)

18 A I believe I stated that I knew for sure after that  
19 the method was, that my recommendation would not follow for sure.  
20 I knew that during the FSAR operation period, but before that, I  
21 did not know one way or the other.

22 BY MR. PATON:

23 Q Dr. Afifi, I believe you told me once before, and we  
24 had to go through the routine, when was the FSAR preparation done?

25 A That was --

1 Q Now you're going back to -- I'm trying to get time.

2 A I'm talking about for sure. I don't recall if -- I did  
3 not have direct involvement during that period of time and one  
4 way or another I didn't know if my recommendation was followed or  
5 not for sure.

6 Q Would your words, you didn't know for sure, do you agree  
7 with my statement that my statement is accurate?

8 MR. FARNELL: Get the statement.

9 BY MR. PATON:

10 Q I asked you, is it true. Let me ask you that again.  
11 Is my statement true?

12 MR. FARNELL: Let's have that statement back.

13 BY MR. PATON:

14 Q Is it true or not true? It's either true or not true.

15 A I would like to hear it with the modification.

16 MR. PATON: Fine, let's hear it again with the  
17 modification.

18 (Record read.)

19 BY MR. PATON:

20 Q I'm asking you, is it true or not true?

21 A My answer, I didn't know for sure until two years later.  
22 During that period, within that period, I didn't know one way or  
23 another for sure if my recommendation was accepted or not, one way  
24 or another.

25 Q Did you try and find out if it was accepted?

1 A No.

2 Q Dr. Afifi, that two year period, do you recall whether  
3 you visited the site, whether you personally visited the site?

4 A I may have visited the site in connection with something  
5 else other than the fill placement. I recall visiting the site  
6 once in connection with the pre-award meeting or pre-bid  
7 meeting for one of the, I believe, intake structure. I don't  
8 recall being involved in fill or questions on fill during that  
9 period.

10 Q Did you ever consider during this two year period,  
11 either while you were at the site or at Ann Arbor, to make any  
12 attempt to verify whether the correct compaction criteria were  
13 being used?

14 A I don't recall ever attempting to do that, and I don't  
15 believe it is my duty to verify which compaction criteria is to  
16 be used from my understanding of my duties, my assignment on this  
17 project.

18 Q Is it your duty to clarify any questions as to how  
19 fill should be placed?

20 A My duty at the time, since the question was raised and  
21 I was asked to provide input, to recommend, make a recommendation  
22 to the project engineer.

23 Q Are you indicating that the duty to provide an answer  
24 to this question only arose because someone asked you to do it?

25 A And I became aware of it, so I -- I was asked to comment

23

1 and I commented.

2 Q You became aware of what?

3 A I became aware that the method of compaction 1557  
4 Method D may not have been used on site and as intended by the  
5 engineer, wall structures. The question came in from construction  
6 which method should we use.

7 Q So it was your responsibility to provide them with  
8 information, or with your opinion on which?

9 A My recommendation.

10 Q And then as I understand it, your responsibility  
11 terminates?

12 A The way I interpret it, yes.

13 Q You did not understand that you have any responsibility  
14 to make any determination as to whether or not your recommendation  
15 is being followed?

16 MR. FARNELL: We're still talking about that two year  
17 period?

18 MR. PATON: Yes.

19 A Yes, for that -- there's no way I can force the project  
20 to do something the project will not accept.

21 BY MR. PATON:

22 Q When you visited the site, if you wanted to verify  
23 whether the correct compaction tests were being used, what would  
24 you have to do; ask?

25 A I really don't know. I may -- maybe -- it might be

1 asking, yes, for one of the things.

2 Q Who would you ask?

3 A I would ask the Construction people, Construction crew.

4 Q Do you know who, for example you would ask; Mr. Cook?

5 A Who is Mr. Cook?

6 Q Who at the site would you ask?

7 A I would probably ask Mr. -- I don't recall who was in  
8 charge of Construction at the time, that I could have asked  
9 during that period. I would have asked somebody in charge of  
10 Construction at the time.

11 Q So in fact, if it had occurred to you, you could have  
12 obtained that information by just asking somebody?

13 MR. FARNELL: He didn't say that at all. What do you  
14 mean, if it occurred to him?

15 BY MR. PATON:

16 Q Do you have trouble with that question?

17 A Yes.

18 Q If you had been interested in finding out whether the  
19 correct compaction criteria were being applied to the site, am I  
20 correct that all you would have had to do is to ask someone at the  
21 site; is that correct?

22 A That is probably correct, yes.

23 Q Is it your practice to review Construction records while  
24 you are visiting the site to see if required specifications on  
25 fill placement are being met?

1 MR. FARNELL: When are you talking about?

2 MR. PATON: During the two year period that we've been  
3 discussing.

4 A That has not been my responsibility and I have not been  
5 assigned for it.

6 (Discussion off the record.)

7 MR. PATON: There has been some discussion between  
8 counsel concerning some records kept by Bechtel at Ann Arbor that  
9 relate to soils at the Midland site. There has been a reference  
10 to some large number, for example 170,000 documents. The staff is  
11 not presently advised of the nature of those documents, and the  
12 staff has requested that we be allowed to inspect those documents.  
13 The staff has also requested that some brief summary be provided  
14 to let us know what kind of documents are kept by Bechtel in  
15 Ann Arbor with respect to the soil matter in Midland.

16 My recollection was that after Isham, Lincoln & Beale  
17 had the opportunity to look at these documents, some consideration  
18 was to be given to providing the staff an opportunity to look at  
19 these documents. I had thought that that opportunity was going to  
20 be provided to the staff several weeks ago. As I understand the  
21 situation -- stating as I understand the situation.

22 I am making this statement on the record because there  
23 is apparently some disagreement between counsel as to what they  
24 intend to offer in that regard. That's the end of my statement.

25 MR. FARNELL: I'll attempt to talk to Mr. Zameron over

26  
1 lunch. Mr. Zamerin was the attorney chiefly involved in some  
2 conversations dealing with this subject, and after I've discussed  
3 this with him, I will make a statement.

4 BY MR. PATON:

5 Q Dr. Afifi, did you state yesterday that compaction that  
6 meets 95 percent of the 56,000 pound test is approximately equal  
7 to compaction that meets 100 percent of the 20,000 pound test?

8 A I meant this in the context of the Midland clay field.

9 Q Can you tell me the basis on which you arrived at that  
10 conclusion?

11 A The basis is, the first basis that was apparent from  
12 the Dames and Moore report that one method was substituted for the  
13 other. 100 percent of the 20,000 pound in one report was sub-  
14 stituted for 95 percent of the other in the other report. That is  
15 what one basis. . . The other basis is that from this previous  
16 experience, I feel that way, and we have data right now and the  
17 data is available to the NRC of running both types of test on the  
18 clay field and the data to support the statement.

19 Q Do you know whether there were any requirements for  
20 qualifications of compaction equipment that was used at the site?

21 MR. FARNELL: What time are we talking about now?

22 MR. PATON: During plant fill operations.

23 MR. FARNELL: Has anything changed over the time, if  
24 you know.

25 MR. PATON: I don't want my question to be amended.



1 I asked a question.

2 MR. FARNELL: If you're going for a long period of time,  
3 I don't think it's an appropriate question. Why don't you ask  
4 him for a year or two years?

5 MR. PATON: I'll ask the questions.

6 MR. FARNELL: I'll make my comments, too.

7 A Can you repeat the question, then?

8 BY MR. PATON:

9 Q Yes. Do you know if there were any requirements for  
10 compaction equipment that was used during plant fill operations;  
11 did they have to be qualified in any way?

12 A I recall that there existed requirements for qualifica-  
13 tion of compaction equipment, yes.

14 Q Do you know whether those requirements were met?

15 A After the discovery of the unexpected settlement at the  
16 Diesel Generator Building, my people became involved in tests to  
17 qualify this equipment at the Midland job site.

18 Q All right, sir. Now please address the period of time  
19 prior to the discovery of the problem at the Diesel Generator  
20 Building.

21 Do you know whether those equipment qualification re-  
22 quirements were met?

23 A I do not know.

24 Q Do you know whether those equipment qualification re-  
25 quirements were met after the discovery of the problem at the



1 Diesel Generator Building?

2 A Sometime after that period, we conducted tests, my  
3 people, under the supervision of my people, and in my opinion,  
4 these tests qualified the equipment for the use and placement of  
5 fill.

6 I would like to take objection to the word "qualifica-  
7 tion of equipment." I am using it in the context of qualifying  
8 and providing a construction, developing a construction procedure,  
9 and a qualified construction procedure, but not a qualified piece  
10 of equipment.

11 Q Your statement is that there were required procedures;  
12 is that correct?

13 A A qualified procedure for each piece of equipment.  
14 That is a technical significance.

15 Q There is a qualified procedure?

16 A For the compaction equipment.

17 Q For the compaction equipment.

18 When you use the expression "qualified procedure for the  
19 compaction equipment," were you referring to lift thickness?

20 A And number of passes.

21 Q Would that also include moisture content?

22 A That's an inherent part of the specification. It's not  
23 necessarily related. That's a different subject. Moisture  
24 conditioning has to be done. It has nothing to do with it.

25 Q Is it your testimony that after the discovery of the

1 problem at the Diesel Generator Building these qualified proce-  
2 dures were followed?

3 A To the best of my knowledge.

4 Q And is it also your testimony that prior to the  
5 discovery at the Diesel Generator Building you do not know  
6 whether these qualified procedures were followed?

7 A I believe I stated that prior to the discovery of the  
8 problem, I do not know if the procedure was developed.

9 Q Okay, so you're not even sure whether there were  
10 procedures -- strike that.

11 You're not sure whether there were procedures; is that  
12 the idea?

13 A I don't know for a fact there were procedures.

14 Q After the discovery of the problem at the Diesel  
15 Generator Building, were qualified procedures followed for both  
16 sand and clays?

17 A I believe that in Q-listed areas, the sands were  
18 qualified. I don't believe we qualified the equipment for Q-  
19 listed placement of clay.

20 Q Would you tell me why not?

21 A To my knowledge, the application did not exist, that  
22 sand was used in Q-listed areas.

23 Q Is optimum moisture the same for both the 56,000 and  
24 the 20,000 pound test?

25 A No, sir.

1 MR. FARNELL: Why don't we take a little break?

2 (Short recess taken.)

3 BY MR. PATON:

4 Q Dr. Afifi, I show you a table 12-1 which is entitled  
5 Summary of Supporting Soil Conditions and Planned Remedial  
6 Measures for All Safety Related Structures and Utilities. I'm  
7 not going to mark it as a deposition exhibit unless your counsel  
8 requests me to do it, because it is in Volume 1 of NRC responses  
9 -- of your responses to NRC 5054 F requests, in response to  
10 Question 12.

11 I want to direct your attention specifically to the  
12 paragraph under Supporting Soil Conditions immediately to the  
13 right of AX 6, 9, 18. I'd like you to read the entire document.

14 MR. FARNELL: I would like to see the entire response  
15 to the Question 12 to see where this came from and put it in con-  
16 text.

17 MR. PATON: I would also indicate that the table that  
18 I have referred you to is Table 12-1, Page 1 of 5, revision 3 and  
19 it's dated 9-79.

20 BY MR. PATON:

21 Q In the sentence that I asked you to read, there is a  
22 reference to a possible local void. My question is, do you know  
23 whether or not that void is real?

24 MR. FARNELL: I don't think we have established that  
25 Sherif wrote this letter.

1 MR. PATON: All right, I'll back up.

2 BY MR. PATON:

3 Q Do you know whether there is a possible local void under  
4 concrete mat elevation 590 to 589 at boring AX 9?

5 A The best of my recollection, that has been reported on  
6 the boring log for that boring. It's one out of three borings  
7 in the area.

8 Q Your answer is that it has been reported on the boring  
9 log?

10 A To the best of my recollection.

11 MR. FARNELL: Would you read back the question.

12 (Record read.)

13 BY MR. PATON:

14 Q Does your response mean that there is a possible local  
15 void under concrete mud mat elevation 590 to 589 at boring AX-9?

16 A Yes.

17 Q Now this next question specifically refers to the word,  
18 possible. I'm asking you, is there, in fact, a local void in  
19 that area?

20 My question is your degree of certainty. Is it  
21 possible or are you certain that there is one there?

22 MR. FARNELL: Or any other radiation, I gather.

23 A Would you read the question again?

24 BY MR. PATON:

25 Q Yes. How do you know there is a possible local void

1 under concrete mud mat elevation 590 to 529 at boring AX-9?

2 A I believe I stated that that was reported on the  
3 boring log to the best of my recollection.

4 Q Did the boring log indicate to you that there was a  
5 possible void or that there is a real void?

6 A I did not personally drill the boring, so I don't think  
7 I can answer -- I have the answer to the question, but since the  
8 words -- you have said possible local void, and I would have to  
9 say in my judgment it would have to be a possibility of a local  
10 void.

11 Q On what information do you base your answer that there  
12 is a possible local void in that area?

13 A I recall at the time the borings were drilled that that  
14 method came and was considered important enough to include in  
15 the response to the NRC question.

16 Q Do you know what, if anything, has been done to  
17 eliminate the void?

18 MR. FARNELL: He didn't say there was a void. He said  
19 there was a possibility of a void. Are you eliminating the  
20 possibility of a void?

21 BY MR. PATON:

22 Q Has any action been taken to --

23 A Can I take a look at this?

24 Q Sure.

25 A The remedial action, I would like to include for the

1 record, the proposed remedial action is included on the fourth  
2 column of the table and it states, "Pressure grouting, avoid  
3 below concrete mud mat as needed."

4 To my knowledge, that has not been done yet.

5 Q Do you know whether you plan any further investigation  
6 to determine whether or not that void is a possible void or a  
7 real void?

8 A That would be apparent at the time grouting actually  
9 takes place.

10 Q You mean at the time you start grouting you will not  
11 know whether the void is a possible void or a real void?

12 A No, I didn't say that. I indicated already that the  
13 information I have led me to believe that this is a possible  
14 local void. Grouting has not been accomplished yet. And grouting  
15 will be accomplished as it is promised in this response.

16 Q As need, isn't that what it says?

17 A Yes.

18 Q How are you going to determine whether or not it is  
19 needed?

20 A You just simply pump, continue to pump grout until  
21 you cannot accept anymore grout, in my opinion.

22 Q Have you conducted any other explorations at close  
23 spacing to determine whether there are other voids or possible  
24 voids?

25 MR. FARNELL: Repeat that, please.

1 (Record read.)

2 MR. FARNELL: I don't think he testified they did  
3 explorations at close basings.

4 MR. PATON: I believe you are correct.

5 BY MR. PATON:

6 Q Have you conducted any investigations to determine  
7 whether there are other voids or possible voids within 50 feet  
8 of the void, the possible local void that is mentioned here?

9 A The borings conducted in this area, I do not recall how  
10 far away from each other, but this particular boring is one out  
11 of three in the limited area of the control tower, and there has  
12 been no, to my knowledge, possible voids recorded on any of the  
13 other borings in the vicinity.

14 Q In your professional judgment, is the investigation  
15 that has been conducted here sufficient to determine whether or  
16 not there are other voids or possible voids within 50 feet of  
17 the void that is mentioned here?

18 MR. FARNELL: I don't believe he said they conducted  
19 investigations as to that possible void.

20 MR. PATON: Okay, if he didn't, that's fine. That's a  
21 good answer.

22 A Yes, we did not. I don't believe we conducted investi-  
23 gations just for that purpose, but there were borings drilled.  
24 The dates on the boring logs would indicate when the borings were  
25 drilled. I don't recall how many of these were drilled before and



1 how many of these were drilled after.

2 BY MR. PATON:

3 Q Do you know whether there are any voids or possible  
4 voids within 50 feet of the possible local void that is mentioned  
5 in this paragraph I asked you to read?

6 A Well, I know that to the best of my knowledge, none was  
7 reported on the boring logs.

8 Q Dr. Afifi, that's not my question. My question is, do  
9 you know whether there are any voids or possible voids within 50  
10 feet of the local, of the possible local void mentioned in this  
11 paragraph?

12 MR. FARNELL: I think he answered that.

13 MR. PATON: If he did, I'd like to know the answer.

14 A The answer is that to the best of my knowledge, none  
15 were reported in the borings that were taken in that vicinity

16 BY MR. PATON:

17 Q That's the same answer you gave me before. You said  
18 none were reported.

19 A Yes, sir.

20 Q My question is, do you know whether there are any there,  
21 and I conclude from your answer that you don't know whether there  
22 are any there or you -- have you concluded that there are none  
23 there, or what?

24 My question is, to the best of your -- are there any  
25 voids or possible voids within 50 feet of the possible local void



1 mentioned in this paragraph?

2 A Can I speak with my counsel?

3 MR. PATON: Certainly.

4 (Discussion off the record.)

5 A My answer to your question is that I don't know.

6 BY MR PATON:

7 Q Did knowledge of this possible local void, was that  
8 developed from an exploration that was made?

9 MR. FARNELL: I think it has been stated that it's a  
10 boring log and the boring log developed the knowledge of a  
11 possible local void. I don't understand your question.

12 BY MR. PATON:

13 Q Did knowledge of this possible local void come from  
14 borings that were performed?

15 A From a boring.

16 Q Now, do you plan to require additional borings to  
17 investigate whether there are other voids or possible voids?

18 A No.

19 Q Dr. Afifi, if I asked you whether voids are sometimes  
20 discontinuous, do you understand my question?

21 A Yes, sir.

22 Q Could you explain to me what that means, of what your  
23 understanding of that word means?

24 A A limited area that is -- it would not be extensive in  
25 size.

1 Q Dr. Afifi, do you plan any borings or other  
2 explorations for the purpose of determining whether there are  
3 other voids or possible voids within 50 feet of the possible  
4 local void that is mentioned in this paragraph?

5 MR. FARNELL: That's been asked and answered.

6 MR. PATON: Off the record.

7 (Discussion off the record.)

8 A I don't know at this time.

9 BY MR. PATON:

10 Q Dr. Afifi, I show you Pages 13-1 through 13-6 which  
11 has attached to it, several figures. This is in Volume 1 and it's  
12 Consumer's Answer to Staff Question 13.

13 I specifically address your attention to Page 13-5.  
14 Near the top of the page, there's a Paragraph Number 2.

15 MR. FARNELL: Is there a revision date on that?

16 MR. PATON: No revision date on either 13-1 or 13-5.  
17 There is on 13-2.

18 MR. FARNELL: You're just going to ask about 13-5?

19 MR. PATON: 13-5 has no revision date on it.

20 MR. FARNELL: Fine.

21 BY MR. PATON:

22 Q You can read any part of this that you want, but my  
23 question is going to specifically address this sentence: "The  
24 analysis of buried structures with bends or restrained ends is  
25 based on the equations for beams on an elastic foundation."

1 I'll tell you my question. The first one is going to  
2 be, what were the values of the modulus of sub-grade reaction  
3 used in the analysis?

4 A I don't know.

5 Q Do you know who within Bechtel would know that?

6 A That would be Mr. Dhar, D-h-a-r. Mr. Dhar, he would be  
7 the person to refer to for that answer.

8 Q Do you have any responsibility to determine these  
9 values?

10 A Sometimes.

11 Q When?

12 A When requested by project engineering in connection  
13 with any specific problem.

14 Q Have you been asked for these values at anytime?

15 A I don't know.

16 MR. FARNELL: He's talking about these values set forth  
17 in 13-5.

18 BY MR. PATON:

19 Q My question, and I'll state it again, the question was,  
20 what were the values of the modulus of sub-grade reaction used in  
21 the analysis?

22 MR. FARNELL: You're just talking this analysis on  
23 Page 13-5?

24 MR. PATON: Yes.

25 A I don't recall if there was specifically asked about

1 this.

2 BY MR. PATON:

3 Q If I were to ask you how were those values determined,  
4 would you again refer me to Mr. Dhar?

5 A Yes, sir.

6 Q If you had been asked for these values, would there be  
7 any records that would reflect that in the documents you have  
8 provided to the NRC, that you have personally provided to the NRC  
9 for the purpose of this deposition?

10 A Not necessarily.

11 Q Where would those documents be?

12 A It's possible that it's a computation made and handed  
13 in to project.

14 Q And you would not keep a record of that?

15 A It would be in the calculations file.

16 Q There is a calculations file that you don't keep  
17 yourself?

18 A That's correct.

19 Q Is there an index to that calculation file?

20 A I believe so.

21 MR. PATON: Mr. Farnell, would you be willing to  
22 provide a copy of that index?

23 MR. FARNELL: At lunch we'll make an effort to locate  
24 it. I would also like to put on the record that we are being  
25 cooperative in looking for the indexes, I would expect the same

1 treatment from the NRC. I take it by your sound that you would  
2 agree with that?

3 MR. PATON: No, I didn't make any comment. I think we  
4 have some disagreement between us as to how much cooperation each  
5 side is extending to the other side.

6 MR. FARNELL: If I ask you for certain indexes, are  
7 you going to say no?

8 MR. PATON: I think that the NRC has been extremely  
9 cooperative in providing documents up to this date to the point  
10 of providing handwritten notes in the person's personal file.  
11 I don't know of any instances which we have refused any document  
12 that has been requested. Right now I am not aware of anything  
13 that would indicate any change in that type of cooperation.

14 BY MR. PATON:

15 Q Do you know whether anyone at Bechtel has re-evaluated  
16 the value of the modulus of sub-grade reactions because of  
17 inadequately compacted soils at the Midland site?

18 MR. FARNELL: Again, are we referring to Page 13-5?

19 (Discussion off the record.)

20 MR. PATON: The question does not limit itself to  
21 Page 13-5. It references to any seismic analysis that has been  
22 made.

23 MR. FARNELL: Another question. Are you talking about  
24 all buildings, specific buildings?

25 MR. PATON: I'm referring to buildings founded on the

1 inadequately compacted plant fill.

2 MR. FARNELL: Repeat the question.

3 BY MR. PATON:

4 Q Dr. Afifi, do you know whether anyone at Bechtel has  
5 re-evaluated the value of the modulus of sub-grade reactions for  
6 input into seismic analysis of structures founded on inadequately  
7 compacted soil at the Midland site?

8 A The answer is, I don't know for sure.

9 Q Dr. Afifi, I want to make a statement and ask you whether  
10 you agree with it or whether you believe it is true.

11 "The remedial measure for the inadequately compacted  
12 soil under the electrical penetration areas of the Auxilliary  
13 Building is to bridge over the questionable soil utilizing the  
14 structural capacity of the electrical penetration rooms by  
15 providing caissons at their extremities."

16 Do you agree with that? Or do you want me to read it  
17 again?

18 A Yes.

19 Q "The remedial measure for the inadequately compacted  
20 soil under the electrical penetration areas of the Auxilliary  
21 Building is to bridge over the questionable soil utilizing the  
22 structural capacity of the electrical penetration rooms by  
23 providing caissons at their extremities."

24 MR. FARNELL: Your question is whether --

25 MR. PATON: Whether he agrees that that is true.

1 MR. FARNELL: Word for word?

2 A Can you explain to me what that means, please?

3 BY MR. PATON:

4 Q No, I get to ask the questions and you get to answer  
5 them.

6 A I'm not clear on the question.

7 Q The question is, is that a clear statement?

8 MR. FARNELL: Is it word for word true, in substance  
9 true?

10 (Discussion off the record.)

11 BY MR. PATON:

12 Q Can you answer the question?

13 A I am not sure the question is technically correct.

14 Q Do you mean that you're not certain that all the facts  
15 I read to you are true; is that what you're saying?

16 A No, I'm not referring to facts. I'm referring to the  
17 interpretation of what is being done. I'm not sure whether that  
18 is technically correct.

19 Q You mean the proposed remedies, you're not sure I  
20 accurately stated the proposed remedy?

21 A I'm not sure the entire statement you read accurately  
22 reflects, is technically, is correct technically to describe  
23 what will be done. I'm not sure.

24 Q Can you tell me what part of it you are not sure of?

25 A The reference to bridging and the structural capacity



1 of the structure, things that I can't answer.

2 Q All right. Is there a problem with inadequately  
3 compacted soil under the electrical penetration areas of the  
4 Auxilliary Building?

5 A In my opinion, yes.

6 Q Is there a proposed remedy?

7 A Yes, sir.

8 Q What is that proposed remedy?

9 A To install caissons at both extremities of that, of  
10 these two electrical penetrations.

11 Q I will ask you about the very last thing you said, it  
12 is to provide caissons where?

13 A Install caissons at the extremities of the two  
14 electrical penetration areas, at both ends of the two electrical  
15 penetration areas.

16 Q Do you agree that the proposed remedy you just recited  
17 would transmit half of the load from the electrical penetration  
18 rooms on the proposed caissons and the remaining half on the  
19 control tower?

20 MR. FARNELL: Can I have that read back?

21 (Record read.)

22 A I don't know.

23 BY MR. PATON:

24 Q Do you know who would know that?

25 A This is a structural question.

1 Q Is it true that the caissons would support part of the  
2 load imposed by the electrical penetration areas?

3 A I believe so.

4 Q And the control tower would support the other part of  
5 that load?

6 MR. FARNELL: I think he said -- that's been asked and  
7 answered.

8 A I believe that response to that should be provided by  
9 a structural engineer.

10 BY MR. PATON:

11 Q Do you have any idea whether the control tower would  
12 support part of the load imposed by the electrical penetration  
13 areas?

14 MR. FARNELL: I'm going to object to form.

15 A In my judgment, I'm not a structural engineer, but in  
16 my judgment, there would be some load transfer.

17 BY MR. PATON:

18 Q Is it correct that you don't know what portion of the  
19 total load imposed by the electrical penetration area would be  
20 supported by the control tower; is that correct?

21 A Can you restate this, please?

22 Q I believe you have stated that part of a load of the  
23 electrical penetration area would be supported by caissons; is  
24 that correct?

25 A Yes, sir.

1 Q I believe you have also stated that part of the load  
2 imposed by the electrical penetration area would be supported by  
3 the control tower?

4 A Yes.

5 Q Do you know what proportion of the total load imposed  
6 by the electrical penetration areas would be supported by the  
7 control tower?

8 A I would not know how much of it.

9 Q Will the remedy you described for this problem result  
10 in an additional load on the control tower?

11 MR. FARNELL: Additional compared to what?

12 MR. PATON: Whatever was there before the remedy.

13 A I thought I stated that the answer to that should come  
14 from somewhere else, and I stated that in my judgment there would  
15 be some load transfer and I didn't know how much.

16 BY MR. PATON:

17 Q Will that additional load that is transferred cause the  
18 control tower to settle?

19 A That depends on the magnitude of the load. In my  
20 judgment, the material there is quite good and the settlement  
21 would have to be small.

22 Q You mean the material below the control tower?

23 A Yes, sir.

24 Q Do you know of any investigation of the possible  
25 settlement of the control tower because of the additional weight

1 imposed by the remedy that you have described?

2 A I don't know if one is planned at this time.

3 Q Can you name a person who would be knowledgeable with  
4 respect to the amount of load that would be transferred to the  
5 control tower because of the remedy you have described?

6 A I believe I earlier stated that that would be Mr. Dhar  
7 who would be able to refer you to -- that information would be  
8 under his control, the Civil Group Supervisor.

9 Q You indicated that he could give us the answer or that  
10 he would refer us to someone else?

11 A This is his area of control. He is in control of that  
12 information, to my knowledge.

13 Q I'm not sure I know what you mean by "control." For  
14 example, if I ask Mr. Dhar the questions I ask you, do you know  
15 if he would provide the answers or would he refer us to someone?

16 A I believe he would provide you an answer.

17 Q Dr. Afifi, in recognition of the possible local void  
18 under the control tower, which we were discussing a few minutes  
19 ago, and the additional load that will be imposed on the control  
20 tower caused by the remedy you described for the soil problem  
21 in the electrical penetration area, in your professional judgment,  
22 is there a need to investigate the extent of possible voids and  
23 future settlement?

24 MR. FARNELL: Let's take them one at a time.

25 BY MR. PATON:

1 Q Is there a need to investigate the extent of possible  
2 voids in that area?

3 A All of the information that is available to me at this  
4 time indicates that this possible void is local. That's what I  
5 can recall from the information we have. On that basis, I believe  
6 that I would proceed with grouting as the remedy for that  
7 situation.

8 Q Do I take your answer to mean that you'd see no need  
9 for further investigation of the extent of possible voids?

10 A Not at this time.

11 Q How about the need to investigate future settlement?

12 A As soon as the load is known, the future settlement can  
13 be calculated.

14 Q Can you tell me what data you will use to calculate  
15 that possible future settlement?

16 A It would be the available results of the boring logs  
17 below the area, in this area.

18 Q Would that include consolidation test results?

19 A These are sands where we have standard penetration  
20 tests.

21 Q Let me just finish up this area. I don't think it will  
22 take more than ten minutes.

23 With respect to the use of caissons at the end of the  
24 electrical penetration area, has Bechtel made an analysis to  
25 determine the amount of expected settlement of the caissons?

1 A That analysis is being made and will be included as  
2 part of the Responses to the 5054F.

3 Q Can you tell us who is involved in making this analysis?

4 A That is being made by my group.

5 Q Are you doing it, or is someone under your supervision  
6 doing it?

7 A Someone under my supervision.

8 Q Who is that person?

9 A P. K. Chen.

10 Q Can you tell us what kind of information he is using  
11 in making that analysis?

12 A It's the soil properties that have been previously used  
13 in the plant settlement analysis of the major structures at the  
14 plant site, such as containment in the Aux Building.

15 MR. PATON: Would you read that answer back.

16 (Record read.)

17 MR. FARNELL: Are you referring to some data he talked  
18 about?

19 MR. PATON: I'm asking him whether his answer included  
20 settlement data from the Surcharge Program.

21 MR. FARNELL: You're referring to soil property data?

22 MR. PATON: I'm asking whether his answer included --

23 MR. FARNELL: Repeat the question, please.

24 (Record read.)

25 BY MR. PATON:

1 Q In your previous answer, you used the expression, soil  
2 properties. My question is, when you used that expression, did  
3 you mean to include settlement data from the Surcharge Program?

4 A I did not mean that.

5 Q Do you plan to use settlement data from the Surcharge  
6 Program?

7 A The analysis is not complete, and it's possible that  
8 that would be used.

9 MR. PATON: Off the record.

10 (Discussion off the record.)

11 BY MR. PATON:

12 Q Is there a potential soil problem at the service water  
13 structure?

14 A Yes.

15 Q Could you describe briefly and generally, the proposed  
16 remedy for that problem?

17 A The cantilever portion of that structure is supported  
18 on fill. The results of the borings in the area indicate that the  
19 material is inadequate, has inadequate properties. For that reason,  
20 piles are proposed to support the cantilever, the end of that  
21 cantilever.

22 Q Is there an analysis being made to determine the amount  
23 of the expected settlement of the piles?

24 A Yes, sir.

25 Q Who is making that analysis?



1 A P. K. Chen.

2 Q Can you tell us what kind of data he is using in  
3 making that analysis?

4 A The same type of data that is used for the analysis of  
5 the caissons.

6 Q I recall you just indicate, I believe, that you are  
7 going to use the same type of data?

8 A Yes, sir.

9 Q And I recall your answer to be with respect to -- I  
10 recall your answer to be that you were going to use soil  
11 properties, and I have forgotten where you said you obtained those  
12 soil properties, where did you get that information from?

13 A Soil properties were obtained originally by site  
14 investigations by Dames and Moore, which are included in the FSAR,  
15 additional laboratory tests that were conducted on plant fill after  
16 the discovery of the Diesel Generator Building, and borings made  
17 after the discovery of the Diesel Generator Building problem, as  
18 well as before the discovery of the Diesel Generator Building  
19 problem.

20 (Luncheon recess.)

21 MR. BRUNNER: The record should reflect this morning  
22 that Mr. Paton made a request for documents entitled "Drawings  
23 Concerning Separation of Canonic Work from Bechtel Work."  
24 Consumers agreed to attempt to locate those documents at Bechtel's  
25 Ann Arbor offices today. We were informed that the documents are

1 not available at Ann Arbor, and may be at the site.

2 Consumers has agreed to attempt to locate the requested  
3 documents at the site and to provide those documents, among them  
4 which are discoverable.

5 MR. PATON: Off the record.

6 (Discussion off the record.)

7 MR. BRUNNER: The documents I referred to are described  
8 on Page 1 of the document entitled, Meeting Notes Number 1018,  
9 date August 1st, 1979. Subject, meeting of the Diesel Generator  
10 Building Task Group. I will read from the sentence of that  
11 particular document which describes the documents, which as I  
12 understand, have been requested. If that sentence doesn't  
13 properly describe the documents, then I request that a question  
14 be made by Mr. Paton. The sentence which describes the documents  
15 is as follows:

16 "The data and drawings concerning separation of Canonie's  
17 work from Bechtel work by construction."

18 (Discussion off the record.)

19 MR. PATON: The information that Mr. Brunner has just  
20 addressed is data and drawings concerning separation of Canonie's  
21 work from Bechtel work by construction, which is referred to on  
22 a page that has been marked as SB 801726, entitled Meeting Notes,  
23 which document was identified just now by Mr. Brunner. The ex-  
24 pression comes from two sentences at the bottom of the document  
25 which reads as follows:

1 "This item is closed. The data and drawings concerning  
2 separation of Canonie's work from Bechtel work by construction  
3 have been forwarded to Geotechnical Services for review."

4 MR. FARNELL: This morning you made a statement con-  
5 cerning the large number of Bechtel documents that are at Ann  
6 Arbor dealing with soil. I indicated that I would speak to  
7 Mr. Zamerin over the break and to discuss this matter with him.  
8 I spoke with Mr. Zamerin, and he indicated that we had told you  
9 these documents dealt with the Midland soil issue and we have not  
10 read them yet. He also indicated that we would respond to a  
11 proper document request asking for specific documents and the  
12 documents produced in response to the document request which would  
13 come from this large number of soils documents at Ann Arbor.

14 We told you that we would produce a portion of the  
15 documents in Mr. Afifi's file or under his control, and we have  
16 done this. You will note that the Notice of Deposition and the  
17 request to produce therein only calls for these documents, and we  
18 have fulfilled that request.

19 Mr. Zamerin also told me that he had indicated to you  
20 that we would provide a one page summary of the documents con-  
21 tained in the large number of documents, not that we would  
22 produce the index to the documents.

23 I also note for the record that we have made a document  
24 production request set forth in each of our Notices of Deposition.  
25 Mr. Paton requested that we agree for the time being that he only

1 produce those documents in the possession or control of his  
2 NRC staff personnel or the Corps personnel. We accommodated  
3 Mr. Paton for the time being, but we also note for the record  
4 that our request is still outstanding for the other documents  
5 and has not been complied with yet.

6 MR. PATON: I will state that that is my first knowledge  
7 ever that we are now introducing a, for the time being, concept  
8 into this case. It was my clear understanding that we had agreed  
9 that the document request in the Notice of Deposition was to be  
10 understood to mean the documents within the control of each  
11 person, and if it is now being amended that that agreement is now  
12 amended to be "for the time being" that is my first knowledge of  
13 that subject, but if that is -- I have no further comment.

14 BY MR. PATON:

15 Q Dr. Afifi, I show you a letter dated October 22, 1979  
16 from Mr. G. S. Keeley to Mr. J. A. Rutgers of Bechtel Power  
17 Corporation, and ask you if you've ever seen it before?

18 A I do not recall seeing this letter.

19 Q I show you another document which I will not make a  
20 deposition exhibit. This is in Volume 1 of your response to the  
21 5054, Question 2, and I ask you to read the question and the  
22 response.

23 MR. FARNELL: Did you make that an exhibit?

24 MR. PATON: I have marked the letter from Keeley to  
25 Rutgers as Deposition Exhibit Number 4, today's date, October 30,

1 1980 (Afisi).

2 BY MR. PATON:

3 Q All right, sir, my question is, is there a problem with  
4 natural sands under the service water structure?

5 A I am not aware of the problem below the service water  
6 structure.

7 Q Are there loose sands under the service water pump  
8 structure between elevations 599 and 601.5?

9 A Sir, I do not know this for a fact, but it is stated in  
10 the response that there are two and a half feet of loose sand  
11 under the service water portion of the structure.

12 Q Other than this document which is Page 2.1 from the  
13 5054 F response to Volume 1, you have no knowledge that there are  
14 any -- do you have any knowledge that there are any loose sands  
15 under the service water pump structure?

16 A The fill portion, the fill itself contains loose sand  
17 and that's why the watering system is going to be implemented.

18 (Discussion off the record.)

19 BY MR. PATON:

20 Q Are there loose sands below the structure?

21 MR. FARNELL: Are you referring to anywhere below, I  
22 mean, depth-wise down to the center of the earth?

23 A Available borings, so to my recollection, there are  
24 loose sands below the fill supported portion of the structure.

25 Q Are the loose sands in the fill?

1           A     To my recollection, the fill contains loose sands and  
2 the response here, refers to two and a half feet. It could be  
3 in the boundary between loose natural sand and fill just at the  
4 boring SW-6 as indicated at the time the response was prepared.

5           Q     Are you aware of any commitment in the PSAR to remove  
6 natural sands less than 75 percent dense?

7           A     Yes, sir.

8           Q     Did Beshkel remove natural sands less than 75 percent  
9 dense in the power block area?

10          A     I don't know.

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1 Q What was your understanding of the commitment in the  
2 PSAR to remove natural sands less than 75 percent dense; to what  
3 did it extend, to what area did it extend?

4 A I don't recall all of the details. I just recall that  
5 there was a commitment to remove sands with a density of less  
6 than 75 percent.

7 Q And your testimony is that you don't know whether that  
8 was done or not?

9 Do you know whether it was done or not?

10 A I do not know, no.

11 Q Under whose responsibility would that fall, to know  
12 whether that was complied with or not?

13 (Discussion off the record)

14 A Please repeat the question.

15 BY MR. PATON:

16 Q Whose responsibility would it be to determine whether  
17 there was compliance with the commitment in the PSAR, discussed  
18 concerning natural sands with a density less than 75 percent?

19 A Project Engineering.

20 Q Who, specifically, in Project Engineering?

21 A I don't know specifically who in Project Engineering.

22 Q Sir, I want to read you a sentence from the last para-  
23 graph of this letter, and if you'd like to see it, I'll hand you  
24 the document.

25 "Therefore we do not accept the argument that because the



1 recent borings showed natural sands which had relative density  
2 greater than 75 percent, Bechtel has no liability for additional  
3 costs."

4 My question is, are you aware that from time to time,  
5 there are discussions between Bechtel and Consumers as to who is  
6 liable for some of the construction work done at Midland?

7 MR. FARNELL: I'd note for the record that you just read  
8 from Afifi Deposition Exhibit 4.

9 A Can you repeat the question, please?

10 (Record read)

11 MR. FARNELL: Can you give a time frame?

12 MR. PATON: In the last five years.

13 A I've heard that such discussions do exist.

14 BY MR. PATON:

15 Q Have you heard such discussions exist with regard to the  
16 plant fill at Midland?

17 MR. FARNELL: Such discussions -- you're talking about  
18 sand, and now you're talking about something different?

19 MR. PATON: Oh, come on. The question was whether from  
20 time to time there are discussions between Bechtel and Consumers  
21 Power as to who is liable for work at the Midland site, and I then  
22 asked him were there such discussions with respect to plant fill.

23 MR. FARNELL: As to who is liable for the plant fill?

24 In other words, there's no context to it.

25 MR. PATON: There was until you --

3

1 BY MR. PATON:

2 Q I will read the sentence again from Deposition Exhibit 4.

3 "Therefore we do not accept the argument that because the  
4 recent borings showed natural sands which had relative density  
5 greater than 75 percent, Bechtel has no liability for additional  
6 costs."

7 Do you understand what that means?

8 A Yes, I understand what the sentence means.

9 Q What does it mean?

10 A I believe the sentence means that Consumers Power Company  
11 believe that Bechtel should pay for the borings, for the cost that  
12 was necessary to conduct evaluations.

13 Q All right. Have you ever heard of any discussions be-  
14 tween Consumers Power and Bechtel relating to who will pay for the  
15 cost of the remedial action at the Midland site, and I mean  
16 remedial actions with respect to the soil settlement problem?

17 MR. FARNELL: I'm going to let him answer this question,  
18 but I don't think this is relevant to the scope of the hearing.

19 A I've heard it mentioned, but I'm not sure of the source  
20 of the information.

21 Q What did you hear mentioned?

22 A I don't recall who mentioned it specifically, but I've  
23 heard it mentioned that Consumers -- that Bechtel may end up having  
24 to pay for the remedial work, but I don't recall exactly who said  
25 it or whether this information was speculation or fact.

4 1 Q Have you heard whether Consumers plans to sue Bechtel or  
2 Bechtel plans to sue Consumers with respect to this matter?

3 MR. FARNELL: I'm instructing him not to answer that  
4 question on the ground of attorney-client privilege.

5 BY MR. PATON:

6 Q Do you know if there is any attempt being made to arbi-  
7 trate any differeces that may exist between Bechtel and Consumers  
8 with respect to the soil settlement problem?

9 A No, sir.

10 Q Have you heard any figures as to the total cost of the  
11 remedial action because of the soil settlement problem?

12 A Would you repeat the question?

13 (Record read)

14 A Again, I've heard figures, but I don't recall where they  
15 came from precisely. I heard numbers on the order of 20 million  
16 dollars.

17 Q And you believe you heard that on the order of 20  
18 million dollars; was that the total cost for the remedial actions  
19 for the soil settlement problem at Midland?

20 A I can't tell you exactly. I have heard numbers on that  
21 order, and I wouldn't know the contents, the ingredients of these  
22 numbers or the scope. That's pure -- that's the only thing I can  
23 recall hearing.

24 Q Is there a figure that Bechtel uses to attribute to the  
25 cost of delay of the plant, for example, so many dollars per day?

5

1 A I'm not aware of such figures.

2 Q So many dollars per day for each day of delay?

3 A I'm not aware of such figures.

4 Q Has the plant fill settlement problem affected Bechtel's  
5 willingness to submit information to the NRC?

6 (Discussion off the record)

7 MR. FARNELL: What do you mean? I need some context  
8 with Bechtel's willingness to submit information to the NRC. Are  
9 you talking about this project or other projects?

10 MR. PATON: It's my position that if the witness under-  
11 stands the question, the question should be answered unless you  
12 instruct him not to answer the question. If he has difficulty with  
13 the question, I think he should say so, and I will try to change  
14 the question, but I don't think it is appropriate to stop the  
15 deposition to answer question from counsel because counsel has  
16 difficulty with the question.

17 MR. FARNELL: You are flat-out wrong on your statement.  
18 I am going to continue what I am doing, and it is proper.

19 MR. PATON: Are you instructing the witness not to  
20 answer the question?

21 MR. FARNELL: No, it is unintelligible.

22 MR. PATON: If the witness tells me it is unintelligible,  
23 I will try and rephrase the question.

24 A Would you please repeat the question?

25 BY MR. PATON:

6

1 Q Do you understand the question?

2 A I don't understand the scope of the question, no.

3 Q You don't understand the scope?

4 A I would like clarification on the question.

5 Q You don't understand the question generally?

6 I'll ask another question.

7 A Okay, go ahead.

8 Q Is Bechtel willing to provide information to the NRC in  
9 its review of the Midland facility?

10 A To my knowledge, Bechtel is providing information to the  
11 NRC in review of the Midland facility.

12 Q Why do you do that?

13 A Because of all the responses to the questions that have  
14 been prepared and all of the data.

15 Q You maeen you do that because we ask questions?

16 A This question really portends to Bechtel as a whole, and  
17 it's hard to say. I would not know the answer to that.

18 Q Are you willing to provide information to the NRC in its  
19 review of the Midland facility?

20 A I am willing to provide information.

21 Q Do you have any instructions with respect to your  
22 providing information to the NRC in its review of the Midland  
23 facility?

24 A Yes, I received the instructions of what to provide from  
25 the project or the task group leader connected with the job.

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7  
1 Q Dr. Afifi, I show you a document that I will mark as  
2 NRC Exhibit No. 5, 10-30-80 (Afifi), and ask you if you have ever  
3 seen that document before?

4 (Discussion off the record)

5 BY MR. PATON:

6 Q I show you a document that I have marked NRC Deposition  
7 Exhibit No. 5, 10-30-80 (Afifi), which consists of a cover letter  
8 dated August 4, 1980, two pages long and signed by Mr. Schwencer of  
9 the NRC with an attachment dated July 7, 1980; subject, Inter  
10 Agency Agreement No. NRC-03-79-167, Task No. 1, Midland Plant,  
11 Units 1 and 2; sub-Task No. 1 letter report, that attachment being  
12 16 pages long, and ask you if you have ever seen NRC Exhibit No. 5  
13 before?

14 A Yes, sir, I have.

15 Q Have you read it before?

16 A I read certain portions of it.

17 Q I direct your attention to page 3 of the attachment  
18 which is the portion on the letterhead of the Corps of Engineers,  
19 specifically to the paragraph about seven lines from the top of  
20 page 3 that reads (2) Bearing Capacity, and ask you to read that  
21 four-line paragraph.

22 A Yes, sir, I read that.

23 Q Do you know whether Consumers or Bechtel have performed  
24 the bearing capacity computations that are referred to in that  
25 paragraph?



8 1 MR. FARNELL: By this, I take it you mean after -- this  
2 request asks for, I believe, new bearing capacity computations.

3 Are you asking whether the Bechtel or Consumers has sent  
4 bearing capacity computations in response to this request?

5 (Discussion off the record)

6 BY MR. PATON:

7 Q Dr. Afifi, within that four-line paragraph, do you see  
8 the three words, "bearing capacity computations"?

9 A Yes, sir.

10 Q Do you know whether Bechtel or Consumers Power has ever  
11 made such bearing capacity computations?

12 A Yes.

13 Q Who made them?

14 A The computations have been made by the Soils Group.

15 Q Who, specifically?

16 A I believe the most recent computation was made by Mr.  
17 Givens, G-i-v-e-n-s.

18 Q Do you know when those computations were made,  
19 approximately?

20 A They have been prepared as part of the response to  
21 Question 39.

22 Q Do you intend to provide that information to the NRC?

23 A Yes, sir.

24 Q Dr. Afifi, did you state that you had read portions of  
25 this 16 page document from the Corps of Engineers?



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9  
1 A Yes.

2 Q And did you read the portions applicable to your own  
3 responsibilities?

4 A Those are the ones I read in more detail, yes.

5 Q Do you recall within the portions that you stated that  
6 you read in more detail, are there any requests for information in  
7 there that you do not intend to comply with or that you do not  
8 intend to provide?

9 MR. PATON: Off the record.

10 (Discussion off the record)

11 MR. FARNELL: We don't have on the record what portions  
12 he read, and the question is misleading and bad as to form, among  
13 other things, and I am going to instruct him not to answer that.

14 MR. PATON: All right, if you have instructed him not to  
15 answer, all I'm saying is either the witness can answer the  
16 question or he can't. If he can't, that's fine.

17 MR. FARNELL: We're not even getting that far. I'm  
18 instructing him not to answer. It's misleading, and I am willing  
19 to go item by item, but not like that.

20 MR. PATON: All right.

21 BY MR. PATON:

22 Q Dr. Afifi, will you tell me, starting on page 1, which  
23 sections you read more carefully because you felt it was within  
24 your scope of responsibility?

25 A I believe I read the first two pages -- let's see. There

10

1 are different degrees, really, how hard I read each part, but I  
2 read the first page and the second and the third. Even within each  
3 page, there are certain areas that are not my responsibility, and  
4 I can't identify them -- there are different pages, and I can tell  
5 you that I read 4, 5, portions of 4 and 5 are not my entire  
6 responsibility. I read number 7.

7 Q You didn't read number 6?

8 A I read 6, portions of 6. I read the entire page 6, but  
9 I believe I stated that portions are not within my area of responsi-  
10 bility. I read 7 and certain portions of 7 are not within my area  
11 of responsibility. I believe 8 and 9 are not within my area of  
12 responsibility.

13 Q You have eliminated 8 and 9, pages 8 and 9; is that  
14 correct?

15 A I believe that those portions, to the best I can recall  
16 at this moment, they are not within my area of responsibility.  
17 Portion F of page 10, I read. Then the rest of page 10 and the top  
18 of page 11, I read.

19 The Question 47 which covers pages 11, 12 and 13 and the  
20 top of 14, I recall reading it sometime ago, but it's not within  
21 my area of responsibility. I read the portion on page 14 and the  
22 top of page 15.

23 The Question termed No. 48 on page 15 and 16, I believe  
24 I read, but it's not within my area of responsibility. When I say  
25 it's not within my area of responsibility, I might provide certain

11 1 input at certain times, but it's not originated by my people.

2 Q Dr. Afifi, on page 3 near the middle of the large para-  
3 graph that follows (1), about two-thirds of the way down, you see  
4 a sentence that begins on the right-hand side, "To verify the  
5 pre load test..."?

6 A Yes.

7 Q All right, continuing with that sentence, it says on the  
8 next line, "compute settlements based on test results on samples  
9 from new borings which we have requested in a separate memo and  
10 present results."

11 First, is that subject within your area of responsibility?

12 A Yes, sir.

13 Q And do you know whether the settlements requested there  
14 are being prepared?

15 A Would you repeat the question?

16 Q With respect to the words "compute settlements," do you  
17 know whether those settlement computations are being prepared?

18 A No, sir, they are not being prepared.

19 Q Do you know why they are not being prepared?

20 A Yes, sir, I do.

21 Q Why?

22 A Because the Applicant's position paper has been presented,  
23 stated, that in the opinion of the Applicant, there will be no  
24 boring involved for that purpose.

25 Q Let me ask you, by that position paper, are you referring

12

1 to a document dated September 14, 1980?

2 A That's about the right time.

3 Q Dr. Afifi, I just want to show you Consumers Power  
4 Exhibit No. 3, Heller Deposition on October 9. There is a document  
5 here dated September 14, 1980.

6 Can you tell by looking, is that the document you were  
7 referring to?

8 A Yes, sir.

9 Q And your shorthand title for that is a position paper?

10 A Yes, that's it.

11 Q To your knowledge, has there been any recent discussions  
12 concerning Consumers' position with respect to this request here  
13 to compute settlements to verify the pre load test settlement  
14 conditions, compute settlements based on test results, on samples  
15 from new borings which we have requested in a separate memo and  
16 present the results?

17 MR. FARNELL: Discussion with who?

18 MR. PATON: Discussion with anyone.

19 A I don't recall any recent discussions.

20 Q When you say, position, you mean Consumers Power's  
21 position?

22 A I meant the -- I was referring to the document, yes.

23 Q I'll show you the document again, if you want to, but  
24 was that document prepared by Consumers Power?

25 A That document was prepared by Bechtel with some input

13

1 from Consumers Power.

2 Q And is the essence or the summarizing the position, is  
3 it that there is no need for new borings?

4 A Yes, we have discussed that previously with the Staff,  
5 Dr. Peck, and I have participated in these discussions. That's  
6 how we feel from an engineering standpoint.

7 Q Can you tell me whether that was Bechtel's decision or  
8 Consumer Power's decision?

9 A With aspect to the subject of settlement, I personally  
10 recommended strongly that is not the way to go, and that's all I  
11 can tell you. The decision ultimately is the client's decision.

12 Q You said you recommended strongly. Can you tell me why  
13 you said, strongly?

14 A Because I believe that the full scale measurement that  
15 we made on the Diesel Generator Building provided sufficient basis  
16 to predict what the performance of the building was with respect  
17 to settlement. I believe this is reliable and gives us the answers  
18 we are looking for.

19 Q The need for additional borings -- strike that.

20 There is no plan to have a Surcharge Program at the  
21 Auxiliary Building, is there?

22 A No, sir.

23 Q Do you plan to take new borings in response to request  
24 from the Corps of Engineers with regard to the remedies at the  
25 Auxiliary Building?

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14 1 MR. FARNELL: Would you repeat that, please?

2 (Record read)

3 A I don't recall that the remedy, that the Corps of  
4 Engineers requested settlement evaluation for the Auxiliary  
5 Building, with respect to fill.

6 BY MR. PATON:

7 Q You have been requested to take additional borings by  
8 the Corps of Engineers and the Staff, with respect to the remedies  
9 at the Aux Building; is that correct?

10 A Yes, sir.

11 Q And did you have a recommendation with respect to those  
12 borings?

13 A My recollection is that the request was in relation to  
14 boring capacity -- can you --

15 Q Both bearing capacity and settlement --

16 A So what's the question?

17 Q Do you you have a recommendation as to whether or not  
18 those additional borings should be taken?

19 A Where? Are we talking the Auxiliary Building?

20 Q Yes.

21 A Deep in my heart, I do not feel that these borings were  
22 necessary. I have no objection to taking them or not taking them.  
23 Deep in my heart, I don't believe they were necessary.

24 Q Can you tell me why?

25 A Because the caissons would be supported on the natural



15 1 fill at the site. There would be excavations made, the opportunity  
2 to inspect the excavations, there would be load tests done on  
3 these caissons during construction, and there is opportunity to  
4 take samples from the tip of the caissons, if we needed to do that,  
5 right below the tip of the caissons, and get the information we  
6 want. It would be better information than drilling a hole 25 or  
7 30 feet away from the building.

8 Q Do load tests provide information on long term settlement?

9 A No, sir.

10 Q Do you believe that if you took these borings requested  
11 by the Staff and the Corps of Engineers, you would be provided any  
12 information with respect to settlement predictions and bearing  
13 capacity at the Auxiliary Building?

14 MR. FARNELL: Read that back, please.

15 (Record read)

16 A Can you clarify the question, please?

17 BY MR. PATON:

18 Q You don't understand the question?

19 A Yes, if you would clarify it, please.

20 Q In what way?

21 A Are you saying any information at all?

22 Q Yes, that's what I want you to say.

23 A Any information whatsoever?

24 Q Yes, that relates to a settlement prediction.

25 A Irrespective of whether it's valuable information or not?



16 1 Q You can start there. That's what I asked you, would you  
2 receive any information --

3 A There will be information obtained from the borings.

4 Q Will that information be of any value in predicting  
5 settlement?

6 A It could be of some value.

7 Q Could it be of some value in predicting bearing capacity?

8 A Yes, sir.

9 Q Dr. Afifi, are there any requests for information in the  
10 document submitted by the Corps of Engineers dated July 7, from  
11 pages 1 through 16, within your area of responsibility that you do  
12 not understand?

13 MR. FARNELL: Same objection.

14 (Discussion off the record)

15 BY MR. PATON:

16 Q I'll say page 1 and he can answer, and then I'll say  
17 page 2. As a matter of fact, starting from page 1 at your attorney's  
18 request and going through page 16, would you answer for each page?

19 MR. FARNELL: I want better than that. I want each  
20 individual request.

21 MR. PATON: Are you instructing him not to answer the  
22 question?

23 MR. FARNELL: The way you have it phrased, yes.

24 MR. PATON: All right.

25 MR. FARNELL: I am willing to have him answer as to each

L 17 1 individual specific request. I think it is a compound question.

2 MR. PATON: That's fine, you have instructed him not to  
3 answer, so I don't see the need for --

4 MR. FARNELL: He's here to answer your questions.

5 MR. PATON: All right, you instructed him not to answer  
6 and I'll ask him another question.

7 BY MR. PATON:

8 Q Dr. Afifi, I direct your attention to page 1 of the  
9 Corps report dated July 7, 1980.

10 A Are you referring to page 1, sir, where the letterhead  
11 exists?

12 Q Yes, sir, the page that has at the top in all caps,  
13 SUBJECT: INTER AGENCY AGREEMENT, et cetera.

14 Are there, in your opinion, any requests for information  
15 on that page?

16 A Okay, I have difficulty with pages 1 and 2, in general.

17 Q In understanding them?

18 MR. FARNELL: I think he's indicating there's something  
19 about them he didn't understand.

20 MR. PATON: I'll ask another question.

21 BY MR. PATON:

22 Q Dr. Afifi, would you address page 1 of the Corps docu-  
23 ment dated July 7, and I ask you, do you understand, is there any-  
24 thing on page 1 that you do not understand?

25 MR. FARNELL: Take it line by line.

18

1 (Discussion off the record)

2 (Recess taken)

3 BY MR. PATON:

4 Q Dr. Afifi, I believe you testified that you had recom-  
5 mended strongly that Consumers not provide the Staff with  
6 additional borings that were requested by the Staff and the Corps  
7 of Engineers; is that correct?

8 MR. FARNELL: I don't believe that was correct.

9 A I don't believe I said that, no.

10 BY MR. PATON:

11 Q Is it correct that you recommended strongly that the  
12 borings not be taken; is that what you said?

13 A No, I didn't say that.

14 Q You referred to a strong recommendation, which you made  
15 about 10 minutes ago. Can you tell me what that strong recommenda-  
16 tion was?

17 A I believe I was referring to the method of predicting  
18 settlement, should be based on the full scale measurements.  
19 Settlement prediction is best obtained from full scale measurements,  
20 in my opinion, if that access is available.

21 Q Do you know whether Dr. Peck concurred in that  
22 recommendation?

23 A I believe Dr. Peck agrees with that.

24 Q Did you ever hear Dr. Peck made any statement concerning  
25 the advisability of taking additional borings for predicting

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19

1 settlement?

2 A I don't recall hearing Dr. Peck talk to me about that.

3 Q Did you hear him talk to anybody about that subject?

4 A I believe there was a statement made once that if the  
5 Staff is concerned about the three feet of fill just below the  
6 foundation, that may be tried and the only way to satisfy the  
7 Staff along these lines would be to run a consolidation test to  
8 verify there would not be additional settlement, or something  
9 along these lines.

10 Q Are there any other statements by Dr. Peck that you  
11 recall he made at any time, with respect to taking additional  
12 borings for the purpose of predicting settlement?

13 A I don't recall any others, and I'm not actually sure  
14 that the first statement was made by Dr. Peck. I remember in the  
15 back of my mind it was made as to, was made to me by Walter  
16 Ferris, and I don't recall if that was from Walter Ferris or was  
17 a result of a discussion between Walter Ferris and Dr. Peck.

18 Q Have you told us all of the statements that you can recall  
19 that, to your knowledge, were made by Dr. Peck to anyone con-  
20 cerning taking additional borings for the purpose of predicting  
21 settlement?

22 A Well, with respect to shear strength -- would you  
23 please repeat the question?

24 Q Have you told us all of the statements that you can  
25 recall having heard from Dr. Peck concerning his recommendations

20

1 for taking additional borings for the purpose of predicting  
2 settlement?

3 MR. FARNELL: I don't think it was his recommendation  
4 concerning --

5 BY MR. PATON:

6 Q Recommendation for or against taking the borings for the  
7 purpose of determining --

8 A My understanding is that Dr. Peck is not in favor of  
9 predicting settlements from borings. He, himself, is not in favor.

10 Q Is that statement applicable to the plant fill at  
11 Midland, or is that generally his position?

12 A I thought I understood your question, you were referring  
13 to predicting of the general settlement.

14 Q Okay, I'll accept your answer with that understanding.

15 Do you recall Dr. Peck ever making any statements about  
16 the desirability of taking additional borings for the purpose of  
17 determining bearing capacity?

18 A I have difficulty with the word "desirability."

19 Q Advisability?

20 A I believe one of the times we have discussed that if  
21 the Staff is insisting on the borings for the bearing capacity,  
22 there would be nothing wrong with doing them, as far as the  
23 bearing capacity is concerned.

24 Q Do you plan to do them for that purpose, for revealing  
25 information about bearing capacity?

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21

1 A I believe that we have estimates, sufficiently  
2 estimated bearing capacity with available information that we have.  
3 I believe that the additional data that we would get would not  
4 result in any significant alteration in our estimates, but I would  
5 have no objections to doing it.

6 Q You would have no objections to doing it, but right now  
7 you have no plans for doing it; correct?

8 A That's right.

9 Q Is there any difference between your position and Dr.  
10 Peck's position concerning the advisability of taking additional  
11 borings for the purpose of determining bearing capacity?

12 A As far as I know, I don't believe there is a difference  
13 as far as I know.

14 Q Do you know what the standard review plan is?

15 A Yes.

16 Q Generally, what is it?

17 A It's list of, check list of items which are required,  
18 which are used as bases by the Staff for reviewing the safety  
19 analysis report.

20 Q Does Bechtel use the standard review plan for any  
21 purpose?

22 A I believe I recall that we used it in the process of  
23 preparing the Midland FSAR.

24 Q Do you use it to help you determine what information to  
25 provide the NRC?

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2 1 A To the best of my recollection, this has been done.

2 Q Do you ever provide the NRC with information in the  
3 absence of a request for that information from the NRC?

4 MR. FARNELL: Are you talking about the Midland project?

5 MR. PATON: The Midland project.

6 A I don't -- I can't recall exactly. I believe that in  
7 many cases, some of the responses to the question -- I'm talking  
8 in my area, went beyond the questions, somewhat beyond the  
9 question, in my area that I can recall, but I can't speak for the  
10 rest.

11 Q Your answer is that you are speaking for yourself only;  
12 is that correct?

13 A Yes, I want to make you aware that I am speaking from  
14 one area only in responding to the soil question. I do recall  
15 that we attempted, in every case, to respond to the question, and  
16 in some cases, we went beyond the items in the question to  
17 complete the subject that was brought in.

18 Q With respect to the soils issue, I'm not talking about  
19 this litigation or these depositions, but with respect to the  
20 soils issue in your normal review process, have there been any  
21 change, have you received any different instructions on the  
22 amount of information you should provide to the NRC than you had  
23 prior to the soils issue?

24 A Well, prior to the soils issue, we were preparing an  
25 FSAR, working on an FSAR, and that is a standard review plan for



23

1 the FSAR. In this particular matter, to the best of my knowledge,  
2 we are working with 50-54 F and I am not -- I am under the system  
3 where we respond to all of the questions and provide all of the  
4 factual information.

5 Q In the last four years, and I am excluding from my  
6 question any instructions you may have received in connection  
7 with the deposition today, I'm excluding that, have you received  
8 any instructions that bear on providing the NRC information?

9 MR. FARNELL: With respect to Midland?

10 MR. PATON: With respect to Midland.

11 A Sure, I have received instructions.

12 BY MR. PATON:

13 Q Can you tell us what the instructions were ?

14 A I cannot possibly recall all of the instructions, but  
15 we have received instructions to provide information in connection  
16 to responding to various NRC questions and make amendments to  
17 various NRC questions and provide response for additional  
18 information that has been included in the 50-54 F Volumes.

19 Q All right, again, I'm not asking you about any instruc-  
20 tion that you may or may not have received in connection with this  
21 deposition.

22 Have you ever received an instruction in the last four  
23 years with respect to Midland and with respect to the soils  
24 problem to refrain or to not provide certain information to the  
25 NRC?

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24

1 A I have been instructed to respond to the questions  
2 fully and to the best of my knowledge.

3 Q And you have not received any change in that instruction  
4 with respect to the soils issue in the Midland case in the last  
5 four years?

6 A Can I speak with my counsel?

7 Q Surely.

8 (Discussion off the record)

9 A There has been a change, and that is the difference  
10 between working in an FSAR system and the 50-54 F system. These  
11 are two different matters. In my working with the FSAR, updating  
12 FSAR constantly is one matter, and the 50-54 F agreement that I  
13 understand we are working on, that is a different matter.

14 BY MR. PATON:

15 Q Okay, keeping the FSAR up to date calls for you to  
16 volunteer information; is that correct?

17 A Calls for you to comply with the standard review plan  
18 and the section 1.70 step by step and to respond to every single  
19 step on those.

20 Q And in responding to the 50-54 F requests, do you re-  
21 spond to the question -- you do not additionally volunteer any  
22 information; is that correct?

23 A I respond to the question in full, and we have, I  
24 believe, provided a factual data.

25 Q In the 50-54 F process, do you feel that there is a

25

1 need to freely submit geotechnical information to the NRC in a  
2 manner similar to the manner in which you respond to the standard  
3 review plan?

4 A I am not familiar with the rules of the 50-54 F myself.  
5 Maybe I'm not understanding the question.

6 Q By 50-54 F, I'm just referring --

7 A Are you asking me to change the 50-54 F method of  
8 reporting into an FSAR; is that what you're asking?

9 MR. PATON: He understands very well.

10 BY MR. PATON:

11 Q Dr. Afifi, I show you what I previously marked as NRC  
12 Deposition Exhibit 2. It is a document dated August 3, 1979.  
13 The subject is Problem Alert, Incorrectly Placed Back Fill. The  
14 document has a number on it, SB 301598 through SB 301600. The  
15 last page should probably be numbered 601. The last page I have  
16 has no number on it, but it was substituted because the original  
17 last page could not be read. Let me ask you to look at that  
18 document.

19 You can look at it again, Doctor, but let me ask you,  
20 have you ever seen this before?

21 A I believe I saw either this one or something similar to  
22 it. It's possible that it's this one because it has my initials  
23 on it.

24 Q Do you know what it is?

25 A Yes.

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26

1 Q What is it?

2 A It's a document that I understand is supposed to be  
3 sent to Bechtel to alert from recurrence of similar problem as  
4 what happened in Midland.

5 Q Is it an attempt on Bechtel's part to summarize the  
6 problems that occurred at Midland?

7 A I did not prepare the document. I may have had some  
8 input into reviewing the initial draft of it. I don't believe  
9 the document is intended to summarize the problem at Midland, but  
10 my understand, the document is intended to provide the lessons as  
11 to what may have had to be learned from the experience at Midland.

12 Q You don't have any trouble applying the words, lessons  
13 learned to the document, things that Bechtel doesn't wish to have  
14 happen again?

15 (Discussion off the record)

16 (Record read)

17 MR. PATON: I'll strike the question.

18 A I believe I intended to state the Midland experience.

19 BY MR. PATON:

20 Q All right, you did not view that as a summary of the  
21 problems that were encountered at the Midland site?

22 A I don't believe it is.

23 Q But you do think it is a check list of items that  
24 Bechtel doesn't want to have repeated at other sites?

25 MR. FARNELL: Don't answer.

27

1 (Discussion off the record)

2 BY MR. PATON:

3 Q Dr. Afifi, is it correct that after the settlement  
4 problem was discovered, Bechtel took a series of borings and  
5 conducted laboratory tests which included consolidation testing?

6 A Are you referring to the Diesel Generator Building  
7 problem?

8 Q Yes.

9 A Yes, sir.

10 Q With settlement computations and predictions made based  
11 on those laboratory test results?

12 A I don't recall that any were made.

13 Q Do you know why they were not made?

14 A I believe I responded to that question yesterday once.

15 Q You gave a lot of answers yesterday, and I'm not sure  
16 I can sort out what answer you're referring to.

17 A The very initial intent of the test was to diagnose the  
18 problem and perhaps if it was possible, to predict settlement and  
19 be able to get reasonable settlements without any remedial action.  
20 That would be one action to take. That was the immediate thought  
21 that was, I believe, that occurred to me is to investigate and see  
22 the quality of the fill as it exists, but it became apparent that  
23 a fix is required, and the full surcharge method provided a  
24 superior method for consolidating the fill, the land fill together.  
25 For that reason, this data lost its meaning, in my opinion.

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28

1 Q Can you answer my question, yes or no, were settlement  
2 computations and predictions made based on those laboratory test  
3 results?

4 MR. FARNELL: I think he answered.

5 A I thought I said, I don't know.

6 BY MR. PATON:

7 Q You don't remember?

8 A I don't remember.

9 Q You said it became apparent that a fix was required.  
10 Almost immediately it became apparent that a fix was required?

11 A Almost immediately? I didn't use the words, almost  
12 immediately.

13 Q You said that there was an initial --

14 A In initial reaction was to take the borings and take the  
15 regular types of tests everybody goes out and runs on site where  
16 soil conditions are unknown. Later, our thought developed rather  
17 rapidly into the surcharge program and there was no reason not to  
18 proceed with the tests.

19 Q You went out and took a series of borings and you  
20 conducted laboratory tests, but then you stopped just short. You  
21 stopped short of making the computations; is that correct?

22 MR. FARNELL: I don't think he took the tests to make  
23 consolidation, to make settlement with.

24 A Not necessarily.

25 BY MR. PATON:

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1 Q Well, tell me the purpose of taking the series of  
2 borings that you took?

3 A It was to evaluate the conditions of the fill.

4 Q And you conducted laboratory tests?

5 A Yes.

6 Q And those included consolidation tests?

7 A They did.

8 Q How much effort would have required -- strike that.

9 Dr. Afifi, do you know who within Bechtel would know  
10 whether or not any settlement computations and predictions were  
11 made based on the laboratory tests?

12 A I can check for you. It would not be a problem. Over-  
13 night I can check it out.

14 Q Would you be willing, with the consent of your lawyer,  
15 to provide that information tomorrow, if he agrees to it?

16 A I'll check and see.

17 MR. FARNELL: If you can check, fine.

18 BY MR. PATON:

19 Q If these computations had been made, where would they  
20 be located?

21 A They would be in our computations files.

22 Q How long would it take a person who is qualified to  
23 make settlement computations and predictions, to have made settle-  
24 ment computations and predictions having in his possession the  
25 results of the laboratory tests?



1 MR. FARNELL: Is this in relation to a specific  
2 building or plan?

3 MR. PATON: The Diesel Generator Building.

4 MR. FARNELL: What laboratory tests are we talking about?

5 MR. PATON: The lab tests you just referred to.

6 A The process includes evaluating the data very closely  
7 and selecting the parameters and conducting the tests. It's not  
8 a lot of work.

9 BY MR. PATON:

10 Q Would it take less than a day?

11 A Not in the case of the Diesel Generator Building. It  
12 would take less than a day in another situation, but not in the  
13 case of the Diesel Generator Building.

14 In order for me to come up with something reasonable, I  
15 have to put somebody for two weeks, look at it very carefully,  
16 evaluate the data, to see the availability of the soil properties,  
17 where the samples were taken and be careful about doing it. It's  
18 not a uniform deposit.

19 Q So your estimate today is that to make the settlement  
20 computations and predictions with respect to the Diesel Generator  
21 Building, would have taken approximately two weeks?

22 A A careful evaluation. A crude evaluation would take  
23 less than a day.

24 Q Did you learn anything from the laboratory test results  
25 that indicated to you, that gave you any reason that you should

1 not make the settlement computations?

2 MR. FARNELL: I think he said he didn't recall whether  
3 they made them or not.

4 MR. PATON: Okay, that's not the answer to my question.

5 MR. FARNELL: Would you read that back, please.

6 (Record read)

7 A I don't believe so.

8 BY MR. PATON:

9 Q Do you know who -- if a decision was made not to make  
10 settlement computations and predictions, is that within the scope  
11 of your responsibility at that time?

12 A Yes.

13 Q Is that the type of thing that you would have discussed  
14 with anybody higher than you in the organization, or is that a  
15 decision you would have made?

16 A I would say it's a decision that I would make.

17 Q Is there, as opposed to the careful analysis you  
18 described, is there a crude estimate of settlement computations  
19 that could be made in approximately a half a day?

20 MR. FARNELL: I believe he said less than a day -- okay.

21 BY MR. PATON:

22 Q Is there such a thing?

23 A I need to know what settlement computations you are  
24 talking about now.

25 Q An estimate of the settlement at the Diesel Generator

1 Building would have under the surcharge?

2 A That would be -- that can be made crudely and one would  
3 be able to arrange, a rather crude range.

4 Q Do you know whether any crude estimate was made?

5 A I recall that by comparing the lab data, a range, the  
6 range and the actual complicity range, you would back figure  
7 from the tests from the full scale measurement, that the number  
8 would be, it would be higher, could be higher, but that accounts  
9 for the fact that most, a lot of the samples were on the soft side,  
10 so that makes me return again to the connection about the careful  
11 analysis of the data that would be required in case one wants to  
12 make an estimate to very carefully look at it. It's not a big  
13 problem.

14 Q Okay, I'm not sure I understand your answer to my  
15 question about the crude estimate.

16 Was a crude estimate made?

17 A There is a crude estimate made of the range of the  
18 complicity parameters. I cannot recite it for you at the  
19 moment, but I can get it for you.

20 Q All right, would you do that?

21 A Yes.

22 Q Was the crude estimate you just referred to of a  
23 compressibility index?

24 A Yes, sir.

25 Q Did you make any crude estimate of settlement?

1 A No, I stated before, I don't recall if that was done or  
2 not.

3 MR. FARNELL: Off the record.

4 (Discussion off the record)

5 MR. PATON: The request for the compressibility index,  
6 we do not need it overnight. If you are willing to give it to  
7 us, would you just indicate some reasonable time that you can  
8 supply it to us?

9 MR. FARNELL: We'll provide it within two weeks.

10 BY MR. PATON:

11 Q Were six borings made near the Diesel Generator Building  
12 after removal of the surcharge for shear wave velocity measurements?

13 A Can you explain what you mean by, near?

14 (Discussion off the record)

15 BY MR. PATON:

16 Q All right, let me amend the question.

17 Were six borings made -- Dr. Afifi, I read to you from  
18 page 1 of Consumers Power Exhibit No. 3, Heller Deposition,  
19 October 9, 1980.

20 "After removal of the surcharge, six additional borings  
21 were made to conduct in-situ shear wave velocity measurements,"  
22 and I hand you that document if you want to read that statement.

23 A Yes.

24 Q Is that a true statement?

25 A Yes, sir.

1 Q Did you compare the blow counts obtained from borings  
2 before and after surcharging the Diesel Generator Building?

3 MR. FARNELL: Would you read that back?

4 (Record Read.)

5 MR. PATON: Off the record.

6 (Discussion off the record)

7 BY MR. PATON:

8 Q Let me read it again. Did you compare the blow counts  
9 obtained from borings before and after surcharging the Diesel  
10 Generator Building?

11 A Yes, sir.

12 Q Do you know if that comparison has been provided to the  
13 NRC?

14 A No.

15 Q Do you plan to provide that information to the NRC?

16 MR. FARNELL: You asked him, did he know, and he said,  
17 no, he didn't know.

18 MR. PATON: I asked him, has he provided it, and I guess  
19 he said he didn't know. Now I asked him, does he plan to provide  
20 it.

21 MR. FARNELL: It already may be provided, he doesn't  
22 know.

23 MR. PATON: Okay, if he's already provided it, maybe he  
24 doesn't plan to provide it.

25 MR. FARNELL: Can you ask the question again?

1 BY MR. PATON:

2 Q To repeat my question, I have to back up another  
3 question. I ask you, did you compare the blow counts obtained  
4 from borings before and after surcharging the Diesel Generator  
5 Building; did you answer, yes?

6 A Yes, sir.

7 Q Have you provided that information to the NRC?

8 A I have not.

9 Q Do you plan to provide that information to the NRC?

10 A I have no immediate plans for that.

11 Q Has the NRC, to your knowledge, asked you for that  
12 information?

13 A No.

14 Q Do you consider that information to be significant?

15 MR. FARNELL: To what?

16 MR. PATON: I'm asking him.

17 MR. FARNELL: It's too general.

18 BY MR. PATON:

19 Q Do you consider that information to be significant for  
20 any purpose?

21 A I don't believe the information is very significant.

22 MR. PATON: Mr. Farnell, would you be willing to have  
23 Mr. Afifi provide us the information he has just described on the  
24 comparison of blow counts obtained from borings before and after  
25 the surcharge?

1           MR. FARNELL: We'll provide you with that comparison  
2 you asked for, but we would like you, at the end of this deposi-  
3 tion when the transcript comes in, to submit to us a list of what  
4 you had requested so that we can have it all in one place, and  
5 also, we are doing this on the assumption that we will get the  
6 same treatment from your witnesses as to providing documents that  
7 are asked for during depositions.

8           MR. PATON: Well, I think, rather than, you know,  
9 postpone that problem and wait until the deposition comes in --

10          MR. FARNELL: We'll work on it now, but I want something  
11 so that it will be fairly immortalized in one place.

12          MR. PATON: Well, let's do it right now. I don't want  
13 to go home and wait for that to come in and then you read the  
14 transcript and go through all of that -- I think we've only got  
15 two or three items here. If you want a list, put it on the record  
16 right now.

17          MR. FARNELL: All right.

18          MR. PATON: Number 1 is the matter we have just dis-  
19 cussed, and that's in the transcript right at this point. Do you  
20 want me to state what that is?

21          MR. FARNELL: Yes.

22          MR. PATON: All right, blow count comparison. The  
23 second is, index of construction and design drawings. Certainly,  
24 if I have not described it accurately, as far as you're concerned,  
25 please correct the record.



1 (Discussion off the record)

2 MR. PATON: The Staff has requested that Consumers and/  
3 or Bechtel provide several items, and the parties now wish to place  
4 on the record what those items are. Then Mr. Farnell will respond  
5 with their reply to our request.

6 The first item is a comparison of blow counts obtained  
7 from borings before and after surcharging the Diesel Generator  
8 Building.

9 (Discussion off the record)

10 MR. PATON: The second item is an index of construction  
11 and design drawings limited to soils and structural foundations.  
12 The third item is an index of computations made by Geotechnical  
13 Services. The fourth item is to advise us whether settlement  
14 computations and predictions were made after a series of borings  
15 were taken after discovery of the settlement problem and after  
16 laboratory tests were conducted. The last item is a list of  
17 compressibility indexes.

18 MR. FARNELL: With respect to item four, we understand  
19 this to be, to relate to the Diesel Generator Building and prior  
20 to position of the surcharge on the Diesel Generator Building.

21 We'll provide the information set forth by Mr. Paton in  
22 items one through five to the extent that it exists and is dis-  
23 coverable.

24 MR. PATON: Off the record.

25 (Discussion off the record)

1 MR. FARNELL: We will either provide you with the  
2 information or the answer that it is not available within two  
3 weeks.

4 BY MR. PATON:

5 Q With respect to the six borings that we have been  
6 discussing in connection with the Diesel Generator Building, were  
7 these continuous standard penetration tests or intermittent?

8 A I believe they were intermittent.

9 Q If they were -- all right.

10 Do you know the spacing?

11 A I don't recall the spacing. These borings have been  
12 provided to the NRC. Logs of these borings have been provided to  
13 the NRC.

14 Q Considering the use of intermittent standard penetration  
15 tests, can you determine soil shear strength and compressibility  
16 characteristics of the soils between the sampled intervals?

17 MR. FARNELL: Would you read that back, please.

18 (Record read.)

19 MR. FARNELL: The question is compound. It deals with  
20 either soil shear strength or compressibility characteristics, one  
21 or the other.

22 MR. PATON: All right, I'll take them one at a time.

23 BY MR. PATON:

24 Q Do you want me to read the question again?

25 A Yes.

1 Q Considering that the standard penetration tests were  
2 intermittent, can you determine soil shear strength of the soil  
3 between the sampled intervals?

4 A On the basis of the collection of the borings made, it is  
5 usual to be able to interpret shear strength behavior based on all  
6 of the data put together from all of the borings.

7 Q By, from all of the borings, do you mean all six borings?

8 A If we are talking about only those six borings, it would  
9 only be those six borings.

10 Q Is the data gathered from those six borings sufficient  
11 to determine soil shear strength of the soil between the sampled  
12 intervals?

13 A These borings were not intended for determination of  
14 shear strength.

15 Q What was their purpose?

16 A To determine shear wave velocity.

17 Q Do you know the shear strength and compressibility  
18 characteristics of the plant fill under the Diesel Generator  
19 Building since a surcharge was removed?

20 MR. FARNELL: Again, one at a time. Shear strength and  
21 then compressibility.

22 BY MR. PATON:

23 Q Do you know the shear strength characteristics of the  
24 plant fill under the Diesel Generator Building since the surcharge  
25 was removed?

1 A Yes.

2 Q What are they?

3 A We predicted the friction angle to be 29 degrees and  
4 the conservatively, the cohesion intercept to be taken as zero or  
5 greater as reported previously in the September 14 submittal.

6 Q Did the shear strength used in bearing capacity analysis  
7 come from samples as far away as the bore rated water tank?

8 A Yes, sir.

9 Q In recognition of the heterogeneous plant fill, is that  
10 acceptable?

11 MR. FARNELL: Would you read that back, please.

12 (Record read)

13 MR. FARNELL: Acceptable in what regard, to whom, for  
14 what purpose?

15 BY MR. PATON:

16 Q Is it acceptable to use shear strength from as far away  
17 as the bore rated water tank in bearing capacity analysis?

18 MR. FARNELL: I have the same --

19 BY MR. PATON:

20 Q For the purpose of making your bearing capacity analysis.

21 MR. FARNELL: I have the same questions, for what, to  
22 whom, for what purpose?

23 MR. PATON: Acceptable for the purpose of making a  
24 bearing capacity analysis.

25 MR. FARNELL: I don't understand it.

1           A     On the basis that the soil material has been used and the  
2 clay fill is the same and that is the cooling pond area and that  
3 the plastic characteristics of the sampled tested are similar to  
4 those found under the Diesel Generator Building and the fact that  
5 the calculated safety factors are on the order of six or more, the  
6 resulting bearing capacity evaluation should be considered satis-  
7 factory.

8           BY MR. PATON: Dr. Afifi, I show you a document entitled,  
9 a one-page document entitled, Trip Report. It has at the top,  
10 Midland Units 1 and 2, Job 7220-001, dates January 30 to March 24,  
11 1978.

12           The question I am going to ask you specifically refers  
13 to a sentence in the middle of the second paragraph that begins  
14 with the words, "As built drawings."

15           Dr. Afifi, did you read the sentence -- the document  
16 that I have just asked you to look at is NRC Exhibit 6, which I  
17 have marked and dated October 30, 1980 (Afifi). I direct your  
18 attention to the sentence which I will now read.

19           "As built drawings as well as boring logs, daily reports  
20 and other miscellaneous data were transmitted to S. S. Afifi as  
21 they became available."

22           Did you receive those, do you remember whether you  
23 received those as built drawings?

24           A     I don't recall exactly what is meant by, as built  
25 drawings, in this memorandum.

1 Q The sentence also refers to, daily reports. Do you  
2 remember whether you received daily reports as indicated in this  
3 letter?

4 A Normally on this type of assignment, people prepare  
5 reports and whatever data they collect, and they are filed in the  
6 Geotechnical Files.

7 Q Is your statement that that is not the type of informa-  
8 tion you would specifically remember receiving; is that what you  
9 are saying, that you may have received it, but you don't remember  
10 particularly that you received this information?

11 A Yes, I may have received it and I gave it to someone  
12 else to take care of it, do something with it. If this information  
13 existed, it would be in the Geotechnical Files.

14 MR. PATON: Mr. Farnell, there's a reference here to  
15 boring logs that were forwarded to Mr. Afifi. I'd like to request  
16 that if those boring logs are in Mr. Afifi's files, we'd be  
17 provided copies of them. I'm specifically referring to the boring  
18 logs referred to in Staff Exhibit 6.

19 A May I make a comment?

20 MR. PATON: Yes.

21 A In response to the September 15 report, specifically  
22 refers to the boring logs, and I have already indicated that the  
23 Applicant will provide the logs in response to the question.

24 BY MR. PATON:

25 Q Approximately when do you think those logs will be

1 provided?

2 A I do not know the schedule for submitting this upcoming  
3 amendment.

4 MR. PATON: Based on that information provided by Dr.  
5 Afifi, I'd like to withdraw our request.

6 MR. FARNELL: I accept your request.

7 BY MR. PATON:

8 Q Dr. Afifi, with reference to Staff Exhibit 6, do you know  
9 at the time the borings for the piezometers were drilled, what was  
10 the level of the cooling pond?

11 A To the best of my recollection, that was before the  
12 pumping started, or very shortly after the pumping started, so I  
13 do not know the precise level.

14 Q Before the pumping started, what was the level, the  
15 approximate level?

16 A Well, there would be no water in the pump.

17 Q Not at all?

18 A No, but I can check.

19 Q Do you have any concern for future hydrolic fracturing  
20 because of the drilling for the borings for piezometers?

21 MR. FARNELL: Read that back.

22 (Record read.)

23 MR. FARNELL: Are you talking about the past piezometer  
24 drillings that were done?

25 MR. PATON: The answer, yes.



1 A I don't know, sir.

2 Q Am I correct that you do not consider that in your area  
3 of expertise?

4 A Yes.

5 MR. PATON: Off the record.

6 (Discussion off the record)

7 MR. PATON: Okay, that's the end of today's deposition.

8 (Whereupon, at 5:00 p.m., the taking of the deposition  
9 adjourned until Friday, October 31, 1980 at 9:00 a.m.)

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This is to certify that the attached proceedings before me

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In the matter of: CONSUMERS POWER COMPANY

(Midland Plant, Unit 1 and 2)

Date of Proceedings: October 30, 1980

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

Place of Proceedings: Ann Arbor, Michigan

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Dolores Crabtree

Official Reporter (Typed)

*Dolores Crabtree*

Official Reporter (Signature)

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