

ORIGINAL

OFFICIAL TRANSCRIPT PROCEEDINGS BEFORE

NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

DKT/CASE NO. 50-329 OM 50-329 OL
50-330 OM 50-330 OL

TITLE CONSUMERS POWER COMPANY
(MIDLAND PLANT, UNITS 1 & 2)

PLACE Midland, Michigan

DATE February 15, 1983

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

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

Quality Inn Central
1815 South Saginaw Road
Midland, Michigan 48640

Tuesday, February 15, 1983

Evidentiary hearing in the above-entitled matter
was resumed pursuant to adjournment, at 9:15 a.m.

BEFORE:

CHARLES BECHHOEFER, Esq., Chairman
Administrative Judge
Atomic Safety and Licensing Board

DR. FREDERICK P. COWAN, Esq., Member
Administrative Judge
Atomic Safety and Licensing Board

DR. JERRY HARBOUR, Esq., Member
Administrative Judge
Atomic Safety and Licensing Board

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APPEARANCES:

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<u>WITNESS</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>BD</u>	<u>REDIRECT</u>	<u>RECROSS</u>
WALTER BIRD					
by Ms. West		11493			
by Ms. Stamiris		11495			
by Mr. Wilcove		11538			
by Ms. Stamiris		11567			
ROBERT WHEELER					
by Ms. West		11493			
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RICHARD D. WOODS					
by Mr. Steptoe	11547				
by Judge Cowan				11552	
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E X H I B I T S

	<u>IDENTIFIED</u>	<u>RECEIVED</u>
Stamiris Exhibit No. 37		11592
Stamiris Exhibit No. 39		11600
Stamiris Exhibit No. 40		11649

P R O C E E D I N G S

1
2 CHAIRMAN BECHHOEFER: Good morning, ladies and
3 gentlemen. I see we have Colonel Gadler with us today. Welcome
4 to the hearing.

5 MR. GADLER: Thank you.

6 CHAIRMAN BECHHOEFER: We'll start this morning by
7 reading our ruling on Mrs. Sinclair's motion, and I'll read it
8 into the record.

9 On February 14, 1983 Intervenor Mary Sinclair filed
10 a motion for us to postpone our scheduled hearing on her operating
11 license contentions until certain pending quality assurance/
12 quality control issues are resolved. She claims that the OL
13 contentions can be impacted by the alleged QA/QC deficiencies,
14 particularly insofar as they may involve a failure to follow
15 design specifications.

16 Absent Ms. Sinclair's motion, the hearing of the OL
17 contentions would begin later today. Because of the immence
18 of the scheduled hearing, we've heard oral argument on the motion,
19 and that was at transcript 11346 through 11368, so that we could
20 act on it in a timely fashion.

21 We appreciate the significance and seriousness of the
22 various alleged QA/QC deficiencies. If not resolved satisfactorily,
23 they might impact the potential licenseability of this facility.
24 But we agree with the Applicant and Staff that the design
25 adequacy of a structure or component is a distinct and separable

1 issue from whether that structure or component has been
2 satisfactorily constructed or manufactured or installed. There
3 is no necessary relationship between these issues. Either design
4 inadequacies or construction deficiencies may be disqualifying.
5 However, the considerations affecting each involve different
6 technical factors. There is, accordingly, no reason why the
7 hearing of one should await resolution of the other.

8 One point raised by Ms. Sinclair warrants clarification.
9 The design for which the Applicant seeks approval must be the one
10 to which the facility is constructed. If the facility as
11 constructed does not meet the design specifications, the Applicant
12 must either correct the facility or seek approval of a different
13 design.

14 If it should adopt the latter course prior to our
15 final initial decision, it is required under longstanding appeal
16 board decisions -- and I cite McGuire as an early example and
17 TVA-Brown's Ferry as a more recent one -- to keep the Licensing
18 Board and parties informed. Any significant changes would be
19 subject to reitigation.

20 For the foregoing reasons, we are denying Ms. Sinclair's
21 motion. As authorized by 10CFR Section 2.730(e) we do not plan to
22 issue a written ruling. But we would request the Staff
23 to provide Ms. Sinclair with copies of the transcript pages on
24 which this ruling appears.

25 MR. WILCOVE: The Staff will do so.

CHAIRMAN BECHHOEFER: It should be two or three pages,
perhaps.

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1 CHAIRMAN BECHHOEFER: Now, are there other
2 preliminary matters before we start the testimony? I
3 understand that Mr. Marshall -- do you wish Colonel Gadler
4 to make a statement, his statement this morning?

5 MR. MARSHALL: Yes, I would like to have him
6 make a statement this morning and that would leave him
7 available to leave anytime he wishes after that, anytime
8 this week.

9 MR. PATON: Could I make a point about what you
10 said about the Staff supplying copies to Mrs. Sinclair?

11 CHAIRMAN BECHHOEFER: That is not technically
12 required.

13 MR. PATON: I don't have any objection to it.
14 I am just wondering if by the time we get our transcripts
15 and then copy them, et cetera, I wonder if it might be just
16 as easy, since it's a couple pages, if the reporter could
17 possibly supply an extra set of those two or three pages
18 to her.

19 CHAIRMAN BECHHOEFER: Well, that would be fine
20 with us.

21 MR. PATON: Is that possible? I will talk to
22 the reporter. I'm sorry, I shouldn't have bothered.
23 We'll take care of that.

24 CHAIRMAN BECHHOEFER: I just thought that Mrs.
25 Sinclair ought to have a copy of the ruling.

1 MR. PATON: Absolutely.

2 CHAIRMAN BECHHOEFER: She is not subscribing to
3 the transcript.

4 MR. PATON: That's right. And we'll take care of
5 that.

6 MR. GADLER: Could the other Intervenors get a
7 copy of that, too?

8 MR. MARSHALL: I'd like a copy, too.

9 MR. PATON: We'll take care of that, Mr. Chair-
10 man.

11 CHAIRMAN BECHHOEFER: That would be fine.

12 MR. STEPTOE: Mr. Marshall has already spoken
13 to all the parties about Mr. -- Col. Gadler giving a
14 limited appearance statement and the Applicant has no
15 objection.

16 CHAIRMAN BECHHOEFER: Col. Gadler, could you
17 either go to the witness stand or you can do it right from
18 there, it's up to you. You can do it right from where you
19 are, if you prefer.

20 MS. SINCLAIR: I have one more preliminary
21 matter, please. Yesterday you said that during your operat-
22 ing license you assumed that the plant is properly built.

23 Can you tell me what the basis for that assump-
24 tion is?

25 CHAIRMAN BECHHOEFER: As we said in our ruling,

1 it's just a separate issue. We assume for the purposes of
2 design issues that the plant is built, will be built accord-
3 ing to the design.

4 MS. SINCLAIR: Again, we're not licensing the
5 Midland plant, we're examining a particular design here,
6 is that correct?

7 CHAIRMAN BECHHOEFER: No, we are looking at the
8 design which is proposed for the Midland plant.

9 MS. SINCLAIR: But we are not looking at what
10 actually is at the Midland plant; these are two different
11 things and Mr. Keppler --

12 CHAIRMAN BECHHOEFER: We're looking at the
13 latter issue later on in the QA, QC portions and in the --
14 the testimony on certain issues like the Zack issues and
15 that type of thing.

16 MS SINCLAIR: I don't know of anyplace in the
17 QA, QC hearings, to my knowledge, where things like how
18 the water hammer problem has been solved and resolved at
19 the Midland Plant, for example, can be raised in the QA,
20 QC part of the hearings.

21 CHAIRMAN BECHHOEFER: It would have to be raised
22 by showing that some of the components were defective,
23 either installed in a defective manner or built in a
24 defective manner.

25 MS. SINCLAIR: Then you'd have to have the same

1 expert witnesses.

2 CHAIRMAN BECHHOEFER: No, you wouldn't have to have
3 the same expert witnesses, they'd be the expert witnesses
4 on construction and installation and that type of thing.

5 MS. SINCLAIR: So you are telling us the expert
6 witnesses that we are going to be talking to don't really
7 have the knowledge of what is exactly at the Midland Plant
8 that we're talking about, is that correct?

9 CHAIRMAN BECHHOEFER: Well, I assume that's
10 correct, within the confines of the contention. I don't
11 know whether they actually have the knowledge apart from
12 that, but --

13 (Discussion had off the record.)

14 CHAIRMAN BECHHOEFER: I can't tell you whether
15 each individual expert, apart from what he's here to
16 testify from, would know these other things.

17 MS. SINCLAIR: Well, I guess the point of my motion
18 was that -- and I accept your decision, of course, I
19 just wanted to clarify my own thinking to you about this
20 because it's difficult to put this much time and energy
21 into a hearing and the expense that is involved, without
22 really knowing whether you are indeed talking about the
23 Midland plant.

24 And I think this is what I wanted to have clari-
25 fied.

plant 1 And I think this is what I wanted to have clarified.

2 CHAIRMAN BECHHOEFER: We are talking about the -- about
3 designs which are being proposed to be used. If the facility
4 isn't built according to those designs, then what has been built
5 has to be fixed or if a design change is sought, then we're
6 saying, and according to Commission precedent, the Applicants
7 have to inform everybody if there is problems with that. That's
8 subject to being heard.

9 So they're supposed to build the facility to the design
10 that they're proposing.

11 MS. SINCLAIR: I see. Thank you.

12 MS. STAMIRIS: May I ask a question about how we will
13 follow through on -- in relation to your ruling? And I'm
14 wondering, am I understanding you correctly if I would paraphrase
15 it to say that we will go forward with the operator's license
16 contention?

17 CHAIRMAN BECHHOEFER: Operating --

18 MS. STAMIRIS: Operating license contentions on the
19 assumption that the plant is built as designed, with the caveat
20 that should we determine through QA or other means later that it
21 is not built as designed, that we would repeat those portions
22 of the operator's license contentions which had been conducted
23 more or less in the abstract or on the design basis?

24 CHAIRMAN BECHHOEFER: We wouldn't necessarily repeat
25 them. We might determine how the facility could be corrected

1 so that it does meet the design specification, as a separate
2 issue.

3 The facilities got to be built to meet the design. If
4 they're going to change the design, then we would repeat.

5 MS. STAMIRIS: The contentions that had to do with that
6 design change?

7 CHAIRMAN BECHHOEFER: If the design were changed, yes;
8 but if this were correcting it, that would be a different issue,
9 but they'd still -- but it would be a legitimate issue whether
10 the facility is built to the design as submitted.

11 MS. SINCLAIR: Now, in my quality assurance contention,
12 which was accepted, I had a number of very specific areas in
13 which I identified components where questions of quality assurance
14 and quality control had been already named.

15 If I am to be held within the confines of those
16 specific things that I was required to state for getting the
17 contention approved, then I will not be able to get into some
18 of these other issues which we are dealing with now in order to
19 determine whether they indeed are installed according to design
20 or as has been recently disclosed, by this very special inspection
21 team, but very probably be installed in a way quite different from
22 what the plan or the design would be.

23 And this is what has raised the question of the
24 difference between what we have been reading in the safety
25 evaluation report in the FSAR and what is actually out there.

1 And I think that since we are the operating license,
2 we have to come to grips with what is really out at the Midland
3 Plant. And I appreciate your point that you feel there is a place
4 to discuss what the design, that is planned for the Midland Plant,
5 is.

6 But I think there is a considerable gap between that
7 and what is actually out in the plant and what legally we can get
8 a handle on because the contention -- my quality assurance
9 contention as it is written has the specificity that was required
10 and it does not incorporate going over whether these other
11 components that we're going to be discussing, and design matters,
12 are really in the as-built condition.

13 I think there is going to be a gap there. I personally,
14 at this point, cannot see how we can overcome that particular
15 legal difficulty in this proceeding.

16 MR. STEPTOE: Chief Judge Bechhoefer, if Mrs. Sinclair
17 has any information or Mrs. Stamiris has any information that
18 indicates that the systems that we are talking about have or are
19 not installed or constructed in accordance with the design, she
20 can either file a contention and -- a new contention, with that
21 as a basis, and ask the Board to accept it as a late file
22 contention. If it were new information, the Board might very
23 well grant such a motion.

24 In addition, if she knew that the system is not going
25 to function as designed because of problems in its construction

1 or installation, she could use that information on cross
2 examination of our witnesses.

3 Finally, we have an obligation to disclose certain
4 things in the preparation of testimony and certainly if we knew
5 that the -- that the systems that we're talking about would not
6 function as designed because of -- for any reason, we would
7 have an obligation to disclose that to the Licensing Board and
8 to the other parties.

9 So, finally, quite apart from this adjudicatory
10 proceeding, the NRC Staff, Region III, has an independent
11 obligation to certify before the operating license issue that
12 the plant is built in accordance with the design.

13 Therefore I see no legal gap as Mrs. Sinclair alleges.
14 It's not sufficient just to say that there have been quality
15 assurance problems at this plant and therefore we cannot discuss
16 or litigate the design of certain systems at all, that the Board's
17 ruling was clearly appropriate.

18 CHAIRMAN BECHHOEFER: Well, as I say, if you do have
19 any information about any particular component not being
20 constructed properly, that is appropriate and you could either,
21 as Mr. Steptoe mentioned, you could either raise it as a new
22 contention or take it up on cross examination.

23 MS. SINCLAIR: I don't think that citizens can accept
24 that burden of proof that we have to come up with the information.

25 The information that we do have is the kind of

1 information that was disclosed by this special inspection team
 2 which casts a doubt on a tremendous amount of way in which this
 3 plant was built.

4 And so that verification of -- there was 150,000
 5 potential deficiencies in construction. Until that verification
 6 of all of these is completed, I don't know if any witness can
 7 truly say they know what they're talking about, what is out
 8 there.

9 And I do appreciate the fact that you are willing to
 10 go forward just to review the design as planned. A great deal
 11 of doubt has been cast also by Mr. Keppler, himself, on whether
 12 the as-built condition of the plant is in any way comparable to
 13 the design.

14 But it has not been made specific, and therefore there
 15 is no way that a citizen really can have access to that specific
 16 knowledge as we go through these contentions.

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1 I just certainly -- certainly if we have infor-
2 mation that has bearing on it, we will bring it to your
3 attention, but we certainly cannot accept it as a burden
4 of proof ourselves.

5 We were hoping that once the deficiencies were
6 verified, that we could go forward with better knowledge
7 of what was out there and what had been corrected.

8 CHAIRMAN BECHECEFER: Well, I think you will be
9 given a copy probably of the inspection report when that
10 is circulated by the Staff. Maybe the Staff would like to
11 make make a comment on what both Mr. Keppler and other
12 people at NRR must do before the plant can actually be
13 licensed, and this is apart from what they're doing here
14 at the hearing.

15 MR. PATON: Mr. Chairman, addressing specifically
16 what Mrs. Sinclair says, there was discussion at the public
17 meeting about a very large number of inspections. I believe
18 the number was over a 100,000. And I think that this is
19 what she's focusing on.

20 The NRC is going to satisfy itself as to the
21 validity of those inspections. And there is -- I don't think
22 the decision has been made yet as to the degree of sampling.

23 There was discussion at the public meeting.
24 One NRC official thought he should -- thought we should
25 start out with a 100 percent evaluation of those

1 specifications, and others said that they thought it
2 should be determined what amount of sampling would be
3 acquired to assure the degree of competence we needed.

4 But I think that's Mrs. Sinclair's focus and
5 she will have access to that information. She will be
6 advised of the results of that study and I think that's
7 the information that she wants.

8 And if she has some reason to believe that our
9 check on the validity of those, which she calls potential
10 deficiencies, if there's any reason to cross examine the
11 NRC on the validity of that reverification, she can do it.
12 But I think that's the focus -- the matter that has caused
13 her to raise those issues today.

14 She says that because we believe it necessary
15 to reverify those instructions, that that falls into
16 question the entire plant. And I think she should focus
17 on that effort on our recheck of those specifications.
18 That's where the -- that's where the questions lie and
19 she will be given access to that information.

20 And if it is new information and raises new
21 safety issues, then she can certainly ask this Board to
22 raise whatever issues come out of those matters.

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MS. STAMIRIS: Judge Bechhoefer, may I respond? I'd like to give my perception of some of the things that Mr. Paton just talked about, because my understanding was a little bit different than just what he said, in that when Mr. Paton talked just now about the -- he termed it over a 150,000 -- no, I'm sorry, he said over 100,000, and Mrs. Sinclair had said 150,000 inspections that were now in question, that needed to be reverified.

I got the impression from what Mr. Paton says that there is -- there was some difference of opinion expressed at that meeting from members of the NRC staff as to whether that should be a sampling effort or a 100 percent reinspection.

And my understanding of the way it took place at the meeting is that the discussion of the sampling effort and how much would be sampled and how it would be sampled came from Consumers Power Company representatives. And the only opinion I remember being expressed by the NRC Staff, I'm not saying it is necessarily the only opinion, but the only one I remember hearing expressed at the meeting was that a better way to go at it might be to start with 100 percent reinspection and then if we found out that it didn't need to continue, if we found a high degree of satisfaction, or if the NRC or Consumers found a high degree of satisfaction with that 100-percent sample, then they could cut back

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1 And the only other thing that I wanted to clarify
2 is when Mr. Paton talks about their review or reverification
3 of these reports, these over 100,000 inspection reports
4 that are in question, it was also my understanding that that
5 reverification effort would be done by Consumers more than
6 it would be done by the NRC. And my assumption was that
7 the NRC would audit Consumers' efforts in that regard.

8 MR. PATON: Mr. Chairman, I believe that's
9 correct, but, again, with all these matters, we're kind
10 of speculating on the degree of sampling and who is going
11 to do the work.

12 The point is that that's the information that
13 has caused the Intervenors to become interested, and that
14 information will be made available to them.

15 And, if this gives rise to new safety issues,
16 then they can ask this Board to accept a new contention.

17 MR. STEPTOE: Judge Bechhoefer, it's already an
18 issue in this case. The Applicant's proposal for a
19 construction completion plan and the Staff's reaction to
20 it will be litigated in the April hearings.

21 MR. MARSHALL: Chief Judge Bechhoefer, at the
22 same time, will it be made clear who is responsible for
23 the deficiencies in the first place?

24 I'd like to know where to put the blame on this
25 thing exactly, precisely.

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CHAIRMAN BECHHOEFER: Well, I would say not necessarily, but I don't know.

MR. MARSHALL: I want to know who is in charge.

MR. GADLER: Mr. Chairman, I sit here and listen to all of these discussions, and I'm wondering what the Board, what your Board will do about the deficiencies.

Would you license a plant that had a lot of deficiencies, as pointed out in Mr. Keppler's letter?

He said 16,000, and it's probably a 160,000, and the public health and safety is involved.

Would you, as a Board, license a plant that has gone through this history of deficiencies?

CHAIRMAN BECHHOEFER: We can't really answer that in the abstract in any particular deficiency which may or may not be here, because it's a matter of degree.

MR. GADLER: Well, I happen to be an engineer, and I know that if a system -- there's one little part in a system that doesn't work, in an automobile or any other system, that just isn't complete. And it's the same way with an electric plant or steam boiler, or anything else, if there's some parts, as Mrs. Sinclair pointed out, so very finely, and yet they forget that a system is in operation and the system's got to be complete.

And that plant is not complete. That plant is deficient.

3-1,pj3

1 CHAIRMAN BECHHOEFER: Well, in order to be
 2 licensed, the plant will have to meet all NRC regulations
 3 and criteria, so --

4 MR. GADLER: Well, let's talk about the licensing
 5 procedure just a minute.

6 Your Board is composed of people appointed by the
 7 NRC, and the NRC are beholden to push the nuclear industry.

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MR. PATON: Mr. Chairman, I object.

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CHAIRMAN BECHHOEFER: I would object, too, Colonel

3

Gadler.

4

MR. GADLER: Well, are you afraid of the truth?

5

CHAIRMAN BECHHOEFER: Well, I'm afraid of the nontruth.

6

MR. GADLER: Well, no, I'm telling the truth. I don't

7

do anything but tell the truth.

8

CHAIRMAN BECHHOEFER: You're telling the truth as you

9

perceive it, perhaps, but I question whether it is the truth.

10

But I think we should move on from this.

11

MR. GADLER: Well, I know the truth hurts, and this is

12

what is damaging. I know that the NRC objects to having the truth

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told, that they will license every plant that has ever been

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applied for.

15

They don't -- I'd like to have them show me one that

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they turned down. And that's what's going to happen here at

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Midland.

18

I was just telling Mrs. Sinclair this morning, what's

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the use of holding these hearings when the plant is going to be

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given a license regardless of whether it sinks into the plains

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of the Tittabawassee River.

22

MR. PATON: Mr. Chairman, I object to further comments

23

from Colonel Gadler.

24

If he is entering an appearance on behalf of some

25

party, perhaps it would be appropriate. But I thought he was here

1 to give something in the nature of a limited appearance statement.

2 MR. GADLER: I am going to give it.

3 MR. PATON: I further object to his comments that the
4 NRC doesn't want the truth told. I don't believe that's the case.

5 (Discussion had off the record.)

6 CHAIRMAN BECHHOEFER: Well, I think it would be
7 appropriate, Colonel Gadler, for you to make your statement at
8 this time, if you would like to do so.

9 MR. GADLER: All right. But I won't retract anything
10 I said about the NRC or anybody else, because that's the way I
11 perceive it and that's the way I look at it and that's the way I
12 see it. And I base that on all the literature, all the letters
13 and things we sent to NRC and we can't get answers to.

14 Mr. Chairman, I want to thank you very much for
15 allowing me to make this appearance. It's very kind of you. And
16 I have given you, furnished you a copy of the little presentation
17 I'm making.

18 I want to tell you that I am Steve J. Gadler of St.
19 Paul, Minnesota, and I am a registered professional engineer,
20 and I'm a retired Air Force Colonel and have been a member of
21 the Minnesota Pollution Control Agency Board for 15 years, having
22 been appointed by four governors, both Republicans and Democrats.

23 I have a contract with the Mapleton Intervenors for a
24 dollar a year and have had such a contract for the last 11 years.
25 And, incidentally, they haven't paid me the dollar yet.

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(Laughter)

CHAIRMAN BECHHOEFER: Well, as I mentioned several times,
We can't do anything about these contractual matters.

(Laughter)

MR. GADLER: There is a growing public fear of refusal
to accept the risk attendant with nuclear power plants, and
especially the Midland Nuclear Plant, Units 1 and 2. Not only
do accident potentials as exemplified by the TMI disaster and by
other nuclear plant accidents that have occurred on a every
continent of the world -- and, at that point, it's interesting
to note that the American public does not know about the nuclear
disasters that have occurred in the various parts of the world
in various nuclear plants -- but with the high level of radio-
active-spent fuel that will be stored at the plant -- that's the
Midland 1 and 2 -- and by the radioactivity that will be
discharged to the air and water environments. Also, with the
plant's location, the sinking buildings and soil conditions
necessitating a \$300 million mining operation to underpin the
plant; in other words, to shore it up.

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1 I was born and raised in Leeds, South Dakota,
2 where there's a big mine there, the largest gold mine in
3 the world, and I think I know something about what it means
4 to go down and run the drifts and shafts and underpin a
5 plant.

6 I don't know how that is going to affect the
7 health and safety of the population.

8 As an engineer, it is impossible for me to
9 conceive of how anyone can build a plant, especially a
10 nuclear plant, on the flood plains of the Tittabawasse
11 River.

12 I'm not a geologist, but I have talked to some
13 excellent top-notch geologists, and they -- I am quoting
14 them: "Consumers Power Company has in the past tried to
15 blame Intervenors for the delay of the Midland Power Plant
16 Project. However, all the ASLB Board has to do is to look
17 at the construction practices that have gone on at the
18 Midland Plant to know that there is a serious danger that
19 will affect the health and safety of every Midland resi-
20 dent.

21 The safety implications and environmental impact
22 of radioactive material stored on-site a mile from Midland's
23 main street has never been properly evaluated or considered
24 by the NRC or Consumers Power Company, for, if the evalua-
25 tion would have been made, the plant's construction would

1 have been stopped before it was started.

2 The licensing authority -- that is, NRC -- has
3 failed to consider adequately the cumulative impact that
4 will be caused by the spent fuel that will be stored at
5 the plant and the radioactivity that will be discharged
6 to the environment, both air and water.

7 In addition, the license issuing authority, the
8 NRC, has failed in its responsibility to protect the
9 water of the Tittabawasse River from the radioactive,
10 thermal, chemical and other discharges that will be
11 dumped by the Midland Nuclear Plant into the river.

12 Four, since the NRC Staff in public admitted
13 that a Class 9 accident did take place at TMI, it is now
14 incumbent, I believe, on NRC to tell the public what
15 Midlanders can do to protect themselves from a TMI type
16 accident if the plant goes into operation.

17 Five, the rights of the citizens of Michigan
18 and the United States are being violated by imposing upon
19 them future radioactive releases and degraded environmental
20 conditions, in violation of the Constitution and the NRC
21 rules and regulations, as previously pointed out.

22 It never was the congressional intent, in my
23 opinion, to allow any bureaucracy or company with eminent
24 domain to insult citizens with radioactivity or to destroy
25 moving bodies of water like the Tittabawasse River.

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Therefore, Mr. Chairman, I, as the technical director for the Mapleton Intervenors, again call upon the NRC to stop the building of the plant because of this tendency to become the second area in the world where you have a Leaning Tower of Pisa.

This is a matter of public health and safety and it is a very serious situation because the health and safety of the public is paramount, and that cannot be forgotten or passed over.

It is indeed unfortunate that the plant now being built was cited and a building permit given without the proper attention to the distance of the population center, the effect it would have on Dow Chemical Company if an accident would take place in the location of the flood plains of the Tittabawasse River.

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1 As an example, the Midland Plant is built on the flood plains
2 of the Tittabawassee River in contravention of all safety rules
3 and good practice. Not only is the plant built on the flood plains
4 of the river but it is sited within the City of Midland, in
5 contradiction to NRC siting rules and regulations.

6 In siting the plant at that location and approving its
7 construction, the AEC, now the NRC, disregarded the 100-year
8 flooding potential of the Tittabawassee River. This disregard
9 is now coming back to haunt the plant builders and, of course,
10 Consumers Power Company and, naturally, the NRC. This haunting
11 will go on because of the sinking buildings must be shored up by
12 extensive mining operations, as I have previously pointed out.

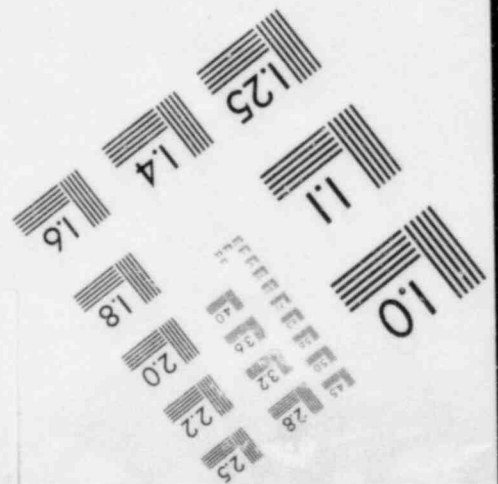
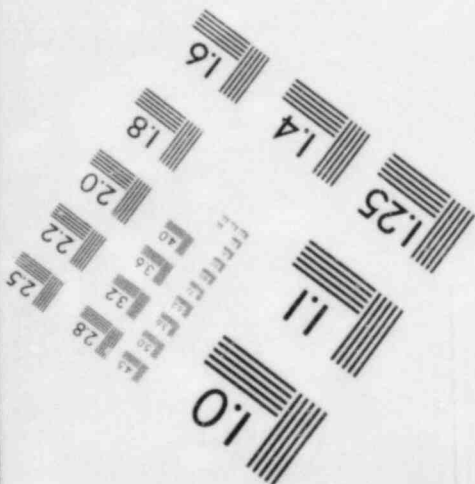
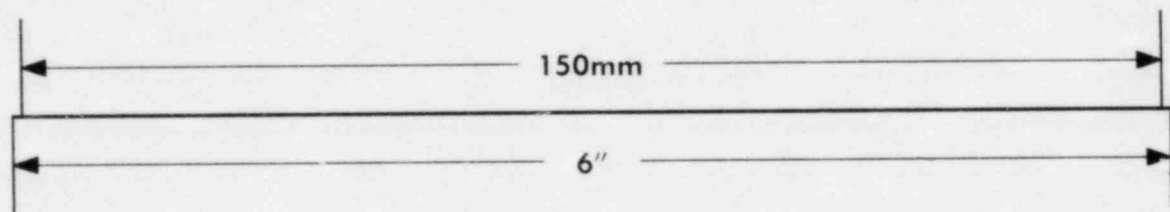
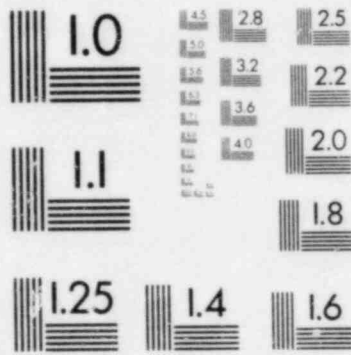
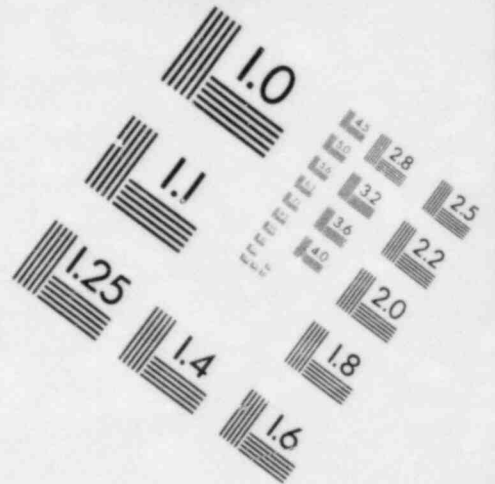
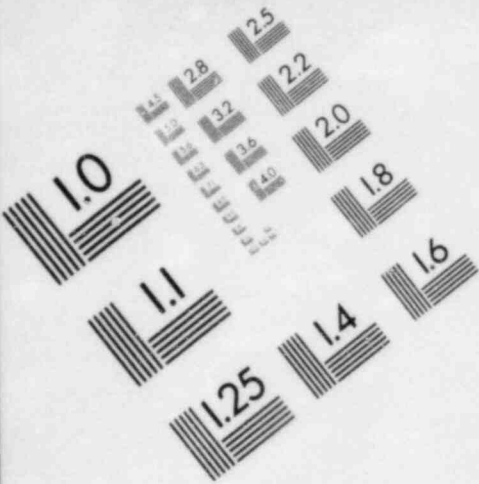
13 In addition, much of the underground piping had to be
14 replaced, or is partly being replaced.

15 The complete mining operation that has taken place under
16 the structures in an attempt to shore up the power plant will add
17 at least \$300 million to the cost of the plant. Those are the
18 figures that I have obtained from NRC documents and Consumer
19 Power documents.

20 These costs were never given to the public at any time
21 before the power company requested a permit to build the plant.

22 In addition to the mining operations, a dewatering
23 program must be carried out and will continue to operate during
24 the life of the plant. The dewatering program is carried out by
25 the drilling of hundreds of wells. Does anyone know how much

IMAGE EVALUATION
TEST TARGET (MT-3)



1 electricity will be required for operating the pumps to dewater
2 the area?

3 The Midland Plant, a twin sister of TMI, is being
4 built a mile from downtown Midland and less than three-quarters
5 of a mile from the homes of the Mapleton Intervenors.

6 The license to build a nuclear plant is in direct
7 violation of congressional intent as to distance of populated
8 areas, it violates the NRC rules and regulations of siting and
9 distance, was granted without giving adequate consideration
10 concerning the problems of the spent fuel. And no consideration,
11 apparently, was given to the discharges from the plant to the
12 Tittabawassee River, which the water flows into Saginaw Bay and
13 forms the drinking water in many communities, including the City
14 of Midland.

15 It would seem to me that many years ago Consumers Power
16 Company, Dow Chemical and the Atomic Energy Commission held
17 meetings and determined that a plant would be able to furnish
18 non-radioactive steam to Dow Chemical, for probably one could
19 claim this meeting of minds was a conspiracy of a certain type.

20 But the events took place many years ago and people
21 were at that time were not alerted to the danger or to the full
22 effects of the radiation emanating from a plant in the midst
23 of a large population center.

24 The health and safety of people are paramount. It is
25 unfortunate that such a building event could take place, but it's

1 certainly better to stop building the plant instead of completing
2 it and having an accident, a predictable accident as happened at
3 TMI.

4 Besides, if you stop building now, it won't cost
5 four billion more dollars to decontaminate and to remove the
6 plant after several years of operation.

7 In that respect, I have before me a decommissioning
8 study -- I guess it's put out by the Consumers company -- on a
9 decommissioning of units 1 and 2. They list it as \$300 million,
10 and I challenge them to prove that it isn't more like \$3 billion
11 for decommissioning and decontaminating, because they don't even
12 consider in there who's going to pay for the storing of that
13 decontaminated material.

14 To continue, the shoddywork on the plant has proven --
15 as an example, the letter from James G. Keppler, addressed to
16 Mr. John D. Selby, president of the Consumers Power Company,
17 dated the 8th of February, 1983, in which he cites 16,000
18 backlog inspections. It's probably more like, as I heard this
19 morning, 160,000, and there's probably more than that. I ask
20 the question, is that protecting the public health and safety if
21 the NRC is satisfied with a sampling of that backlog inspections?

22 You can't sample statistically on public health and
23 safety.

24
25

1 safety.

2 Board will eventually come to the full realization that
3 nuclear power is an economic extravagance, a political
4 liability, a sociological disaster, a real threat to the
5 public health and safety, since there have been nuclear
6 accidents on every continent of the world, a burden to
7 unborn generations, a threat to the future of mankind,
8 and especially, Mr. Chairman, the Midland Plant should
9 never be licensed to operate.

10 Thank you very much, and I'd be glad to answer
11 any questions.

12 Copies of this have been furnished to all the
13 parties.

14 MR. STEPTOE: Mr. Chairman, should copies be
15 inserted in the record also?

16 I believe that Colonel Gadler was reading from
17 it, but he was paraphrasing in some cases.

18 Would Colonel Gadler like that to be done?

19 MR. MARSHALL: Have it bound into the record.
20 They'd like that very much.

21 (Discussion had off the
22 record.)

23 CHAIRMAN BECHHOEFER: It's not necessary. Do
24 you have enough copies for that, or no?

25 MR. GADLER: Bardon?

1 CHAIRMAN BECHHOEFER: I'm not sure there are
2 enough copies for that.

3 MR. STEPTOE: We'll provide the copies, Chairman
4 Bechhoefer.

5 MR. MARSHALL: Judge Bechhoefer, I believe what
6 Mr. Steptoe was saying, that he thought that at times Mr.
7 Gadler was speaking extemporaneously and that he would like
8 to have the original bound into the record so they can
9 see where he took the departure, from time to time, from
10 the record.

11 Okay, I'd like to have it bound into the record
12 for that reason, for Mr. Steptoe.

13 CHAIRMAN BECHHOEFER: Okay, that's fine. If there
14 are enough copies, it's certainly all right.

15 MR. GADLER: I guess I didn't --

16 CHAIRMAN BECHHOEFER: The version I have, by the
17 way, has two of the pages inverted.

18 (Discussion had off the
19 record.)

20 CHAIRMAN BECHHOEFER: Are there any other pre-
21 liminary matters before we --

22 MR. WILCOVE: Just one minor one.

23 Yesterday, when we bound into the record the
24 testimony of Cook Landsman, Gardner and so forth, inad-
25 vertently Attachment 10 was left out of the package, so

1 I'd like to give seven copies to the reporter now and have
2 it bound into the record now.

3 (Discussion had off the
4 record.)

5 CHAIRMAN BECHHOEFER: That Attachment 10, does
6 that relate to anything that's going on today?

7 MR. WILCOVE: No, that would come up in April.

8 CHAIRMAN BECHHOEFER: It might be better, since
9 it won't fit together -- in any event, it might be better
10 to wait until some time in April to put it in?

11 MR. WILCOVE: That would be fine.

12 CHAIRMAN BECHHOEFER: Do it at the time the
13 Panel resumes the stand in April. Just note that it was
14 left out of the earlier one. It will be close to the
15 place where it is referred to then.

16 MR. WILCOVE: We'll do it that way.

17 CHAIRMAN BECHHOEFER: Okay.

18 Anything further before the Panel on the stand
19 is resumed?

20 MS. STAMIRIS: Judge Bechhoefer, I have one
21 brief preliminary matter I'd like to raise.

22 We had discussed off the record the other day,
23 I asked the NRC if they knew in the next SALP report --
24 in fact, the one that's overdue for the SALP period ended
25 in approximately July 1982 -- when that SALP report would

1 be available and when those meetings would take place, and
 2 they indicated that that was not decided yet, it was being
 3 discussed within the NRC.

4 I wonder -- I wanted that to go on the record,
 5 and I wondered if NRC would make a commitment to inform
 6 the parties as soon as possible about the SALP meeting and
 7 the SALP report.

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report.

1 MR. WILCOVE: We'll do so when, you know, there
2 will be such meetings or when the SALP report is scheduled
3 to come out. We will advise the Board and the parties.

4 CHAIRMAN BECHHOEFER: In the past we've always
5 been sent copies promptly.

6 MS. STAMIRIS: What I am interested in is not
7 just -- you know, I'm sure that we would all get the report
8 when it comes out, but I wonder if the NRC would make an
9 effort -- I mean, we also discussed the fact that this
10 report had been specifically delayed once by Mr. Keppler,
11 and that is in a letter which I can't give you the date
12 of, and Mr. Landsman indicated that it had been delayed
13 a second time now, and I wondered if the NRC would make
14 a special effort to try and find out as soon as possible
15 when to expect this.

16 MR. WILCOVE: We will inquire of Region III, and
17 when we have some information that would be useful we
18 will forward it.

19 MS. STAMIRIS: Thank you.

20 CHAIRMAN BECHHOEFER: Of course, you can always
21 ask Mr. Keppler when he's here.

22 MS. STAMIRIS: Yes.

23 CHAIRMAN BECHHOEFER: Anything further before --

24 MS. WEST: We'd like to recall Mr. Bird and
25 Mr. Wheeler to the stand at this time.

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MS. STAMIRIS: Judge Bechhoefer, I have some Xeroxing being done that I'd like to pick up now, and I'll be right back.

(Discussion had off the record.)

CHAIRMAN BECHHOEFER: Why don't we take our morning break now.

(Brief recess.)

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CHAIRMAN BECHHOEFER: Back on the record.

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MS. WEST: If we could, I'd like to clear up something from yesterday that was left open. If I could just do one or two questions on direct before we rebegin cross examination.

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CHAIRMAN BECHHOEFER: Okay.

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Whereupon,

7

WALTER BIRD

8

ROBERT WHEELER

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called as witnesses by counsel for the Applicant, having

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previously been duly sworn by the Chairman, was further

11

examined and testified as follows:

12

CROSS EXAMINATION

13

BY MS. WEST:

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Q Mr. Bird, have you been able to confirm the date of the

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drilling incident of observation Well No. 4, NCR No. 4245?

16

A. (WITNESS BIRD) Yes, I have.

17

Q What is that date?

18

A. (WITNESS BIRD) The drilling was started on the 18th

19

in that the rig was placed at that point in time, the bulk of

20

the drilling physically occurred on May 19, and that was when

21

the subsidence was noticed and the NCR was written.

22

Q Are you familiar with the facts of this drilling

23

incident, Mr. Wheeler?

24

A. (WITNESS WHEELER) Yes. I was physically there and

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saw the arrangement of the rig and the void in that area.

1 Q Could you briefly describe how it happened?

2 A (WITNESS WHEELER) Well, I'm not sure exactly how it
3 happened, but what I saw was that the rig had been positioned
4 and they were in the process of drilling this Observation Well
5 No. 4, and the rig was still in position at the point which I
6 came and saw the area.

7 And the -- there was a void near the surface that you
8 could physically see. And after -- of course, after the void was
9 discovered, all work was stopped and then subsequently the rig
10 was removed to keep the area from degrading any more than it was.

11 MS. WEST: Thank you, Chairman Bechhoefer. We just
12 wanted to clear that up from yesterday.

13 CHAIRMAN BECHHOEFER: Okay. Fine. Mrs. Stamiris?

14 CROSS EXAMINATION

15 BY MS. STAMIRIS:

16 Q Mr. Wheeler, yesterday -- I'm sorry, Mr. Bird, yesterday
17 in connection with the questions that I was asking, you described
18 certainly preliminary investigation or specific activities that
19 were going on between May 11th and May 19th, and you said that
20 this was second-hand knowledge.

21 And I'd like to ask you in connection with the statement
22 that -- the statements that have been made this morning, has it
23 been determined that the May 11th date that is in the testimony
24 on page five, was a typographical error or not, Mr. Bird?

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not

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2 A. (WITNESS BIRD) It has been determined that it is --
3 that it is an error. Whether it was typographical or how it got
4 there, I'm not sure.

5 Q. Can you account for the fact that this error was not
6 identified when this is something that is routinely done as --
7 and was done in this case when you were asked at the beginning
8 of your testimony whether any corrections needed to be made or
9 changes be made to the testimony that you were submitting?

10 A. (WITNESS BIRD) After we had prepared our testimony
11 initially, we had drafts of it that we reviewed for accuracy and
12 we just missed that error.

13 Q. So are you saying, then, that with respect to NCR 4245,
14 the void associated with Observation Well No. 4 was not observed
15 in any manner by anyone that you are aware of on May 11th, 1982?

16 A. (WITNESS BIRD) That is correct.

17 Q. Mr. Wheeler, I want to ask that same question. Was
18 there ever -- do you have any knowledge of any type of observation
19 or people, whether first-hand or second-hand, informal or formal,
20 that would indicate an observation of the void in connection with
21 this 4245 incident that took place on May 11th?

22 A. (WITNESS WHEELER) No, I'm not aware.

23 Q. When you say that, Mr. Wheeler, that you were present
24 and saw the rig and the void itself, I believe you said that was
25 on May 19th that you saw that?

1 A. (WITNESS WHEELER) I don't remember specifically the
2 day, but I saw it when it happened, and in looking back, it was
3 May 19th.

4 Q. You saw it when it happened. So you don't have any
5 recollection of anything with this void prior to that date which
6 was, as you have later confirmed, to be May 19th?

7 A. (WITNESS WHEELER) That's right.

8 Q. Okay. Mr. Bird, how would you explain the statements
9 that you made in your testimony yesterday about the types of
10 informal or preliminary specification activities that were going
11 on yesterday, supposedly between May 11th and May 19th?

12 A. (WITNESS BIRD) Well, my recollection was, was that there
13 were a lot of activities going on and I was getting a lot of
14 information over several days period.

15 It was erroneous on my part yesterday to have assumed,
16 based on what had gotten into our written testimony, that that
17 had started on the 11th. Actually, that had started on the 19th,
18 and then it went on beyond that, beyond the time the NCR was
19 actually generated.

20 Q. But, Mr. Bird, when you made those statements, I had
21 specifically directed your attention to the fact that this date
22 was indicated to be May 11th in your testimony, and were you not
23 responding to a question that indicated -- or that asked you what
24 activities took place prior to the write-up of the incident on
25 May 19th?

1 MS. WEST: Your Honor, I think before the witness should
2 be required to answer a question like that, we should be pointed
3 to the exact question and the exact answer to make sure that the
4 question and answer are not being mischaracterized.

5 MS. STAMIRIS: I would agree with Ms. West and like --
6 and prefer to do it that way, but unfortunately because I do not
7 have access to a transcript and do not have copies of it, other
8 than I just borrowed one from the Staff a few moments ago, I have
9 not had a chance to review the testimony that was made yesterday.

10 If you want to take the time for me to wait and look
11 through it or if anybody else wants to point out those statements,
12 I don't know how you want to handle it, but I would be willing to
13 look over this testimony and come back to it at a later time,
14 perhaps after the next break.

15 MR. MARSHALL: I take exception to the objection raised
16 on the grounds that the question has already been answered, the
17 question has already been asked and answered once of the witness
18 adjacent to him and there was no objection at that time, so then
19 why should there be any objection now?

20 CHAIRMAN BECHHOEFER: I think the objection was just to
21 make sure that the answer -- the previous answer was characterized
22 correctly.

23 I'm trying to look it up quickly, but --

24 MS. WEST: Chairman Bechhoefer, the Applicant would have
25 no objection if after a break sometime later Mrs. Stamiris would

1 care to come back today and ask a couple of questions if she
2 thinks she can find this question and answer.

3 CHAIRMAN BECHHOEFER: I think it's around 11440.

4 MR. STEPTOE: I think it's 11452.

5 MR. WILCOVE: It should only take a moment now for us
6 to find the question.

7 JUDGE COWAN: Did you find it, Mr. Steptoe?

8 MR. STEPTOE: Yes, it's 11451 and the following page
9 which this discussion occurred. May we show the witness those
10 pages of the transcript?

11 CHAIRMAN BECHHOEFER: Yes.

12 MS. STAMIRIS: I have not located the parts that I am
13 particularly interested in yet, but I have no objection to the
14 witness looking over these pages.

15 MR. MARSHALL: No objection.

16 CHAIRMAN BECHHOEFER: Well, I think there is some
17 statements -- look at 453. And maybe 453 isn't all of it, but I
18 would -- isn't that what you're driving at more or less?

19 MS. STAMIRIS: I haven't gotten it yet. Well, it's
20 definitely between -- it's definitely finished by page 11455
21 because at that point I asked him to go back about the type of
22 statements, the preliminary activities that he was talking about,
23 and so --

24 CHAIRMAN BECHHOEFER: I was sort of pinpointing at 453
25 there is reference to the sketches and that type of thing, around

1 about line 18 and following.

2 MS. STAMIRIS: Okay. All right.

3 BY MS. STAMIRIS:

4 Q On page 11453 of the transcript -- do you have that,
5 Mr. Bird?

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Bird ;

A. (WITNESS BIRD) Yes, I do.

2 Q. When you made the sentence that after saying that you
3 didn't know why it took that length of time between May 11th and
4 May 19th of 1982 to write up the report, on line 14 of this
5 transcript page you said, "That is not to say that they hadn't
6 started and made an investigation as to gathering facts to be
7 able to write the nonconformance report at all."

8 And you said, "I remember that there were some extensive
9 sketches and people were probing to try to ascertain the physical
10 dimensions. All of that would have taken some time. Whether it
11 would have taken eight days, that I can't say."

12 And I would also like to direct your attention back on
13 page -- on 11452 of the transcript, when I asked you in line 10
14 -- well, you repeated my question in line 10 as to why the NCR
15 was written on 5-19, when the incident had occurred on 5-11.

16 And you said you didn't know why it took that long.
17 And on lines 18 through 23 is your response that reads, "My
18 recollection was -- is that there was some subsidance in the
19 area adjacent to this hole which clued people in that something
20 was wrong. And then when they looked, they saw it, and I don't
21 remember if that was the same day they were drilling or not, but
22 I believe it was sometime after this."

23 What I'd like to ask you, Mr. Bird, is I'd like to ask
24 you about this -- the lines I just read on page 11452 about some
25 subsidance in the area adjacent to this hole. And you said that

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1 you had a recollection of this.

2 Can you tell me any more what your recollection was of
3 the subsidance, the area adjacent to the hole, prior -- or I'd
4 like to ask you, was this recollection of subsidance prior to
5 the incident that was written up in the NCR on 5-19-82?

6 A. (WITNESS BIRD) Are you done?

7 Q. Yes, I'm sorry.

8 A. (WITNESS BIRD) The word is subsidance.

9 Q. Is that all you have to say in response to my question?

10 A. (WITNESS BIRD) No, but I wanted to get the proper word
11 so we can talk about it. My recollection was there was some
12 subsidance there that clued people in that there was something
13 wrong.

14 Having gone back last night to look at the details of
15 what all had happened, that's when I ascertained that the written
16 testimony was in error in using the word or the date of the 11th.
17 And I was in error yesterday in doing some speculation as to why
18 it took so long to write a nonconformance report or what might
19 have happened between the 11th and the 19th.

20 I would have been much better off to say I don't know
21 yesterday, rather than to have speculated. Now that the facts
22 have been ascertained, we recognize that the subsidance was noted
23 on the morning of the 19th, the investigation started that day,
24 the nonconformance report was generated that day.

25 Q. Okay. But, Mr. Bird, the lines in your testimony that

1 I just directed you to were not presented as speculation, as
2 you've described them now, because you used the word "recollection".
3 And since we were talking about what happened in the time period
4 before the 5-19 write-up and incident, you indicated that it was
5 your recollection that there was some subsidence in the area
6 adjacent to this hole in this time period.

7 And I think that -- wouldn't you agree that -- to say
8 that your -- that was your recollection is quite different than
9 to say that you were speculating?

10 MS. WEST: Objection, Your Honor, I think she's
11 arguing with the witness now. I think she's trying to clarify it
12 in her own mind what the witness is trying to testify to.

13 MR. WILCOVE: Staff thinks that is a proper question.

14 (Discussion had off the record.)

15 CHAIRMAN BECHHOEFER: I think he can answer this
16 question.

17 BY WITNESS BIRD:

18 A. (WITNESS BIRD) The speculation I was addressing is
19 what is found on page 11452, line 13. The recollection is --
20 that word is used in line 18. The recollection of the subsidence
21 is, in fact, accurate.

22 What was unaccurate from what we knew yesterday was the
23 timing between when the subsidence was noted and the time it was
24 actually determined that there was a void there and a nonconformance
25 report was written. That all occurred on the same day.

BY MS. STAMIRIS:

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Q So are you testifying now that when you made the statement yesterday that your recollection was that there was some subsidance in the area adjacent to this hole, that that did not -- what I want to ask you about that statement that you made on lines 18 and 19, is whether you believe today that that recollection occurred at the time of the incident on 5-19 or whether you believed that -- or whether you believed yesterday -- I'm sorry, I'm having trouble with asking my questions this morning. I will start over.

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over

1 Mr. Bird, when you made the recollection yesterday
2 that there was some subsidance in the area adjacent to this hole,
3 at that time were you not answering in your mind what had taken
4 place prior to the 5-19 incident as we were discussing?

5 A. (WITNESS BIRD) No, I was not. I believe now, as I
6 did then, that it was the subsidance which initiated the people
7 into realizing that there was a problem there.

8 Yesterday I was confused from the testimony, the written
9 testimony as to the 11th, which got us off on the wrong track
10 somewhat, in trying to recollect the time frame of all those
11 events happening.

12 But I remember that it was fairly close to the time
13 that the subsidance was found that somebody knew that there was
14 a nonconforming condition, then the only thing that was missing
15 yesterday was why did it take so long to have a nonconformance
16 report written, not recognizing that it was in fact the same day
17 versus the day -- eight days later; given, we assumed, yesterday,
18 that the subsidance was noted on the 11th.

19 Q. Mr. Bird, according to your recollection of the incident
20 and events surrounding the 5-19 NCR, is it your recollection that
21 this subsidance that you described was the first indication of
22 any problem in that area?

23 Was this the first clue you had that something was
24 wrong or potentially wrong?

25 A. (WITNESS BIRD) It was the first clue that the people

1 there had, and that was the first visual thing that they could
2 see. I personally wasn't there.

3 Q And, Mr. Wheeler, you indicated that you were there,
4 is that correct?

5 A. (WITNESS WHEELER) Yes.

6 Q Do you agree with Mr. Bird that this subsidance that
7 was noted was the first indication of any problem in relation
8 to this incident?

9 A. (WITNESS WHEELER) Yes.

10 Q Would you describe in any more detail how that
11 subsidance appeared and how you saw it and give us any more
12 details that you can about the initial subsidance that was noted
13 at this place?

14 A. (WITNESS WHEELER) I remember that there was -- near
15 the top you could see a void that led or was near the casing that
16 was part of the Observation Well No. 4.

17 Q How large was that void that you saw?

18 A. (WITNESS WHEELER) I don't remember.

19 Q Roughly? A couple feet? Couple inches?

20 A. (WITNESS WHEELER) Are you talking about diameter?

21 Q Yes.

22 A. (WITNESS WHEELER) Oh, I'd say it was maybe a foot in
23 diameter.

24 Q Then the casing itself would have taken up some of that
25 space in the middle of the void?

1 A. (WITNESS WHEELER) No, the void was adjacent to the
2 casing.

3 Q. The void was not surrounding the casing?

4 A. (WITNESS WHEELER) It was adjacent to the casing.

5 Q. Was it directly adjacent to the casing?

6 A. (WITNESS WHEELER) I don't remember if it was or wasn't.

7 MS. STAMIRIS: Maybe this would be a good time to
8 introduce some exhibits which I think will help us clarify
9 exactly what happened and where -- I have some drawings that
10 were made -- I will identify where these drawings came from.
11 And I have not copied the whole document, but I've included them
12 into -- made separate copies of the diagrams of this void.

13 MR. MARSHALL: I'm going to leave the room for a while
14 and I'd like to delegate Mr. Gadler to take my place on cross
15 examination, please.

16 MR. STEPTOE: I'm sorry, I object to that, Judge
17 Bechhoefer. I don't think a party can delegate to a non-attorney.

18 MR. MARSHALL: Doesn't matter if he's qualified as our
19 financial executive and also qualified over the years, some 16
20 years.

21 CHAIRMAN BECHHOEFER: Well, Mr. Marshall, our rules
22 require that he be an attorney or -- we could perhaps recognize
23 Colonel Gadler as a technical interrogator for some purposes,
24 but --

25 MR. MARSHALL: Actually what I'm asking is that he

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1 technically cross examine the technical witnesses in my
2 absence, that the record will be protected for the Mapleton
3 Intervenors.

4 CHAIRMAN BECHHOEFER: Well, the Mapleton Intervenors
5 are not the party, you are the party.

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party 1 MR. MARSHALL: I understand that, but I only ask -- I
2 only ask the Court's indulgence that if I leave the room for a
3 while that he be allowed to participate in my place, and Mr.
4 Steptoe has taken objections on a technicality.

5 But he is not a member of the guardians of the statute,
6 is what I think he's saying, but actually he is technically
7 qualified to cross examine these witnesses. I will guarantee
8 you that.

9 CHAIRMAN BECHHOEFER: Well, when we get to that, if
10 you are not in the room, then we'll proceed.

11 MR. MARSHALL: Thank you very much.

12 CHAIRMAN BECHHOEFER: He will not be able to participate
13 in any procedural matters which is --

14 MR. MARSHALL: Yes, I understand; just cross examination
15 of the technical witnesses is the only thing I am talking about.

16 MR. GADLER: I won't be able to cross examine them on
17 the wells, the technical aspects of the wells?

18 CHAIRMAN BECHHOEFER: Perhaps, as I say, we can
19 recognize you as a technical interrogator. Under our rules you
20 would not be permitted to --

21 MR. GADLER: Why is the legal profession got everything
22 so tied up?

23 CHAIRMAN BECHHOEFER: That is what the rules say.

24 MR. STEPTOE: I believe the rules do indicate certain
25 requirements for technical interrogators and we'll investigate

1 this. I assume the Board has not made a ruling on that at this
2 point yet and we'll get to it later.

3 CHAIRMAN BECHHOEFER: Well, we're hoping that there will
4 not be too much of a question raised on that, but we have not made
5 a ruling yet.

6 BY MS. STAMIRIS:

7 Q Mr. Wheeler, before I pass out these exhibits, I'd like
8 to ask you, when you said that the void that you saw, which was
9 the first indication of a problem in this area on 5-19, was
10 adjacent to the well casing, can you tell me how close it was to
11 the well casing and describe its shape? And you said it was
12 about a foot in diameter, was it -- how close was it to the well
13 casing?

14 MS. WEST: Objection, this question has been asked and
15 answered. I believe the witness had just indicated he didn't
16 know exactly how close it was.

17 MS. STAMIRIS: Well, he saw it and that is why I'd like
18 to ask him to estimate roughly how close it was.

19 WITNESS WHEELER: I just don't remember.

20 BY MS. STAMIRIS:

21 Q Mr. Wheeler, in connection with the void that you saw
22 near the casing, when you say you don't remember, I mean, do you
23 have any rough idea whether it was, like, 20 feet from the casing
24 or a couple feet from the casing or can you just put it in some
25 rough terms to quantify its location in relation to the casing?

1 A. (WITNESS WHEELER) As I remember, it was close to the
2 casing, but I don't remember how close.

3 Q Would you estimate that it was probably within four
4 feet of the casing?

5 MS. WEST: Your Honor, this question's been asked and
6 answered three times now and the witness has tried to answer to
7 the best of his recollection, but he says he simply doesn't
8 remember any better than that.

9 CHAIRMAN BECHHOEFER: I think the exact question -- I
10 think Mrs. Stamiris is trying to get him to -- to help him refresh
11 his recollection a little bit.

12 At the very least, I think Mrs. Stamiris is -- can
13 explore -- I think the witness used the term adjacent, and I think
14 Mrs. Stamiris is just trying to explore what that means.

15 BY MS. STAMIRIS:

16 Q Mr. Wheeler, when you use the word adjacent, would that
17 not correlate with a statement that it was within approximately
18 four feet of the casing, to use the term adjacent, in your mind?

19 A. (WITNESS WHEELER) I just, you know, I just don't
20 remember exactly -- like I said, I think I thought it was close
21 to the casing. I don't remember if it was right next to it, two
22 inches away from it, four feet. I just don't remember.

23 Q Okay. At the time you observed it, what did you do
24 about it when you observed it?

25 A. (WITNESS WHEELER) I was called out to the field after

1 it had been discovered. And at that time the decision that had
2 to be made was that we had ascertained whether work should continue
3 or not, and it was decided by all parties involved that the work
4 should be stopped.

5 Q Okay. Who were you called out by?

6 A (WITNESS WHEELER) I do not recall.

7 Q And is it your testimony that despite the fact that you
8 were called out specifically to determine whether or not this
9 represented a problem which should lead to a stop-work, that
10 you can't remember with any more exactness than what you have
11 testified, where that void was in relation to the casing?

12 A (WITNESS WHEELER) Could you repeat that question,
13 please?

14 Q Okay. I'd like to ask -- since you were called out
15 with this specific purpose of looking at this void and determining
16 whether or not a stop-work should be instituted, that you had
17 that purpose in mind when you went and first saw this subsidance,
18 does that still correlate with your testimony that you can't
19 remember with any more exactness than what you have testified to
20 as to the precise occasion or the relative location of that void?

21 A (WITNESS WHEELER) I guess I don't understand the
22 question.

23 Q Okay. I'll try to go at it a different way. Do you
24 think that -- I'm having trouble with this, so I'm just going to
25 use an example. This is not really a question yet.

1 But I will say it this way: To me it would be
2 understandable that you couldn't remember exactly where that void
3 was in relation to that casing if it was just something that you
4 had happened upon and had not been identified as a problem, and
5 you weren't specifically focusing your attention on it, if you
6 just come across it that day.

7 But in light of your testimony that you were called out
8 specifically to observe that void to make the determination as to
9 whether or not a stop-work should be into effect, doesn't that
10 seem to you to indicate that you should have been concentrating
11 on it in such a way that you could remember with some more
12 precision where that void was located?

13 A. (WITNESS WHEELER) At that particular time the important
14 consideration was control of the work and whether the work should
15 continue or not continue.

16 The void itself would be reviewed and addressed by some
17 engineering means later on as far as a fix is concerned.

18 I think the important thing at that point in time was
19 that we had an incident that needed to be addressed in terms of,
20 you know, the work that was under way.

21 Q. And was that decision to institute a stop-work at that
22 time your decision?

23 A. (WITNESS WHEELER) No.

24 Q. Who all was involved in that decision? Well, first let
25 me ask, were you a part of that decision?

1 A. (WITNESS WHEELER) I had some input into it, yes.

2 Q. Who all was involved in the stop-work decision on

3 5-19-82?

4 A. (WITNESS WHEELER) Let me just talk about the

5 organization as opposed to the people.

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people

1 The organizations that were involved was the site
2 management organization, Bechtel QC and Consumers QA.

3 Q And who observed the incident on 5-19 and took part in
4 the stop-work decision from Consumers QA?

5 MS. WEST: Your Honor, could we have a clarification
6 of that sentence, please? I'm not certain whether she's asking
7 simply who took part in the decision to -- who from Consumers
8 took part in that decision to stop work or whether she's asking
9 was there someone from Consumers QA who actually saw the void
10 created and then later took part in the decision to stop work.

11 MS. STAMIRIS: I will ask the question separately.

12 CHAIRMAN BECHHOEFER: I would like one clarification,
13 also. Would you -- when you talk about Consumers QA, are you
14 talking about MPQAD or talking about something else?

15 WITNESS WHEELER: Talking about MPQAD.

16 CHAIRMAN BECHHOEFER: Thank you.

17 BY MS. STAMIRIS:

18 Q Mr. Wheeler, was there a representative of Consumers
19 MPQAD who saw the incident when it occurred or shortly thereafter
20 on 5-19-82?

21 A. (WITNESS WHEELER) Yes.

22 Q Was was that individual?

23 A. (WITNESS WHEELER) Bob Sevo.

24 Q Was there a member of Bechtel QC who saw the incident
25 on 5-19-82?

1 A. (WITNESS WHEELER) Yes.

2 Q. Who was that?

3 A. (WITNESS WHEELER) I think it was Rod Bennett.

4 Q. And you mentioned that the site management was involved.

5 And who represented the site management?

6 A. (WITNESS WHEELER) Myself and Don Miller was there.

7 Q. And is it your understanding that you, Mr. Wheeler,
8 Mr. Miller, Mr. Bennett, and Mr. Sevo, were called in at
9 approximately the same time to observe this subsidance?

10 A. (WITNESS WHEELER) No.

11 Q. Okay. Were any of these people there -- all right.

12 First let me ask you, what time did you first see it during the
13 day?

14 A. (WITNESS WHEELER) I don't remember exactly. I think it
15 was in the afternoon.

16 Q. In the afternoon?

17 A. (WITNESS WHEELER) I think so.

18 Q. So you were called in to view this subsidance in the
19 afternoon on May 19, 1982, is that correct?

20 A. (WITNESS WHEELER) That is how I remember it.

21 Q. Do you know whether any of the individuals that you
22 had named, who had also seen the incident or the subsidance, had
23 seen it before you?

24 A. (WITNESS WHEELER) I think some had, yes.

25 Q. Do you know who was present when the subsidance was first

1 noticed by anyone who first saw the subsidance and who was
2 present at that time?

3 A. (WITNESS WHEELER) No, I don't remember. I don't know.

4 Q. Do you know whether there was an on-site geotechnical
5 soils engineer that saw it that day?

6 A. (WITNESS WHEELER) There was a -- I'm not sure of his
7 title, but there was a soils engineer assigned to that rig.

8 Q. Who was that soils engineer assigned to that rig?

9 A. (WITNESS WHEELER) I don't remember his name.

10 Q. Who was he employed by or what was his position? Was he
11 a Consumers employee?

12 A. (WITNESS WHEELER) No, he was a Bechtel employee.

13 Q. I think I will ask some other questions about this
14 before I pass out those -- the maps that I have, that diagrammed
15 the void.

16 CHAIRMAN BECHHOEFER: While we're still on people, who
17 was E. Smith?

18 WITNESS BIRD: Gene Smith was the PFQC which is project
19 field quality control engineer. He is basically the highest
20 supervisory level Bechtel quality control person on site.

21 CHAIRMAN BECHHOEFER: He is Mr. Bennett's supervisor?

22 WITNESS BIRD: Yes, he would have been the supervisor
23 of Mr. Bennett.

24 BY MS. STAMIRIS:

25 Q. Mr. Wheeler, do you know what Mr. Smith's involvement

1 was with this when he first saw the incident?

2 A. (WITNESS WHEELER) No, I don't.

3 Q Mr. Bird, I'm looking for my own -- and, Mr. Wheeler,
4 I'm going to direct your attention to Attachment -- I believe it
5 is 7D which talks about this incident.

6 All right. Mr. Bird, before I begin to ask some
7 questions about this, I want to go back to one other thing that
8 you said yesterday in your testimony.

9 And I believe you indicated yesterday that there was --
10 that the verbal stop-work which was issued in relation to the
11 previous drilling incident, which took place on April 24, 1982,
12 did you indicate that that verbal stop-work was lifted on May 26th?

13 A. (WITNESS BIRD) I was looking at the document at the
14 time and if that was the date that I had read there, that's the
15 date I said yesterday.

16 Q That is the date that was -- that was signed as lifting
17 of the stop-work at the bottom of FSW-22.

18 I'd like to ask about the relationship between the
19 earlier incident, 4199, to this second drilling incident of 4245.

20 And going back to the incident that occurred on NCR
21 4199, I'd like to ask and I'd like to direct your attention to
22 Attachment 7E which is Bechtel NCR 4199, and I'd like to ask you,
23 first, Mr. Bird, whether there are any Consumers Power Company
24 NCRs that were written up on this incident?

25 A. (WITNESS BIRD) I don't remember any.

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1 Q Did you testify yesterday that the incident itself took
2 place on 4-24-82 and this Bechtel NCR was written up on 4-29-82?

3 A (WITNESS BIRD) That is correct.

4 Q Why were there no nonconformance reports or paper work
5 written up by Consumers Power Company regarding this drilling
6 incident on 4-24-82?

7 A (WITNESS BIRD) On 4-24-82 it was not known that there
8 was a nonconformance. As we stated yesterday, it was after the
9 fact that it was ascertained that that was the day that the
10 damage actually took place.

11 Q Well, on 4-29 or 4-28-82 when it was ascertained that
12 this was a nonconformance, on what basis was it ascertained at
13 that time that this constituted a non-conformance?

14 A (WITNESS BIRD) The real evidence of the fact that the
15 duct bank was damaged was the noticing of the fluid that came
16 out in the auxiliary building.

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1 Q Okay. And is it your understanding -- do you --
2 is it your understanding today that this was a proper
3 handling of this incident to not consider it a non-con-
4 formance on the day that the actual construction was hit
5 but only considered a non-conformance on the day that
6 you confirmed that a safety related structure which had
7 indeed been damaged?

8 MS. WEST: Objection, your Honor. I think that's
9 a slight mischaracterization of this witness's testimony.
10 I don't think he testified, as the question implied,
11 that there was a consideration of the incident and some-
12 one decided it was a non-conformance on April 24th.

13 My recollection of his testimony is that it
14 wasn't decided until April 28th or 29th that this was, in
15 fact, a non-conformance.

16 MS. STAMIRIS: Well, to me, it's not important
17 whether a consideration was given or not on the 24th to,
18 say, deliberately avoid writing up a non-conformance.
19 So I would revise the question the way that Miss West
20 suggests and ask the question in this way, Mr. Bird, or
21 slightly different.

22 BY MS. STAMIRIS:

23 Q Do you , as you sit here today, consider that
24 the handling of this incident was proper in that no deter-
25 mination was made on April 24th when an obstruction was

1 first hit and their determination as to whether or not it
2 constituted an NCR was not made until April 28... when it
3 was ascertained that a safety related utility had been
4 damaged?

5 A (WITNESS BIRD) It's such a long question it's
6 difficult to get all the parts together.

7 Q I'll repeat. The important part of the question
8 was: Do you, as you sit here today, believe that that
9 was a proper handling of this chain of events?

10 A (WITNESS BIRD) Yes, with an explanation.

11 It was clear that the individuals involved on
12 the 24th, although they knew they had hit something, was
13 convinced themselves that they had not hit any safety-
14 related structure.

15 When it was ascertained that a safety-related
16 structure had been hit, Bechtel QC immediately got the
17 paperwork in motion and generated the non-conformance reports
18 that we're looking at.

19 Q So, as you have described it, you believe that
20 this was a proper application of quality assurance and
21 quality control procedures?

22 A (WITNESS BIRD) Yes.

23 Q I believe I asked you yesterday, but I will
24 repeat the question.

25 On what basis did the workers who hit the

1 obstruction on April 24th definitely think that it was not
2 a safety-related structure? On what basis did they make
3 that determination?

4 A (WITNESS BIRD) I remember the question from
5 yesterday, and I don't have any better recollection today
6 than I did yesterday on what all that basis was other than
7 that they were sure themselves they were not that close
8 to the duct bank.

9 Q But you just have a vague recollection of that?
10 I mean, you don't have anymore specifics that
11 you could tell me as to on what they based that determina-
12 tion?

13 A (WITNESS BIRD) No, ma'am, I did no research
14 over the night on that.

15 Q All right, taking the chain of events as it
16 happened between April 24th and April 28th, 1982, I'd like
17 to ask again why there is no Consumers Power Company write-
18 up of a non-conformance report or any kind of paperwork
19 to document this incident, even if it was only going to
20 be documented on the 28th or 29th?

21 Why is there no Consumers Power Company non-
22 conformance report at the same time as this Bechtel report
23 took place?

24 A (WITNESS BIRD) The Consumers Power quality
25 assurance organization became aware of the actual

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1 non-conforming condition in the same time frame as the
2 Bechtel quality control organization.

3 Since Bechtel quality control was taking the
4 appropriate action to document the condition on a non-con-
5 formance report, there was no need for Consumers to be
6 duplicative in that effort.

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effort 1 Q And were there no efforts above and beyond this Bechtel
2 nonconformance report that were taken by Consumers?

3 I mean, I understand what you're saying about them not
4 needing or wanting to duplicate the same efforts as far as
5 writing their own nonconformance, but did they go a level above
6 this and was there any other paper work or action that Consumers
7 MPQAD took in response to this incident?

8 A. (WITNESS BIRD) Consumers Power definitely had some
9 other paper work that went beyond this, and that was Don Miller's
10 stop-work directive that he wrote on it.

11 MPQAD, although we were not involved at that instant
12 that the verbal stop-work directive was given, and, in writing
13 the letters, we were made aware of it shortly thereafter and
14 supported it completely.

15 Q This verbal stop-work directive, did it come from Mr.
16 Miller?

17 A. (WITNESS BIRD) I believe it was Mr. Peck, but I can
18 check that.

19 It was Mr. Bruce Peck.

20 Q Okay. And was this -- why was this Consumers' stop-work
21 by Mr. Peck not written up? Why was it verbal and why was there
22 not a written stop-work at that time by Consumers on --

23 MS. WEST: Objection. Your Honor, I think it was very
24 clearly testified to that the verbal stop-work was immediately
25 followed up that day with a written stop-work.

1 BY MS. STAMIRIS:

2 Q Is that correct, Mr. Bird, that the verbal stop-work
3 was immediately followed up that day with a written stop-work?

4 A (WITNESS BIRD) I'm going to wait till I hear the
5 objection.

6 CHAIRMAN BECHHOEFER: Well, that is a different
7 question. Do you object to this one, or --

8 MS. WEST: I think it's clear in the testimony that
9 they were issued the same day, but, if you wish the witness to
10 answer --

11 CHAIRMAN BECHHOEFER: I think the latter question, not
12 the first one.

13 BY WITNESS BIRD: A verbal stop-work authority is
14 necessary in order that when an individual who has the authority
15 to take such action sees something he can say halt right now.
16 And I can say that much faster than I can go back to my office
17 and get clerical help to write a letter.

18 The letter was written shortly after the verbal
19 direction was given.

20 BY MS. STAMIRIS:

21 Q Is this top-work SSW-22 the stop-work that you are
22 referring to?

23 A (WITNESS BIRD) I was trying to be careful in my
24 language between the stop work directive which was Mr. Peck's
25 verbal word and Mr. Miller's letter versus the stop-work form,

1 which is a quality form, which is FSW-22.

2 Q Okay. By making a verbal directive and having Mr.
3 Miller write a letter indicating a verbal directive on 4-28-82
4 confirming the verbal stop-work, is that recorded in your
5 quality system in the same way as the formal stop-work order such
6 as FSW-22 represents?

7 A (WITNESS BIRD) The formal quality system gives the
8 quality assurance organization stop-work authority on anything.
9 that has any relationship to quality -- to safety-related systems
10 or quality activities. Beyond that, there is no -- nothing
11 written in the program, in the quality assurance program, per se,
12 which gives Mr. Miller the authority to stop work within the
13 quality assurance program.

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program.

1 However, he is the site manager and contrac-
2 tually he has the responsibility to control all work out
3 there, and he most certainly has the management authority
4 to stop work.

5 Q Well, why was this simply a verbal stop work order
6 written up by Mr. Miller, who is not a member of the
7 quality assurance department, as opposed to a formal
8 written stop work by the quality assurance department
9 on 4-28-82?

10 A (WITNESS BIRD) The site management organization--
11 and I'm talking about Mr. Miller and Mr. Peck -- were
12 there at the time that they saw the drilling rig going
13 back over the same spot, for which, at that point in
14 time, we thought there was a problem. And they most
15 certainly took the only action they could have in saying
16 no , stop work.

17 They recognized that there was a problem. They
18 thought things weren't under control, and it turns out
19 they were right, and they should have stopped work and
20 they did.

21 Q Well, when you indicate that this was the only
22 action that they could have taken, could they not have
23 written up a formal stop work order, which is a part of
24 the quality control and quality assurance reporting
25 system, one of the QA -- I don't know if they're all

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QA 9s, but these formal stop work orders?

A (WITNESS BIRD) That was an action they could have had taken, yes.

Q Why didn't they?

A (WITNESS BIRD) I cannot answer why somebody did one thing versus another.

In either case, they got the end result accomplished that they wanted to accomplish right then.

Q I understand that you are saying they accomplished the result of stopping the work on that particular day and at that particular time, but we have had problems come into -- well, they're not into the record yet, but they will be in April -- but, in the February 8th escalated enforcement action and the letter by the NRC and Mr. Keppler, one of the main problems identified in the quality assurance breakdown alleged by the special inspection team was that quality assurance or quality control reporting was not being done properly, that there was indeed a deliberate effort to keep things out of the reporting and the tracking system. And I'm wondering if this informal verbal stop work by Mr. Miller is going to be tracked and followed in your quality assurance program and system in the same way that a formal stop work order would be?

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A (WITNESS BIRD) The answer was yes, and especial-
ly in this case, in that you were reading a minute ago from
the formal stop work that quality put out for the sole pur-
pose of tracking this, the verbal and the written stop
work directive that was issued by Mr. Miller such that we
had was in the quality assurance program the means to
assure that all the corrective action was taken prior to
the lifting of the formal stop order.

Q Okay, when that formal stop work order was
written, was the purpose of it to track and follow closely
all of the details related to this 4199 drilling inci-
dent?

A (WITNESS BIRD) The purpose of it was to docu-
ment and assure completion of those actions necessary
to make the reason for the stop work to go away such
that it could be lifted.

Lifted

1 Q Okay. Just let me think for a minute.

2 CHAIRMAN BECHHOEFER: While you're pausing, how,
3 in a situation like this, would a determination, first,
4 be made, and, second, be recorded about whether or not
5 an incident is reportable under 5055(e)?

6 Because normally that determination seems to be
7 made by the MPQAD form and it does not appear to be a
8 comparable decision reflected. It's on the Bechtel form,
9 so I would just like to see how that aspect would be
10 taken care of.

11 WITNESS BIRD: Bechtel procedures require that
12 they look at any non-conformance report written on their
13 forms for the aspects of reportability. And, although
14 the form itself might not have a specific block to
15 record that, procedurally they're required to go through
16 that thought process to make that decision.

17 CHAIRMAN BECHHOEFER: Well, what do they do to
18 make a recommendation to MPQAD, then, or to Consumers
19 as to reportability?

20 WITNESS BIRD: There's some differences in the
21 program that has changed over the time depending on what
22 QC functions we have taken over.

23 Purely within was in the Bechtel system, where
24 QC is under the Bechtel supervision, a reportability, if
25 it is determined that it appears that it is, that

1 recommendation would go to their project quality assurance
2 engineer, PQAE, and he has the programmatic responsibility
3 within Bechtel to make reportability decisions and cause
4 them to be reported.

5 CHAIRMAN BECHHOEFER: The instance reflected by
6 4199 and 4245, were they in fact determined to be repor-
7 table and reported, or not?

8 WITNESS BIRD: They were determined to be not
9 reportable.

10 BY MS. STAMIRIS:

11 Q Mr. Bird, am I correct, then, in understanding
12 that this non-conformance report written by Bechtel on
13 4-29-82, which is Attachment 17 to Mr. Landsman's testi-
14 mony, represent the only paperwork written up in addi-
15 tion to the April 28th letter from Don Miller about the
16 verbal stop work?

17 Are these the only two pieces of paperwork
18 relating to the 4199 incident at this point in time, as
19 of 4-29-82?

20 A (WITNESS BIRD) I'm sure there are other pieces
21 of paper that address this subject, whether they be
22 engineering logs.

23 There were letters on the subject, and there's
24 probably -- there's notification to the NRC over
25

5-4,pj3

1 telecon.

2
3 If so, no, I would certainly say there must be
4 more papers.

5 Q But you did testify earlier that you were not
6 aware of any other MPQAD or Consumers writeups of this
7 incident on 4-29-82?

8 A (WITNESS BIRD) I testified that I couldn't
9 recollect any Consumers Power non-conformance reports.

10 Q And then I asked you if there was anything
11 about that, you know, or any action taken by Consumers
12 Power Company.

13 A (WITNESS BIRD) You asked if there was any other
14 written action, I remember, and I said yes, there was.
15 Mr. Miller's letter most certainly was written action.

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1 Q And does Mr. Miller's written letter about the
2 verbal stop work constitute the only Consumers Power Com-
3 pany written action that you are aware of regarding this
4 incident on 4-29-82?

5 A (WITNESS BIRD) No; I'm aware of some others.

6 Q Well, I thought I had asked you before, but
7 would you tell me what others you are aware of, what other
8 Consumers Power Company records of this incident are in
9 existence?

10 A (WITNESS BIRD) I'm aware of a telephone record
11 betw-en myself and Mr. Wayne Shafer of the NRC, and I'm
12 aware of a memo from Mr. Bruce Peck to Wayne Shafer of
13 the NRC.

14 Q And are those the only written records of
15 communication or written records that you are aware of
16 by Consumers Power Company of this incident?

17 A (WITNESS BIRD) I cannot recollect any other
18 specifics at this time.

19 Q Okay. What was the -- can you provide me with
20 a copy of the telephone conversation or the memo from
21 Peck to Shafer on that day?

22 A (WITNESS BIRD) Yeah, I have a copy of it,
23 but whether I'm allowed to give it to you or not I'm
24 not sure.

25 MS. WEST: The Applicant has no problem with

1 providing that. We only have one copy but you may
2 see if if you wish.

3 MS. STAMIRIS: I would like to. Thank you.

4 WITNESS BIRD: Let me look at it first.

5 BY MS. STAMIRIS:

6 Q Mr. Bird, this oral communications record dated
7 4-28-82 at 4:15 p.m., from Mr. Bird to Mr. Shafer, indi-
8 cates that you, in Mr. Landsman's absence, and Messrs.
9 Landsman, Williams and Little from the NRC were out of
10 town so you informed Mr. Shafer of this drilling inci-
11 dent by your telephone call, is that correct?

12 A (WITNESS BIRD) I don't remember it quite that
13 way, so --

14 Q Okay. What I'll ask you about first, and then
15 I'll give it back to you to look at, is on the bottom
16 line, the bottom two sentences say:

17 "We are in the process of investigating and
18 do not have all the details yet, an NCR is being
19 written on the duct bank."

20 and, when you said NCR is being written on the duct bank,
21 were you referring to Bechtel NCR or as Consumers' quality
22 assurance manager were you referring to a Consumers
23 Power Company NCR?

24 A (WITNESS BIRD) I may not have been referring
25 to any one specific. That information came to me over

5-5,pj3

1 the telephone telling me something was going on out there.
2 I ascertained what facts I could. I most likely asked
3 the question "Is this being documented on a non-con-
4 formance report"? And the answer was yes. And, in fact,
5 the Bechtel NCR fulfills that.

6 Q Okay. Is this Bechtel NCR 4199 that we have
7 as Attachment 17 to Mr. Landsman's testimony -- is that
8 entered and tracked into the quality trend system as
9 MPQAD?

10 A (WITNESS BIRD) It's entered into the trend
11 system, but your word tracked doesn't make sense.

12 Q Well, it was entered into the trending system
13 of MPQAD?

14 A (WITNESS BIRD) Yes, it is.

15 Q And then, the existence -- when it goes into the
16 trending system, then, this is tracked relationship to
17 a number of other similar incidents as the overall pur-
18 pose of the trending system, is it not?

19 A (WITNESS BIRD) When it's trended, given the
20 specific categories that the trend system allows for,
21 it will have to be assigned to a given category. And
22 if there were other incidents very similar to this,
23 I would expect that they would be assigned the same
24 category.
25

category 1

Q Okay. Now, yesterday in your testimony, and I believe from what you've said today, your formal stop-order that is FSW-22 which was written up, was written in relation to this incident which took place on April 24th, 1982, is that correct?

A (WITNESS BIRD) This incident was part of the reason given for writing the stop-work.

Q And why was the formal stop-work order not written until May 19th, 1982 when the incident had taken place on 4-24-82, April 24th, '82?

A (WITNESS BIRD) I believe that was asked and answered yesterday also. It was that once the work had physically been stopped, problemmatically there's not a necessity to stop something that's already stopped.

So I do not have a reason to issue a stop-work for any problemmatic requirement.

It was a management decision to issue a stop-work on an MPQAD paper, again to provide the vehicle to assure that MPQAD and the other affected parties were all happy that the corrective action taken necessary such that we could remove this stop-work was completed and documented.

Q As you sit here today, do you think it would have been better from a quality assurance point of view to have issued that formal stop-work, FSW-22 -- well, do you think it would have been better from a quality assurance point of view to have issued a formal MPQAD stop-work on 4-29-82?

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1 A. (WITNESS BIRD) I don't believe there would have been any
2 great advantage in having done that. The action Mr. Miller took
3 was appropriate and effective.

4 Q From what you're saying, then, you do not believe that
5 this stop-work order was necessary, but were there some -- if it
6 wouldn't have made any great difference or there was no particular
7 advantage to having the formal MPQAD stop-work order, then why
8 did you issue it on 5-19-82?

9 A. (WITNESS BIRD) Your original question was was there
10 a great advantage to issue it at the time that the work was
11 stopped, and there was no great advantage.

12 The decision was made to issue formally at some point
13 in time later. The advantage came in at that point in time
14 because we wanted the mechanism to document the ability to lift
15 the stop-order.

16 Q Oh, so didn't think that you could very well lift
17 this stop-work order until you had documented formally that the
18 stop-work had taken place, so you issued a stop-work order in
19 order to lift it?

20 A. (WITNESS BIRD) That's a mischaracterization. Mr.
21 Miller could have just as easily contractually said okay or had
22 written another letter saying that this stop-work directive was
23 no longer in place. That could have been done.

24 The advantage of putting it on the MPQAD stop-work
25 order is that provides a better mechanism for visibility that QA

1 is also happy with that decision.

2 Q Well, I had a question in my mind that was an important
3 follow-up question that I needed to ask next, and now I've lost
4 it.

5 Oh, I know what it was. Mr. Bird, when you issued
6 this formal stop-work order on 5-19-82, did you receive any
7 indication from other people that you should do so?

8 A (WITNESS BIRD) I'm certain I did, but I'm not sure
9 who all the parties were.

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were 1 Q Can you remember any of the people who made you feel
2 on 5-19-82 that you should write up a formal stop-work order?
3 Can you remember who any of those individuals were?

4 A (WITNESS BIRD) I believe that it was Mr. Cook, Mr.
5 Marguglio and some others, which we had a general discussion,
6 and I don't even recollect who initiated the discussion, if it
7 was myself or Mr. Cook or Mr. Marguglio, or even some other
8 party, on whether MPQAD ought to issue a follow-up stop order to
9 provide a tracking mechanism.

10 CHAIRMAN BECHHOEFER: That is Consumers' Cook, is it
11 not?

12 WITNESS BIRD: Mr. Jim Cook, yes.

13 BY MS. STAMIRIS:

14 Q When you just said that this was a formal stop-work
15 to provide a tracking mechanism, then doesn't that indicate to
16 you that there was some consensus that the original verbal stop
17 work and that chain was not going to be as adequately tracked
18 as the formal stop-work order would be?

19 MS. WEST: Chairman Bechhoefer, I think we've been over
20 and over this several times. This witness has given his opinion
21 as to why the second stop-work order was issued many times. I
22 don't see what pursuing this line of questioning is going to add.

23 MS. STAMIRIS: Well, the reason I'm pursuing it is
24 because the witness is giving different answers.

25 A little while ago, when I asked him, I thought he

1 said that there was -- and I was asking specifically in terms of
2 tracking. I thought he indicated that he didn't perceive any
3 real difference between the informal verbal stop-work order and
4 the letter written by Mr. Miller, who is not a member of MPQAD,
5 and what would have actually taken place with the formal stop-work
6 order.

7 And now he answered that there would be a difference
8 and that there was a difference in tracking with a formal
9 stop-work order from MPQAD.

10 Now, unless I'm remembering his answers wrong, that's
11 the reason I asked the question a second time.

12 (Discussion had off the record.)

13 JUDGE COWAN: Mr. Bird, you're talking about a
14 discussion among various people as to whether MPQAD should issue
15 a paper which would result in the proper tracking of the business,
16 and this was in the early stages, before you actually did so.

17 Now, what was the conclusion of this, that you should
18 wait and issue it later or that you shouldn't issue it at all?

19 WITNESS BIRD: I don't recollect the specific timing
20 between the discussion and the time we wrote the stop-work, but
21 it was that day or the day before. But the discussion occurred
22 close to the time we actually issued the stop-work, not close to
23 the time that Mr. Miller had stopped work with his directive.

24 JUDGE COWAN: I think that clarifies it for me.

25 I got the impression that this discussion occurred

1 earlier.

2 WITNESS BIRD: No, it occurred close to the 19th of May,
3 and one of the things I had to do was issue it.

4 CHAIRMAN BECHHOEFER: I have one further clarification.

5 When you answered the earlier questions about the first,
6 the verbal, and then the written stop-work order -- not Consumers
7 but the Bechtel one -- were you referring then solely to what
8 had happened in the field, or were you also referring to whether
9 it would be properly tracked, where I think you were pointing out
10 that it wouldn't have made too much difference and whether
11 Consumers issued one at that time or whether Bechtel issued one?

12 Were you referring solely to what was going on in the
13 field then, or did you also have in mind how it would be tracked
14 in the future or accounted for in the future?

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future

1 WITNESS BIRD: I believe you may be reading in more than
2 what I intended to say.

3 May I make one --

4 CHAIRMAN BECHHOEFER: That may be what Mrs. Stamaris'
5 problem was, too.

6 WITNESS BIRD: You mentioned in the start of that
7 statement, Judge, the Bechtel stop-work order, and there is no
8 Bechtel stop-work. We're talking about a stop-work directive
9 verbal and a letter from Mr. Miller, who is in Consumers Power
10 site management organization, and then the formal stop-work from
11 MPQAD.

12 What I was trying to say was that Mr. Miller's directive,
13 verbal, and letter were effective and the work, as given in the
14 scope of his letter and his directive, was physically stopped,
15 and that was completely effective, and from that basis there was
16 no need for MPQAD to put out another piece of paper.

17 The reason that the MPQAD stop-work order was put out
18 was to assure that there would be close-out documentation,
19 something that's within our program which we have a form for,
20 to document that all the corrective action is taken and be able
21 to lift it formally with a signature on the form that's for that
22 purpose.

23 MS. WEST: Chairman Bechhoefer, just for a clarification,
24 Bechtel issued the NCR. It was Consumers that issued the
25 stop-work order.

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1 CHAIRMAN BECHHOEFER: I see.

2 Well, if Mr. Miller's letter were all that existed, or
3 it wasn't followed up by a formal stop-work order from MPQAD,
4 would the incidents have been put into the -- I'm not sure the
5 trend analysis program, but something like that -- would the
6 incident have gotten in there, or would you have to use the MPQAD
7 system to get it into that program?

8 WITNESS BIRD: It was the nonconformance reports that
9 got issued, that gets put into the trend program, not the
10 stop-work order.

11 BY MS. STAMIRIS:

12 Q Mr. Bird, when you indicated in response to Judge
13 Cowan's question that the conversation with James Cook and Mr.
14 Marguglio about the issuance or the need to issue a formal MPQAD
15 stop-work order took place around the time of 5-19-82, did you
16 have a similar conversation with them, or were Mr. Cook or Mr.
17 Marguglio informed at all of the incident around April 28th, 1982?

18 A (WITNESS BIRD) Mr. Cook and Mr. Marguglio were on the
19 distribution of the letter.

20 Q Of Mr. Miller's?

21 A (WITNESS BIRD) Mr. Miller's letter.

22 Q Okay. But I asked were you involved in any conversations
23 with Mr. Cook or Mr. Marguglio about the drilling incident around
24 the time frame of 4-28-82.

25 A (WITNESS BIRD) I don't have any specific recollection

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1 on that.

2 Q You can't remember if you discussed it with Mr. Cook or
3 Mr. Marguglio?

4 A (WITNESS BIRD) I'm sure I discussed it with a lot of
5 people either that day or the following day. On that basis, I
6 really can't remember all the specific people who I did discuss
7 it with.

8 Q Can you remember any?

9 A (WITNESS BIRD) My oral communication records was Mr.
10 Shafer on the same subject -- not about the stop-work at that
11 point in time, but the one you were looking at -- that also has
12 Mr. Marguglio and Mr. Cook on distribution. So if I didn't
13 discuss it with them, they got it the next day.

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day.
1 Q So, do you remember whether or not any of these
2 discussions -- well, do you remember any verbal discus-
3 sions with Mr. Cook or Mr. Margulio prior to your con-
4 versation with Mr. Shafer at the NRC?

5 A (WITNESS BIRD) No, I do not.

6 Q By answering that way, I'm not sure if you
7 mean you remember that there weren't any or you don't
8 remember whether there were or not.

9 A (WITNESS BIRD) I don't remember whether there
10 were or not.

11 Q Okay. Do you only keep oral communication
12 records of your conversations with the NRC?

13 A (WITNESS BIRD) No.

14 Q Do you have any oral communication records --
15 and I don't mean particularly that form, but in terms
16 of a telex or anything else that you could go back to
17 that would help you refresh your recollection as to
18 whether or not this incident had been discussed with
19 Mr. Cook or Margulio around 4-28-82 or prior to con-
20 versations with Mr. Shafer?

21 A (WITNESS BIRD) I don't believe I have any-
22 thing to go back to.

23 MS. STAMIRIS: Well, I asked for some pro-
24 cedural assistance as to -- I would like him to feel
25 compelled to go back and look to determine whether

1 there are any records, formal or informal, that would
2 help refresh his recollection about this time frame and
3 who he talked to about it. I think he indicated that
4 he talked to many people about it. And I not sure if
5 I can ask him to do so or if I can ask the Board to ask
6 him to do so. And I would like to request that that
7 information be brought in to clarify the situation at
8 this time.

9 (Discussion had off the
10 record.)

11 MS. WEST: Your Honor, may we respond?

12 The Applicant does not see the relevance of
13 such a search, and we think that this line of question-
14 ing, that sort of search would only unduly prolong an
15 already prolonged cross examination on an extremely
16 minor point of this testimony.

17 We just don't see the relevance of such a
18 search. The witness has already testified he can't
19 remember any such conversation.

20 MS. STAMIRIS: Well, I think it's relevant.

21 I didn't mean to interrupt if you had more to
22 say.

23 The reason that I believe that it is extremely
24 relevant is because I think it's important for us to
25

1 determine at this point whether there was a conscious
 2 decision made not to issue a formal stop work on about
 3 4-28-82 and who may have been involved in such decisions
 4 as to whether or not to issue an MPQAD stop work with
 5 Mr. Bird.

6 We've been told many times before in this
 7 proceeding, and it seems like the implication is here
 8 that ~~the~~ thought never arose. Nobody even thought to
 9 consider whether an MPQAD form should be written up.

10 And this is the area I'd like to focus on as
 11 to whether or not really the manager of quality assurance
 12 and the people he was involved with, you know, didn't
 13 think to ask that question or whether the question was
 14 asked, discussed, and a decision was made not to make
 15 such a formal reporting or stop work order at that time.

16 MS. WEST: Your Honor, I think this whole
 17 thing has been extensively discussed as to why the first
 18 stop work order was issued, why the formal stop work
 19 order was issued when it was.

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Mrs. Stamiris has asked extensively about what went through various persons' minds. There is no indication on the record that there was anything wrong with the decision process.

I just don't see that this sort of record searching is going to turn up anything.

(Discussion had off the record.)

MR. WILCOVE: Mr. Chairman, I was just speaking with Mrs. Stamiris, and the Staff has some questions that they plan to ask on cross examination that might serve to clarify a few issues, and Mrs. Stamiris would have no objection if I were to begin my cross examination now and complete it and then go back and let the Intervenors finish their cross examination.

MS. WEST: Applicant has no objection to that order of cross.

1 MR. GADLER: Mr. Chairman, I'd like to state --

2 CHAIRMAN BECHHOEFER: Mr. Gadler -- Colonel Gadler, you
3 don't have any rights to make even a statement.

4 MR. GADLER: Well, I thought you were going to rule that
5 I was a technical director for Mapleton, can ask some questions
6 of a technical nature from the witness.

7 CHAIRMAN BECHHOEFER: Well, you may or may not be able
8 to, if you meet the qualifications you -- which you ought to read
9 first.

10 MR. GADLER: Pardon?

11 CHAIRMAN BECHHOEFER: If you meet the qualifications,
12 you perhaps can do that.

13 MR. GADLER: What are the qualifications?

14 CHAIRMAN BECHHOEFER: One of them is that you have to
15 read the testimony first, and that's very significant. But be
16 that as it may, they're right in the rules, but you can't
17 represent -- you are not asking the witness questions at this
18 time.

19 MR. GADLER: Can I ask technical questions that have
20 to do with --

21 CHAIRMAN BECHHOEFER: You can't at this time. No, you
22 can't.

23 MR. GADLER: Pardon?

24 CHAIRMAN BECHHOEFER: You cannot at this time.

25 MR. GADLER: Well, when?

1 CHAIRMAN BECHHOEFER: Well, when it gets to be Mr.
2 Marshall's turn.

3 MR. GADLER: I will bring in Mr. Marshall here and I will
4 feed him the questions.

5 CHAIRMAN BECHHOEFER: That is perfectly acceptable.

6 MR. GADLER: What is the difference whether it goes
7 through me or him?

8 CHAIRMAN BECHHOEFER: We're not arguing about that.
9 It's not his turn. We're talking right now about Mrs. Stamiris'
10 cross examination and the Staffs.

11 MR. GADLER: I don't know why the Staff should precede
12 Mapleton Intervenors.

13 CHAIRMAN BECHHOEFER: Well, we would permit the Staff
14 to do that if -- and I guess if no other party objects, if that
15 would help clarify some of the matters that Mrs. Stamiris is
16 trying to raise to assist us in ruling on whether we should require
17 a further record search.

18 MR. GADLER: I understood that Mr. Marshall was allowed
19 to leave here because he had delegated to me the authority to
20 ask technical questions; that you were going -- I thought you
21 were going to make a ruling.

22 CHAIRMAN BECHHOEFER: We said we'd make a ruling when
23 the occasion arises, but you don't have any right to ask any
24 questions at this stage. Mr. Marshall wouldn't, either. It's
25 not his turn to ask the witnesses questions.

1 MR. GADLER: Thank you.

2 CHAIRMAN BECHHOEFER: When we get to that time, then
3 we'll be making a determination whether you have the requisite
4 technical qualifications.

5 MR. GADLER: That is sometime in the future.

6 CHAIRMAN BECHHOEFER: It will be today.

7 MR. GADLER: Thank you.

8 CHAIRMAN BECHHOEFER: We'll get there today, I'm sure.
9 But at this point Mrs. Stamiris and Mrs. Sinclair has an
10 opportunity to ask question, as well.

11 (Discussion had off the record.)

12 CHAIRMAN BECHHOEFER: We would suggest that at least
13 insofar as it related to the point that Mrs. Stamiris was
14 raising, we don't want to run too much longer before lunch, but
15 the Staff on this point would like to ask its questions. And
16 if you have other subjects, we may defer that to later.

17 MR. WILCOVE: Staff thinks that is a good idea.

18 CHAIRMAN BECHHOEFER: We don't want to run too late.
19 Why don't you go ahead.

20 CROSS EXAMINATION

21 BY MR. WILCOVE:

22 Q. Gentlemen, it says in your testimony that the CPC
23 site manager stopped all Mergentime drilling activities, both
24 Q and non-Q, is that correct?

25 A. (WITNESS WHEELER) That's correct.

1 Q And that as the record has shown, that is Donald Miller,
2 is it not?

3 A (WITNESS WHEELER) That is correct.

4 Q Mr. Wheeler, he is your supervisor's supervisor, am I
5 correct?

6 A (WITNESS WHEELER) Yes.

7 Q And to further understand what Mr. Miller's position is,
8 you have approximately five engineers working under you, am I
9 correct?

10 A (WITNESS WHEELER) They're not all engineers.

11 Q Well, could you explain who you do have working under
12 you?

13 A (WITNESS WHEELER) I have three civil engineers and two,
14 what is called, construction advisors.

15 Q Am I correct in saying that Mr. Miller also has other
16 chains of command that report up to him besides the chain of
17 command that you are in?

18 A (WITNESS WHEELER) Yes, that's correct.

19 Q Is it your testimony that Mr. Wheeler stopped all of
20 Mergentime's work only because of that one drilling incident
21 described in Attachment 7D?

22 A (WITNESS WHEELER) Could you repeat that again, please?

23 Q If you turn to page four of your testimony, it says
24 here, and I quote, "The CPC site manager issued a letter on
25 April 28th confirming the verbal stop-work directive applicable

1 to all drilling operations and sheet-piling activities by
2 Mergentime Corporation and its subcontractor in all Q and non-Q
3 area."

4 I believe I said that was a part of -- that was in
5 relationship to Attachment 7D to Dr. Landsman's testimony. I stand
6 corrected. That is with respect to Attachment 7E.

7 What I'm asking is, is it your testimony that Mr.
8 Miller stopped all drilling by Mergentime, both Q and non-Q,
9 because of that one incident?

10 A. (WITNESS BIRD) I'd say no.

11 Q. Why did you do so then?

12 A. (WITNESS BIRD) I think it was this one incident that
13 was sort of the main reason because this incident happened and
14 because they were now coming back to set up over the same spot
15 that they were before, that -- and he probably -- he may well
16 have, I can't speak for him, some other reasons to believe that
17 things weren't under control in general.

18 But it was this -- it was the specific incident of
19 them setting back up over the same location to go try to drill
20 again, which said he should stop work.

21 Q. Is your testimony that he stopped all Q and non-Q work
22 because they were going to drill again, drill one hole again?

23

24

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again 1 A. (WITNESS BIRD) I believe it was because they were
2 going to do that, that made him believe that they didn't really
3 know what they were doing at that point in time. They didn't
4 have it under control. That Bechtel did not have their
5 subcontracter under control, that is why he stopped the work.

6 Q. Why didn't MPQAD stop this work? In other words, why
7 did Mr. Miller have to stop this work instead of MPQAD?

8 A. (WITNESS BIRD) Mr. Miller and his people happened to
9 be on -- at that location at that point in time when he came to
10 that decision. So he had the opportunity and was there and
11 appropriately took it.

12 Q. Do you know why Mr. Miller would feel it necessary to
13 stop all Q and non-Q work if you were just concerned with this
14 one incident?

15 A. (WITNESS BIRD) That is certainly the safe course to
16 take.

17 Q. When you stated that Mr. Miller stopped all Q and non-Q
18 work because he felt that Bechtel was not in control of its
19 subcontractors, did you mean to say in this one instance or
20 generally speaking?

21 A. (WITNESS BIRD) I mean to say that he, generally
22 speaking, had that perception. There was several incidences that
23 had occurred before that -- which were on the other two Consumer
24 Power nonconformance reports where MPQAD had concerns of the
25 controls and why people could drill in the Q area without approved

1 engineering drawings and procedures, et cetera.

2 Q If there were these other incidents that generated
3 NCRs, why didn't MPQAD stop the work?

4 A (WITNESS BIRD) There were two incidences before?

5 Q Um-hum.

6 A (WITNESS BIRD) This is the third incident. You are
7 asking why the trigger point is at number three versus number
8 one or number two?

9 Q What I am asking is that Mr. Miller felt the need to
10 stop, to stop Mergentime's work because of all these incidents.

11 And I would like to know why the MPQAD didn't perceive
12 the same need, especially in light of the fact that Mr. Wheeler's
13 testified that Mr. Miller's fairly high up in the chain of
14 command?

15 A (WITNESS BIRD) You're asking me to try to recollect
16 something I might have heard of what Mr. Miller's thought process
17 was at the time, and I'm incapable of doing that.

18 Q Mr. Bird, I disagree with you. I'm asking you why --
19 you testified that Mr. Miller stopped Mergentime's work because
20 on a number of incidents Bechtel was not in control of Mergentime.

21 What I'm asking you is why did Mr. Miller have to do
22 that instead of the MPQAD?

23 A (WITNESS BIRD) That was asked before, also, why he
24 had to do that. It was his decision to do it. He could have
25 decided to have MPQAD do it. If he would have brought that

1 information to us immediately, we could have done it or we would
2 have gone out ourselves shortly thereafter and saw the same
3 circumstances.

4 We may well have come to the same conclusion ourself,
5 without the site management organization being involved. But
6 that's all supposition at this point in that it's a scenario
7 that did not happen.

8 Q But you testified -- and you did testify that Mr.
9 Miller based his decision on a number of Q incidents. So what I
10 am asking is if Mr. Miller came to that determination, shouldn't
11 the MPQAD also have come to that determination?

12 MS. WEST: I'd like to object to the basis of this
13 question. I believe the witness's testimony is being
14 mischaracterized. He did not testify that Mr. Miller based his
15 decision on a number of Q incidents.

16 MS. STAMIRIS: I think he did not use those words but
17 that is exactly what he said when he said that Mr. Miller based
18 his perception that Bechtel was not in control on the previous
19 incidents which were Q incidents, which were written up on
20 quality control NRC forms.

21 MR. WILCOVE: He did say that Mr. Miller based his
22 decision on a number of incidents. And at least five incidents
23 can be shown just from the NCRs and from Consumers February 3rd,
24 1983, letter to the Board.

25 CHAIRMAN BECHHOEFER: Well, you can find out. You

1 might want to ask him whether the incidents that Mr. Miller
 2 basis his decision on are the same ones -- likely to be the same
 3 ones that you are referring to.

4 Maybe there is some incidence we don't know about. Tie
 5 it down, why don't you. Why don't you try to ask that.

6 Or, Mr. Bird, do you know, are the other incidents
 7 that Mr. Miller had in mind the ones that are -- the incidents
 8 that are Q incidents that are reflected here or are there others?

6-3

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others 1

BY THE WITNESS:

2 A. (WITNESS BIRD) What I do know is that the two
3 incidences we talked about a minute ago, which there was a
4 drilling in the Q area, for which NCRs is written by MPQAD, and
5 the BWST undermining, I think that happened, although it was a
6 different contract, that had happened prior to this, and that
7 was also written on an NCR.

8 And since Mr. Miller is on the distribution of those
9 nonconformance reports, he had the knowledge of those instances.
10 But to what extent any given incident or of even things he may
11 well be aware of, that I am not aware of, played in his coming
12 to the conclusion to stop work directive was to be issued, I
13 can't give those kind of waiting factors.

BY MR. WILCOVE:

14 Q. In light of what you were aware of, by that, I mean,
15 in light of what MPQAD was aware of, do you feel that MPQAD
16 should have stopped work?

17 A. (WITNESS BIRD) I do feel MPQAD should have stopped
18 work in this case.

19 Q. At about the same time Mr. Miller stopped work?

20 A. (WITNESS BIRD) If about the same time means the same
21 day, and Mr. Miller hadn't come to that conclusion, I believe it
22 would be very probable we would have, but in fact he was there
23 first and came to the conclusion first.

24 Q. Would you know whether MPQAD at the time was considering
25 stopping work?

1 A. (WITNESS BIRD) Again, you are asking me whether we
2 considered something before we had the facts. Mr. Miller had the
3 facts first and work was being stopped before the facts became
4 really to MPQAD's attention.

5 Q. I am asking you in light of what you knew, which I
6 can count four -- at least five NCRs which -- these five NCRs
7 and I can also count another Q NCR that is in the February 3rd,
8 1983, letter from Consumers Power Company to the Board, in light
9 of those facts, those six incidents, do you feel that MPQ --
10 was MPQAD stopping work?

11 MR. STEPTOE: Objection, Chairman Bechhoefer, Mr.
12 Wilcove is not privileged to testify in asking a question.
13 Moreover, he -- the question assumes that the list that is in the
14 February 3rd, 1982, letter was known to Mr. Bird at the time of
15 the drilling incident that we're talking about.

16 That is something that cannot be assumed. It has to
17 be established with proper foundation questions and this question
18 is inappropriate and lacks proper foundation.

19 Also, I object to Mr. Wilcove testifying.

20 MR. WILCOVE: I do not believe I was testifying. I
21 believe the record -- I just was repeating what was in the
22 record, and that is --

23 MR. STEPTOE: Excuse me, that is not in the record, it's
24 in a letter from me dated February 3rd and we have no objection
25 to it being entered into the record. It's accurate as far as we

1 know.

2 But he has to establish the witness's knowledge at
3 the relevant time before he berates the witness about not stopping
4 work based on knowledge which he's assuming that the witness had.

5 CHAIRMAN BECHHOEFER: I think that's correct. You ought
6 to ask some foundation questions before you get into that.

7 BY MR. WILCOVE:

8 Q Mr. Bird, are you aware of the five -- were you aware
9 of the five NCRs that are attached to Dr. Landsman's testimony?
10 Were you aware of them when they were written -- after they were
11 written?

12 A. (WITNESS BIRD) You are asking more than -- I think I
13 can answer something, so let me give it a try. The NCRs which
14 were written on Consumer Power nonconformance report forms, I
15 was certainly aware of, if not when they were written, as soon as
16 the mail got them to Jackson and I was in my office, I could see
17 them.

18 Bechtel nonconformance reports, I don't routinely see
19 those at all. People within my organization see them, but I do
20 not see each or read each and every one of those.

21 And I was -- my recollection, I'm not aware of those
22 at the time other than the specific nonconformance report on
23 the duct bank because I had a specific interest in that one and I
24 asked for it. And it was -- and I probably would have -- it
25 would have been given to me, anyway, to give me information.

1 But I don't see all the Bechtel nonconformance report
2 forms.

3 You were talking about five and in just -- what I can
4 remember here, I can only think of three nonconformance reports
5 in this general subject which was part of Dr. Landsman's testimony
6 attachments which physically occurred prior to this one.

7 And I might be wrong, but I did -- I don't know what the
8 other two are that you are talking about. So if we could talk
9 about each one specifically, I would address it.

10 (Discussion had off the record.)

11 CHAIRMAN BECHHOEFER: Let's be back at 1:30 and start
12 again.

13 (Recess taken.)
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A F T E R N O O N S E S S I O N

(1:45 P.M.)

1
2 CHAIRMAN BECHHOEFER: Back on the record. Before we
3 broke, we agreed that at this point we would have Dr. Woods'
4 testimony and we would interrupt the other testimony for that.
5 So, Mr. Steptoe, or, Miss West.

6 MR. STEPTOE: Thank you. May we ask Dr. Woods to take
7 the stand, please?

8 Whereupon,

9 RICHARD D. WOODS,

10 called as a witness by counsel for the Applicant, having
11 previously been duly sworn by the Chairman, was further
12 examined and testified as follows:

DIRECT EXAMINATION

13
14 BY MR. STEPTOE:

15 Q Dr. Woods, would you state your full name for the
16 record, please?

17 A Richard David Woods.

18 Q And you are employed for purposes of this proceeding
19 as a consultant to Bechtel?

20 A That's correct.

21 Q Are you familiar with a document entitled "Testimony
22 of Dr. Richard D. Woods on behalf of the Applicant regarding
23 Seismic Shakedown Settlement at the Midland Site, Except Deisel
24 Generator Building"?

25 A Yes, I am.

1 Q Do you have any corrections or additions you'd like to
2 make to this testimony at the present time?

3 A Yes, I have a few corrections. On page one, third line
4 from the bottom, invert the letters I and C and the words
5 associates, Stoll, Evans, Woods, and Associates.

6 On page three, second paragraph, the eighth line of that
7 paragraph, sentence starts: Sands with wider grain size -- wider
8 should be replaced by the word broader, more in line with the
9 typical technical phraseology. Sands with a broader grain size
10 distributions.

11 And paragraph 5.5, retaining walls. Unfortunately my
12 copy does not have page numbers.

13 Q It's page number eight, I believe.

14 CHAIRMAN BECHHOEFER: Page eight.

15 THE WITNESS: That paragraph should start with the word
16 two, T-W-O, two category one retaining walls.

17 And finally on the reference list, reference number
18 four, the very last line, the word Berkley is misspelled. It
19 needs to be B-E-R-K-E-L-E-Y.

20 That's all the corrections I have.

21 BY MR. STEPTOE:

22 Q As corrected, is this testimony true and correct to the
23 best of your knowledge and believe?

24 A That's correct.

25 MR. STEPTOE: Chairman Bechhoefer, Applicant moves at

1 this time that the testimony of Dr. Richard D. Woods on behalf
 2 of the Applicant regarding seismic shakedown settlement at the
 3 Midland site, except deisel generator building, be bound into the
 4 record as if read.

5 CHAIRMAN BECHHOEFER: Any objections?

6 MS. WRIGHT: No.

7 MS. STAMIRIS: No objections.

8 CHAIRMAN BECHHOEFER: The testimony of Dr. Woods will
 9 be admitted into evidence, bound into the record as if read.

10 (The document referred to, the
 11 statement of Richard D. Woods,
 12 follow:)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE

ATOMIC SAFETY AND LICENSING BOARD

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

TESTIMONY

OF

DR. RICHARD D. WOODS

ON BEHALF OF THE APPLICANT

REGARDING SEISMIC SHAKEDOWN

SETTLEMENT AT THE MIDLAND SITE
(EXCEPT DIESEL GENERATOR BUILDING)

SS: STATE OF MICHIGAN
COUNTY OF WASHTENAW

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
CONSUMERS POWER COMPANY)

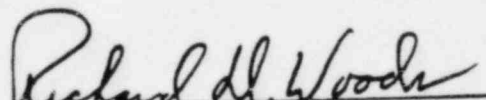
(Midland Plant, Units 1 & 2)

Docket Nos. 50-329 OM
50-330

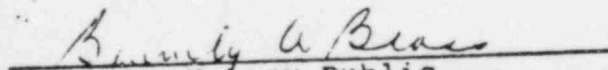
Docket Nos. 50-329 OL
50-329 OL

AFFIDAVIT OF RICHARD D. WOODS

Richard D. Woods being duly sworn, deposes and says that he is the author of "Testimony of Richard D. Woods concerning Seismic Shakedown Settlement at the Midland Site except Diesel Generator Building," and that such testimony is true and accurate to the best of his knowledge and belief.


RICHARD D. WOODS

Sworn and Subscribed Before Me this 14 Day of January, 1983


Notary Public
Washtenaw County, Michigan

BEVERLY A. BROSS, Notary Public
WASHTENAW COUNTY - MICHIGAN
MY COMMISSION EXPIRES 10-26-85

My Commission Expires _____

1.0 BIOGRAPHICAL INFORMATION

This is the testimony of Dr. Richard D. Woods. My detailed resume is attached. The following is a summary of that resume. I received a Bachelor of Science degree in Civil Engineering from Notre Dame University in 1957 and a Master of Science degree from the same school in 1962. I worked for the Air Force Weapons Center, Albuquerque, New Mexico, on the design of blast resistant underground structures for one year and taught in the Civil Engineering Department at Michigan Technological University for one year before going to the University of Michigan for a Ph.D. in Civil Engineering, which I received in 1967. Since then I have been on the faculty of the Department of Civil Engineering at the University of Michigan, advancing to full Professor in 1976. My research interests have been in the field of soil dynamics and earthquake engineering. I have done part-time consulting in the fields of soil dynamics, earthquake engineering, structural vibrations, and general foundation engineering. My clients have included Bechtel, Corning Glass Works, Rockwell International, Eaton Corporation, TAMS, General Motors, Honeywell Inc., Woodward-Clyde Consultants, and Nuclen (Nuclear Brazil). I have directed research associated with dynamic soil properties and foundation vibrations. I am a principal in the foundation consulting firm of Stoll, Evans, Woods, and Associates, Ann Arbor, Michigan and am a member of ASCE, ASEE, ASTM, and SSA.

2.0 INTRODUCTION

My testimony is concerned with the evaluation of the potential for shakedown settlement of loose sands in the plant area at Midland (except the Diesel Generator Building). The shakedown settlement was evaluated using a method based on blow count and results of an experimental study on the behavior of sands under seismic loading by Silver and Seed (1969). The maximum ground acceleration was assumed to be 0.19g and 10 cycles of shearing strain reversal were considered. On the basis of my analysis and the proposed remedial measures being taken in the plant area, I have concluded that there is reasonable assurance that the plant area including piping and duct banks will not suffer excessive settlement due to seismic shakedown.

3.0 DISCUSSION

When earthquake excitation is a part of the design loads for a construction site, the potential for shakedown must be evaluated. Shakedown settlement is a phenomenon by which loose, clean cohesionless soils densify due to ground shaking. Soils of this type which have been deposited in a loose condition tend to undergo a redistribution of particle packing when shaken until a condition of minimum potential energy is achieved. The redistribution of particle packing causes a reduction in the bulk volume of the soil, thereby causing a potential

for settlement of the ground surface and structures built on the surface or buried in the soil mass.

Whether or not a specific sand formation will undergo shakedown settlement is dependent upon characteristics of the soil and factors associated with the earthquake which causes shaking. Among the soil characteristics which influence the shakedown behavior are: grain size distribution, grain shape and relative density. Uniform grain size, rounded, loose sands are most susceptible to settlement due to shaking. Sands with wider grain size distributions and with more angular individual grains are less susceptible to shakedown settlement. Sands with high initial relative densities are less susceptible to shakedown settlement than sands with low initial relative densities.

Characteristics of the earthquake which influence the potential for and magnitude of shakedown settlement are the maximum ground acceleration and the number of cycles of shearing strain.

Pockets of sand which have a potential for shakedown settlement exist at several locations at the Midland site. Some areas occur under or near Category I structures while others are distributed throughout the plant area where pipelines and duct banks are buried.

4.0 EVALUATION OF SHAKEDOWN SETTLEMENT

Silver and Seed (1969) published the results of an experimental study of the settlement of dry sand subject to seismic loading conditions. The results of this study are appropriate for a conservative evaluation of shakedown potential because sand in the dry state is most susceptible to shakedown settlement. If some moisture occurs in the sand, apparent cohesion is present and this reduces the potential for shakedown. If sufficient water is present in the soil, the danger becomes that of liquefaction potential not shakedown and liquefaction potential has been addressed in other testimony.

To make use of the Silver and Seed (1969) study, the shear stress in the sand pocket under investigation due to the SSE is estimated from an equation based on Seed and Idriss (1971):

$$\tau = 0.65 \frac{a_{\max}}{g} \sigma_v \quad (1)$$

in which:

τ = shear stress

a_{\max} = maximum acceleration associated with earthquake

g = acceleration of gravity

σ_v = total vertical stress

Then a trial shear modulus is selected based on an assumed shearing strain and relative density from the curves proposed by Seed and Idriss (1970), Figure 1.

- The shear strain is then computed from:

$$\gamma = \frac{\tau}{G} \quad (2)$$

in which:

γ = shear strain

τ = shear stress

G = shear modulus

Successive corrections are applied to the trial G until the shear strain for which G was selected and the shear strain from eq (2) are in reasonable agreement. The relative density of the sand pocket is estimated from standard penetration blow counts. Using relative density and the magnitude of shear strain for which agreement was found above, the vertical strain due to 10 cycles of loading is estimated from the Silver and Seed curves, Figure 2.

Shear strain from Figure 2 is then multiplied by the thickness of the deposit to obtain an estimate of the shakedown settlement due to one-dimensional shaking. This settlement is multiplied by three to obtain a conservative estimate of three dimensional shaking as suggested by Pyke et al (1975).

The settlement of all pockets occurring along any vertical profile and below any category I structure conduit or pipe are summed up to estimate the local shakedown settlement.

5.0 RESULTS OF SHAKEDOWN SETTLEMENT INVESTIGATION

Sands for which there is a potential for shakedown settlement occur in only five areas for this testimony (one additional area, the diesel generator building, is covered by separate testimony). These areas are shown on Figure 3 and are categorized as : Borated water storage tank area; railroad bay area of the auxiliary building; diesel fuel storage tanks; underground piping areas; and retaining walls area.

5.1 Borated Water Storage Tanks

No potential exists for shakedown settlement under the borated water storage tanks because the soil under these tanks is clay. Furthermore, the sand within the ring foundation has been compacted to a relative density greater than 80% for which no significant shakedown settlement will occur.

5.2 Railroad Bay

Three borings in the railroad bay area of the auxiliary building show pockets of sand. The maximum settlement due to shakedown was estimated to be 0.25 inch. The maximum differential settlement also would be about 0.25 inch because some portions of the same building are founded on till which will not settle due to shakedown.

5.3 Diesel Fuel Storage Tanks

One boring in the diesel fuel storage tank area showed pockets of sand. The maximum shakedown settlement which would occur based on that boring amounts to about 0.10 inch, and relative to a point which does not settle at all amounts to a differential settlement of the same magnitude. These shakedown settlements present no hazard to the diesel fuel storage tanks.

5.4 Underground Piping and Conduits

An inspection of the borings throughout the regions where underground piping and duct banks are buried shows that the worst situation, i.e. thickest sand deposits, occur near the SWPS. Remedial measures are planned for this area which call for removal of loose material to elevation 610 and replacement with suitable material. The potential for shakedown settlement below elevation 610 near the SWPS

is small because of limited thickness of loose sand. Category I piping and duct banks in other parts of the site have been evaluated for shakedown settlement by studying the boring logs near and under these lines. By comparison with areas for which shakedown settlement was computed for other structures, it was concluded that the areas under piping and duct banks will experience shakedown settlements of no more than 1/4 inch.

5.5 Retaining Walls

Category I retaining walls are located northeast of the SWPS. Two other non-category I retaining walls are located south of the CWIS. Foundations for these retaining walls are located at elevations 595 and 611. Only loose sand below foundation levels are of concern for shakedown settlement and twelve borings in the region of the retaining walls showed that there is no loose sand under the retaining wall foundations. Shakedown settlement for these structures will be negligible.

6.0 SUMMARY AND CONCLUSION

Limited pockets of loose natural sand and loose fill sand exist in the plant area and under the railroad bay of the auxiliary building. The potential for an magnitude of earthquake shakedown settlement of these sands has been

evaluated. An earthquake with a maximum acceleration of 0.19g and 10 cycles of shear strain has been used in this evaluation.

In some areas near the SWPS remedial measures will eliminate the potential for shakedown settlement. For loose sand pockets in other areas, the magnitude of shakedown settlement has been estimated and found to be 1/4 inch or less.

For an SSE of .12g the shakedown settlement would be about 50% of that reported here.

7.0 REFERENCES

- 1) Pyke, R; Chan, C.K. and Seed, H.B. (1974), "Settlement and Liquefaction of Sands Under Multi-Directional Shaking," Report No. EERC 74-2, Earthquake Engineering Research Center, University of California, Berkeley, February.
- 2) Seed, H.B. and Idriss, I.M. (1970), "Soil Modulus and Damping Factors for Dynamic Response Analysis," Earthquake Engineering Research Center, University of California, Berkeley, December.
- 3) Seed, H.B. and Idriss, I.M. (1971), "Simplified Procedure for Evaluating Soil Liquefaction Potential," Journal of the Soil Mechanics and Foundation Division, Proceedings ASCE, Vol. 95, No. SM9, Sept., pp. 1249-1272.
- 4) Silver, M.L. and Seed, H.B. (1969), "The Behavior of Sands Under Seismic Loading Conditions," Report No. EERC 69-16, Earthquake Engineering Research Center, University of California, Berkely, December.

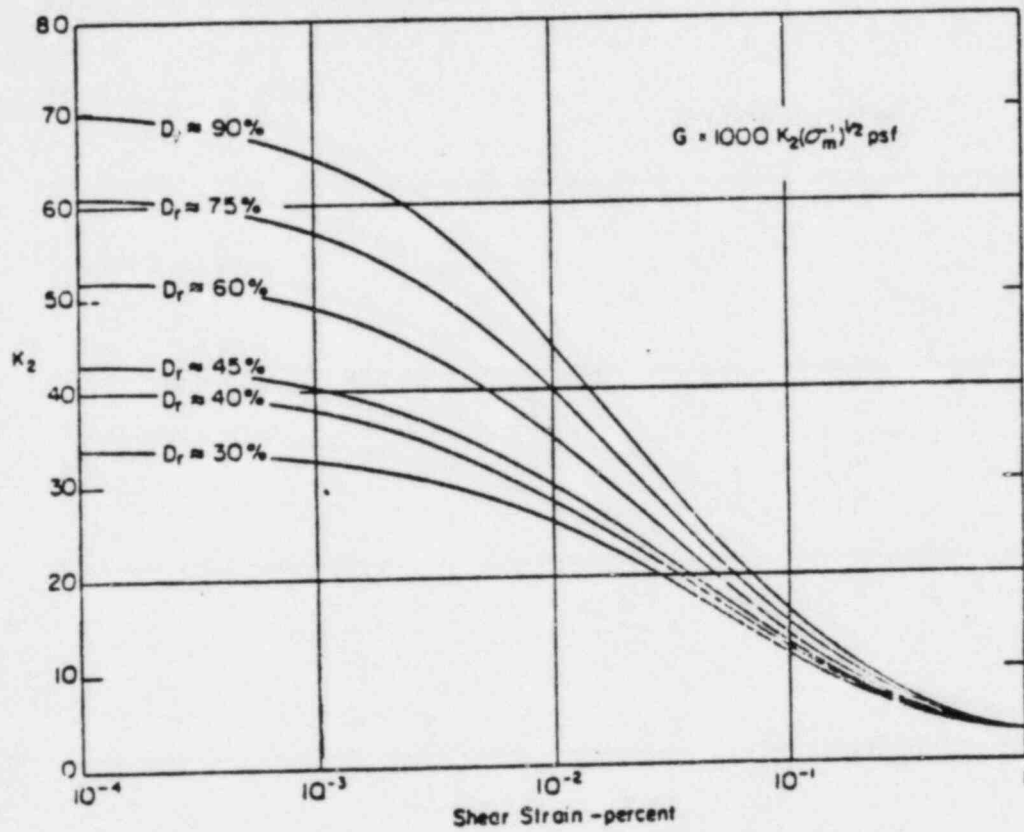


Fig. 1 SHEAR MODULI OF SANDS AT DIFFERENT RELATIVE DENSITIES.
 (from Seed and Idriss, 1970)

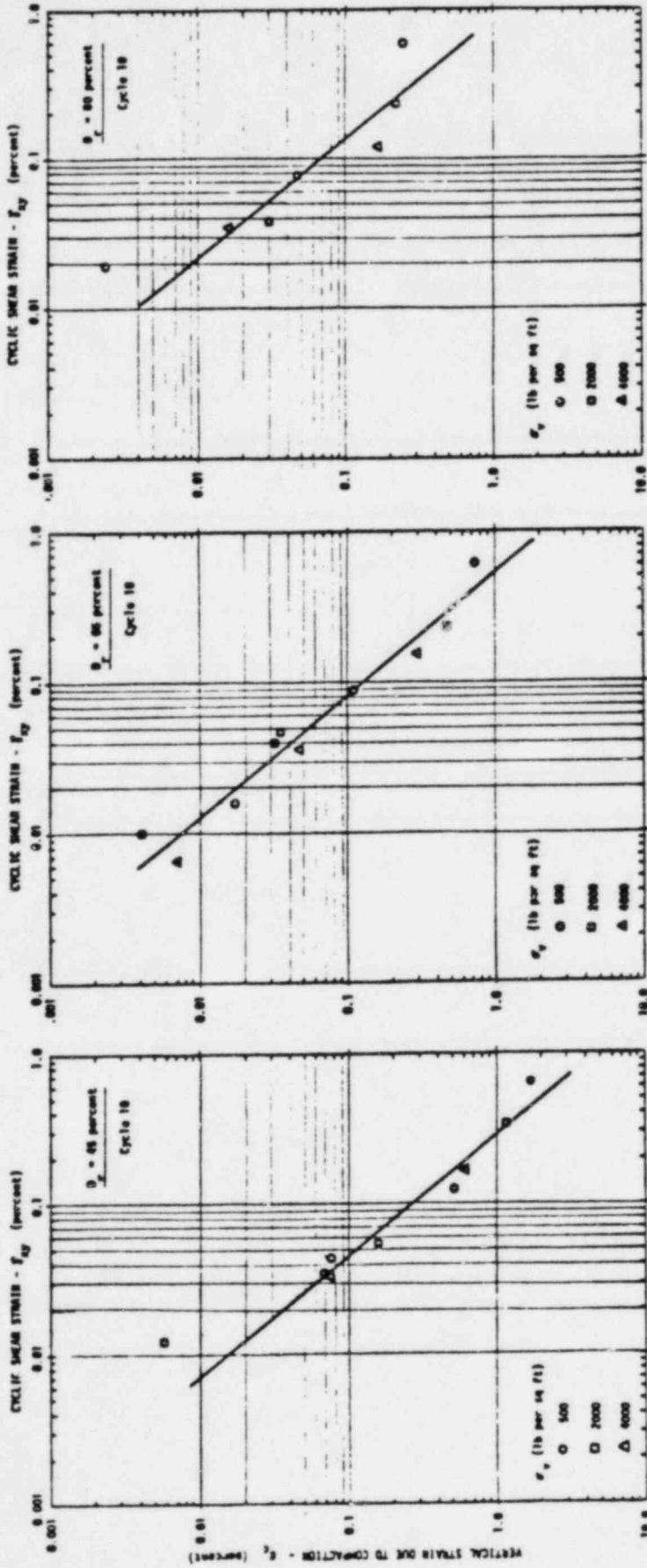


Fig. 2 Effect of Confining Pressure on Settlement in Ten Cycles (from Silver and Seed, 1969)



TITABAWASSEE RIVER

EXPLANATION



CLASS 1 FILL MATERIAL AREAS

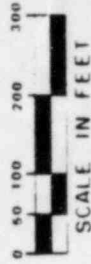


THESE AREAS WERE NOT ORIGINALLY CONSTRUCTED TO SEISMIC CATEGORY 1 REQUIREMENTS. ALL SOILS RELATED WORK ACTIVITIES AFTER DECEMBER 1, 1962 IN THESE AREAS ARE COVERED BY ASLB ORDER OF APRIL 30, 1987 AND ARE OLISTED



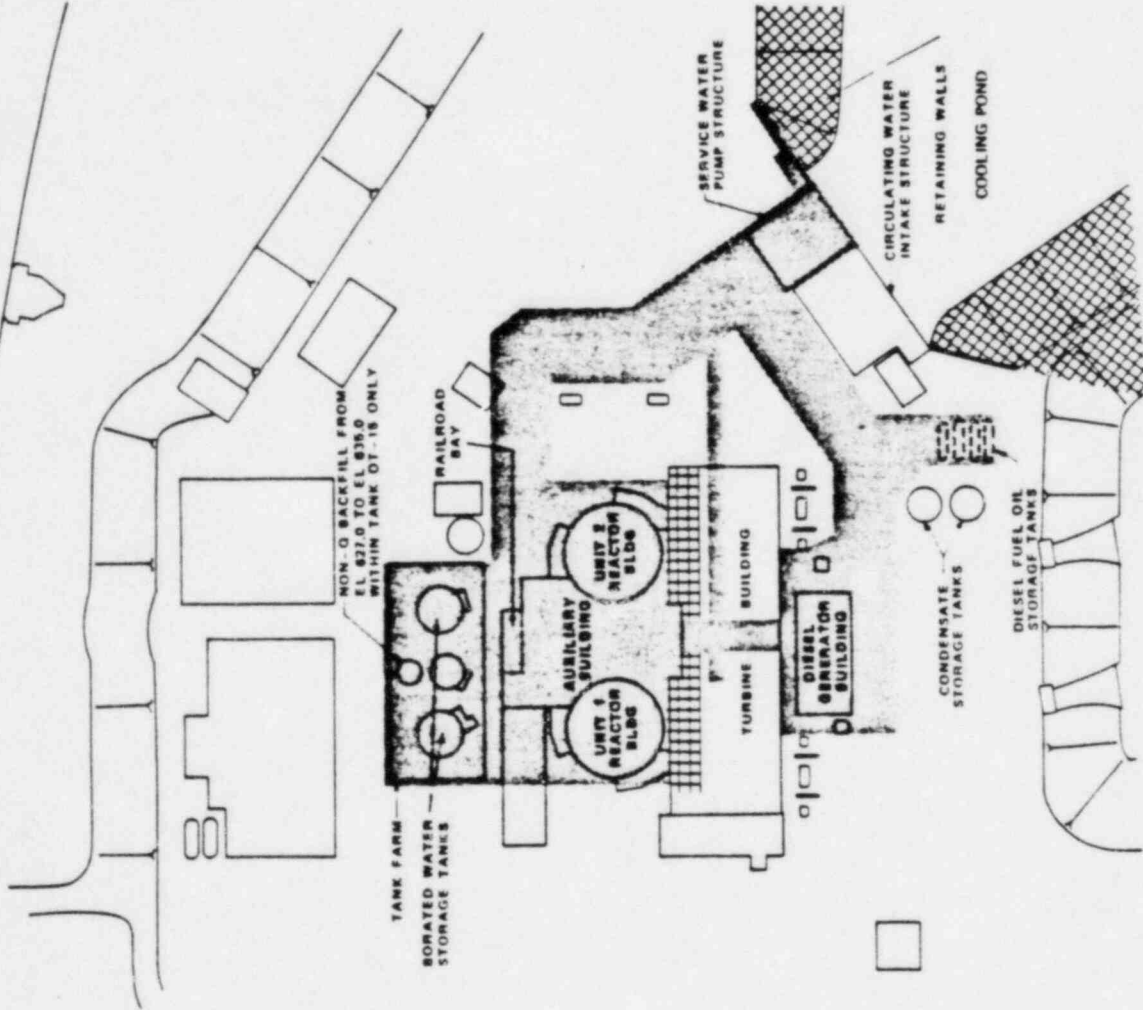
THIS AREA UNDER THE TURBINE BUILDING IS TEMPORARILY CLASSIFIED AS "O" FOR THE PURPOSES OF UNDERPINNING ACTIVITIES

REFERENCE BECHTEL DRAWING C-45101 CLASS 1 FILL MATERIAL AREAS



SCALE IN FEET

CLASS 1 FILL MATERIAL AREAS
FIGURE 3



RICHARD D. WOODS, Ph.D., P.E.

Professor of Civil Engineering
University of Michigan

RÉSUMÉ

RICHARD D. WOODS, Ph.D., P.E.

Professor of Civil Engineering
University of Michigan

August, 1980

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PERSONAL DATA

Age: 45, born U.S. citizen
Physical: Height 6'; weight 220 lb
Health: Excellent
Military: U.S. Marines
Married: Wife, Dixie Lee (Davis)
Daughter, Kathleen Ann, age 23
Daughter, Cecilia Marie, age 15
Daughter, Karen Teresa, age 12

EDUCATION

High School, J. W. Sexton, Lansing, Michigan, 1953
B.S. Civil Engineering, University of Notre Dame, 1957
M.S. Civil Engineering, University of Notre Dame, 1962
Introductory (non-degree) Course, ASEE-AEC Basic
Institute in Nuclear Engineering, North Carolina
State College, 1964
Ph.D. Civil Engineering, University of Michigan, 1967

ORGANIZATIONS

American Society of Civil Engineers
 American Society for Testing and Materials
 American Society for Engineering Education
 Chi Epsilon
 Society of the Sigma Xi
 Seismological Society of America

AWARD

Collingwood Prize of American Society of Civil Engineers, 1969

EMPLOYMENT (Full Time)

1976 to Present Professor, Civil Engineering, University of Michigan. Courses taught: Basic Soil Mechanics, Field Sampling and Laboratory Testing of Soils, Foundation Engineering, Soil Dynamics, Civil Engineering Dynamics Measurements, Plane Surveying, Statics and Strength of Materials, Reinforced Concrete. Research performed: See separate paragraph below.

1971 to 1976 Associate Professor, Civil Engineering, University of Michigan. Courses taught: Included above.

1967 to 1971 Assistant Professor, Civil Engineering, University of Michigan. Courses taught: Included above.

1965 to 1967 Graduate Student, University of Michigan, supported on NSF Traineeship.

1964 Instructor, Civil Engineering, Michigan Technological University, Houghton, Michigan. Courses taught: Included above.

1963 Project Engineer (GS-11), Air Force Weapons Laboratory, Kirtland, AFB, Albuquerque, N.M. Supervised contracts which were directed at determining engineering properties of soils under dynamic loads.

1960 to 1962 Graduate Student, University of Notre Dame, teaching assistantship, taught surveying camp.

1957 to 1960 Lieutenant, U.S. Marine Corps, Camp Pendleton, California. Six months as platoon leader, movable bridge company. Remainder of service as hydraulic engineering officer preparing evidence for water rights litigation.

EMPLOYMENT (Short Courses and Special Appointments)

- 1976 Fugro Fellow, University of Florida. On sabbatical leave from University of Michigan. Investigating use of static cone penetrometer with built-in pore pressure transducer to predict liquifaction potential of sands.
- 1974 Invited Author for Chapter on Soil Dynamics for U.S. Army Corps of Engineers Soils Manual, with F. E. Richart.
- 1973 Invited Lecturer, Woodward-Clyde Consultants Symposium, Berkeley. Topic: "Seismic Methods to Measure Shear Wave Velocity of Soils and Rock."
- 1973 Taught Extension Courses (evening), "Applications of Soil Mechanics to Foundation Engineering,"
1972 2-10 week lecture series for Commonwealth Associates, Jackson, Michigan.
- 1972 Visiting Professor, Institute for Soil and Rock Mechanics, University of Karlsruhe, Germany. Taught Soil Dynamics and helped establish soil dynamics laboratory. Research on propagation of Rayleigh Waves in region of obstacles.
- 1971 Visiting Professor, Indian Institute of Technology, Kanpur, India. Helped establish basic soil dynamics laboratory and field measurements capability.
- 1971 Invited Lecturer, Earthquake Engineering Seminar, University of Massachusetts, sponsored by National Science Foundation. Lectures on basic vibrations, wave propagation and dynamic soil properties.
- 1970 Chairman and Principal Lecturer, two 2-day
1969 short courses, "Behavior of Soils for the Construction Industry, Continuing Engineering Education Program, College of Engineering, University of Michigan.
- 1968 Co-Chairman and Lecturer, Two-week short course, "Vibration of Soils and Foundations," Continuing Engineering Education program, College of Engineering, University of Michigan. Lectures on basic vibrations, wave propagation and field and laboratory measurements.

RESEARCH

At University of Michigan

Holographic Interferometry - Investigation of basic wave propagation and surface wave propagation in region of barriers.

Response of Pile Foundations to Dynamic Loads - with F. E. Richart.

Dynamic Properties of Soils - Laboratory and field measurement of compression and shear wave velocity and shear modulus of soils at both low and high amplitudes.

Isolation of Earthwaves by Barriers - Study of effectiveness of trenches and cylindrical holes at screening waves.

Dutch Static Cone Penetrometer - Study of use of penetrometer for identification of soils.

At Michigan Technological University

Mechanics of Slide Dams - Investigation of creation of dams by blasting material from canyon walls.

At Notre Dame University

Preliminary Design of Dynamic Direct Shear Device

CONSULTING EXPERIENCE

Areas of Consulting

Vibration Measurements - on machines, in soil, on structures

Measurement of Dynamic Soil Properties, in lab and in field

Stability of Soil Masses (Reserve Mining tailings delta)

Analysis and Design of foundations for dynamic loads

Site Investigations with Dutch, cone penetrometer

Blasting Damage Evaluations

Blasting Code Drafting

Seismic Site Investigations

Principal Clients

Bechtel Power Corporation, Ann Arbor, Michigan

Attorney General, State of Michigan (Reserve Mining Case)

CONSULTING EXPERIENCE--Continued

Giffels and Associates, Detroit, Michigan
 Smith, Hinchman and Grylls, Detroit, Michigan
 City of Rockwood, Michigan
 City of Ann Arbor, Michigan
 Honeywell Corporation, Minneapolis, Minnesota
 Woodward-Clyde Consultants, Orange, California,
 Oakland, California and Philadelphia, Pennsylvania
 Halpert, Neyer Associates, Farmington, Michigan
 U. W. Stoll and Associates, Ann Arbor, Michigan
 Eaton Brake Division, Detroit, Michigan
 Tippetts-Abbett-McCarthy-Stratton, New York
 (Tarbela Dam)
 Site Engineers, Inc., Cherry Hill and Montclair,
 New Jersey
 Corning Glass Works, Corning, N.Y. and three other plants

PUBLICATIONS AND REPORTS

- Woods, R. D. (1963), "Preliminary Design of Dynamic-Static Direct Shear Apparatus for Soils and Annotated Bibliographies of Soil Dynamics and Cratering," Air Force Weapons Laboratory, RTD-TDR-63-3050.
- Woods, R. D., Reddy, P. D. and Young, G. A. (1964), "Study of the Mechanics of Slide Dams with Distorted Models, Progress Report," Contract 74-0030, Sandia Corporation, Albuquerque.
- Woods, R. D. and Richart, F. E., Jr. (1967), "Screening of Elastic Surface Waves by Trenches," *Proceedings Symposium on Wave Propagation and Dynamic Properties of Earth Materials*, Albuquerque, N.M., August.
- Woods, R. D. (1968), "Screening of Surface Waves in Soils," *J. SMFD, Proc. ASCE*, Vol. 94, SM 4, July, pp. 951-979.
- Richart, F. E., Jr., Hall, J. R., Jr., and Woods, R. D. (1970), *Vibrations of Soils and Foundations*, Prentice-Hall, 414 pp.
- Afifi, S. S. and Woods, R. D. (1971), "Long-Term Pressure Effects on Shear Modulus of Soils," *J. SMFD, Proc. ASCE*, Vol. 97, SM 10, Oct., pp. 1445-1460.

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- Stokoe, K. H. and Woods, R. D. (1972), "In Situ Shear Wave Velocity by Cross-Hole Method," *J. SMFC, Proc. ASCE*, Vol. 98, SM 5, May, pp. 443-460.
- Woods., R. D. and Sagesser, R. (1973), "Holographic Interferometry in Soil Dynamics," *Proceedings of the Eighth International Conference on Soil Mechanics and Foundation Engineering, Moscow, August, Vol. 1, Part 2, pp. 481-486.*
- Woods, R. D., Barnett, N. E., and Sagesser, R. (1974), "Holography--A New Tool for Soil Dynamics," *J. GTD, Proc. ASCE*, Vol. 100, No. GT11, Nov., pp. 1231-1247.
- Anderson, D. G. and Woods, R. D. (1975), "Comparison of Field and Laboratory Shear Moduli," *Proceedings of Conf. on In Situ Measurement of Soil Properties, Raleigh, North Carolina, Vol. 1, June, pp. 69-92.*
- Anderson, D. G. and Woods, R. D. (1976), "Time-Dependent Increase in Shear Modulus of Clay," *J. GTD, Proc. ASCE*, Vol. 102, No. GT5, May.
- Woods, R. D. (1976), "Foundation Dynamics," *Applied Mechanics Reviews, Proc. ASME*, Sept.
- Woods, R. D. (1977), "Parameters Affecting Dynamic Elastic Properties of Soils," *Proceedings of the International Symposium on Dynamical Methods in Soil and Rock Mechanics, Karlsruhe (F.R. Germany), September, Sponsored by NATO Scientific Affairs Division and the Institute of Soil Mechanics and Rock Mechanics, University of Karlsruhe.*
- Woods, R. D. (1977), "Lumped Parameter Models for Dynamics Footing Response," *Karlsruhe (as above).*
- Woods, R. D. (1977), "Holographic Interferometry to Study Seismic Wave Isolation," *Karlsruhe (as above).*
- Woods, R.D. (1978), "Measurement of Dynamic Soil Properties," *Proceedings of the ASCE Geotechnical Engineering Division Specialty Conference, EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, June 19-21, Pasadena, CA., Vol. 1, pp 91-178.*
- Richart, F.E., Jr., and R. D. Woods (1978), "Foundations for Auto Shredders," Presented at the 1978 Fall Convention, American Concrete Institute, Houston, Oct. 29- Nov. 3.
- Allen, N.F., Richart, F.E., Jr., and Woods, R.D. (1980), "Fluid Wave Propagation in Saturated and Nearly Saturated Sands," *Journal of Geotechnical Engineering Division, ASCE*, Vol. 106, No. GT 3, March, pp 235-254.

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- Woods, R.D. and Partos, A (1981), "Control of Soil Improvement by Crosshole Testing," Proc. of the Tenth Int. Conf. of the Inter. Soc. for Soil Mech. and Found. Engr., Stockholm, Sweden, Vol. 3, pp. 793-796, June.
- Woods, R.D. and Henke, R. (1981), "Seismic Techniques in the Laboratory," J. GTD Proc. ASCE, Vol. 107, No. GT 10. Oct.
- Partos, A., Woods, R.D. and Welsh, J. (1982), "Soil Modification for Relocating Die Forging Operation," International Symposium on Grouting in Geotechnical Engineering, New Orleans, Feb.
- Richart, F.E. Jr., and Woods, R.D. (1982), "Foundations for Auto Shredders," Proceedings of International Conference on Soil Dynamics and Earthquake Engineering, Southampton England, July 13-15, Vol. 2, pp.811-824.

1 MR. STEPTOE: Judge Bechhoefer, I have one further item
2 to address with this witness in direct examination. It relates
3 to something that he testified about the last time he was
4 present, which was November 20th, 1982.

5 There is a possible ambiguity in the record and I'd
6 like to clear it up. It was a dialogue with Judge Harbour at
7 pages 9771 and 9772.

8 Judge Harbour was asking the witness how many events
9 did you say that you had examined to determine the necessary
10 lateral extent of the sands in order for liquifaction to occur.

11 And at the bottom of the discussion Judge Harbour
12 asked him for the reference that he was relying on. It was an
13 article by Swiger and Christian, and that reference was provided.

14 BY MR. STEPTOE:

15 Q I would just like to ask the witness for what purpose
16 were you citing the Swiger and Christian reference?

17 A My purpose was to indicate a large number of examples
18 of cases where liquifaction had been studied and there was a long
19 -- a large table in that article which listed many, many case
20 studies.

21 It was particularly cited because it had the most --
22 the largest concentration of references and examples. The paper
23 itself deals with a statistical evaluation of correlation between
24 blow count and liquifaction. But because I had indicated that I
25 had studied somewhere between 50 and 100 liquifactions cases,

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1 this presented the greatest opportunity to show a large number in
2 one single reference.

3 Q Does that paper include information on the lateral
4 extent of those liquifaction incidents?

5 A No, it does not.

6 MR. STEPTOE: That is all I wanted to clear up. We
7 tender the witness for cross examination.

8 CHAIRMAN BECHHOEFER: Mrs. Stamiris?

9 MS. STAMIRIS: I don't have any questions on this
10 subject.

11 CHAIRMAN BECHHOEFER: I guess -- is Mrs. Sinclair not
12 here or not going to be here?

13 MS. STAMIRIS: I don't know. I expect her back this
14 afternoon, but she didn't make any statements to me about it.

15 CHAIRMAN BECHHOEFER: I thought Mr. Marshall would not
16 be here this afternoon. Do you know whether Mr. Marshall had any
17 questions that he wanted to ask of this witness?

18 MR. GADLER: I think he wanted me to cross examine, but
19 I don't know where he is at right now.

20 CHAIRMAN BECHHOEFER: He told me he wasn't feeling good.
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good 1

MR. GADLEY: He isn't feeling well.

2

MR. STEPTOE: Judge Bechhoever, I also spoke with Mr.

3

Marshall and he said he wasn't feeling good and I believe he went

4

home. I discussed with him his desire that Colonel Gadler be --

5

act as his technical interrogator and we agreed that if the Board

6

should so rule that Colonel Gadler is qualified to act in that

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manner and meet the requirements of the regulations, Colonel

8

Gadler ought to have an opportunity to do that before he has to

9

leave on his plane this morning.

10

I think it was primarily in reference to the Bird and

11

Wheeler testimony. But we would not pose any objection to

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Colonel Gadler acting as technical interrogator solely on the

13

grounds that Mr. Marshall is not here.

14

We would want to see demonstrated that the regulatory

15

requirements were met, however.

16

CHAIRMAN BECHHOEFER: Would you wish to ask Dr. Woods

17

any questions?

18

MR. GADLER: No, not today.

19

CHAIRMAN BECHHOEFER: All right. That will settle that,

20

then. Does the Staff have any questions?

21

MS. WRIGHT: No, the Staff has no questions.

22

JUDGE COWAN: I've been elected to ask our question.

23

BOARD EXAMINATION

24

BY JUDGE COWAN:

25

Q I noted in one place where you are referring to the

1 deisel storage tanks, that the shakedown of a tenth of an inch
2 presents no hazard. But when I come farther down the line, in
3 a couple of places I find you refer to a settlement of a quarter
4 of an inch.

5 And I don't see any interpretation of that as to whether
6 a quarter of an inch is acceptable or poses any hazard to the
7 buildings involved, and that's the one part that I was left in
8 doubt about.

9 A. It's my understanding that the duct work and piping is
10 designed specifically to accept a quarter of an inch differential
11 movement. So if -- we don't anticipate any more than that, then
12 those facilities should not be affected by a shakedown.

13 Q. This quarter of an inch that is mentioned in the
14 testimony, is that a differential amount or a total amount?

15 A. My understanding, this would be differential, which is
16 a more severe criterion, because that would imply right next to
17 a quarter of an inch settlement there would be zero.

18 Q. My operative says it's both.

19 A. On the railroad bay, correct.

20 Q. At any rate, it's within the specifications that are
21 required to be met?

22 A. That's correct.

23 JUDGE COWAN: That is all I have.

24 BY CHAIRMAN BECHHOEFER:

25 Q. Do you know if the railroad bay is designed to accept

1 a quarter of an inch?

2 A. That is my understanding.

3 CHAIRMAN BECHHOEFER: All right.

4 BY JUDGE COWAN:

5 Q. At the bottom of page five we find the reference to
6 multiply settlement by three because of the fact that it's
7 three dimensional shaking. And perhaps it would clarify the
8 matters for everybody, to explain what rational reason you have
9 for adding settlements of individual dimensions.

10 It's obviously failsafe, but is it conceivable that
11 such a combination of these three dimensions could occur?

12 CHAIRMAN BECHHOEFER: I think the reason I really
13 raised the question was because I was wondering why it wouldn't
14 be cubed rather than multiplied by three.

15 BY JUDGE HARBOUR:

16 Q. I think if you would explain the basis of the derivation
17 of the factor of three multiplication as it is presented in the
18 packet in the Pike et al paper.

19 A. Most testing of sands for shakedown settlement -- as a
20 matter of fact, I guess I would say all, up until Pike's work,
21 had been done in one dimension, meaning that a sample was shaken
22 horizontally.

23 Now, there was objection raised from the seismology
24 community that really, when the earth gets shaken by an earthquake,
25 it goes in all directions. So it does not only go this way, but

1 sideways and up and down.

2 So in some studies at the University of California,
3 Berkeley, Pike, who was then a graduate student, performed his
4 thesis to determine the effects of multi-dimensional shaking.
5 So that while a sample is being shaken this way (indicating),
6 it was also shaken this way and vertically.

7 In those studies they found that there was additional
8 settlement of a dry sand for each additional component of motion
9 that was added. And to be conservative, to make a high estimate,
10 the simplest thing to do was to multiply one dimensional shaking
11 by three.

12 This provided an envelope which included and enclosed
13 all data from three dimensional shaking.

14 BY JUDGE COWAN:

15 Q After all, the shakedown does occur in an up and down
16 direction?

17 A That's correct.

18 JUDGE COWAN: And I certainly appreciate that
19 explanation. It seems perfectly rational to me now.

20 JUDGE HARBOUR: I would like to point out that Mr.
21 Pike's work was supported in part by the Nuclear Regulatory
22 Commission Office of Regulatory Research and that I was the --

23 (Laughter)

24 (Discussion had off the record.)

25 CHAIRMAN BECHHOEFER: I don't think the Board has

1 anything more. Any of the parties have any follow-up? Mr. Steptoe?

2 MR. STEPTOE: No. We ask that Dr. Woods be excused.

3 CHAIRMAN BECHHOEFER: Yes, Dr. Woods, you may be
4 excused.

5 THE WITNESS: Thank you.

6 MS. WEST: Chairman Bechhoefer, if we could recall Mr.
7 Bird and Mr. Wheeler at this point.

8 CHAIRMAN BECHHOEFER: Wait one minute. The Board
9 wondered whether it wouldn't be desirable for the -- if the Staff
10 is going to put on any testimony on this limited seismic
11 shakedown subject. I assume Mr. Kane is here for that purpose,
12 or am I wrong?

13 MR. KANE: The major reason I'm here is for -- in
14 response to Mrs. Stamiris' contention. The Staff has no formal
15 testimony on the seismic shakedown.

16 CHAIRMAN BECHHOEFER: I think at this point in the
17 record, I think the Board was merely going to ask if the Staff
18 had reviewed this and whether they have any problem with it.

19 MS. WRIGHT: We do have.

20 CHAIRMAN BECHHOEFER: Maybe you want to take the stand
21 very briefly on that. Was Mr. Kane the only one here or did you
22 want to put somebody else on?

23 MR. PATON: Just Mr. Kane on this issue.

24 CHAIRMAN BECHHOEFER: Is there any particular portion
25 of the SER that you need to sponsor on this portion?

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MR. KANE: No.

MS. WRIGHT: Let the record show that Mr. Kane has been previously sworn in this proceeding.

Whereupon,

JOSEPH KANE,

called as a witness by counsel for the Regulatory Staff, having previously been duly sworn by the Chairman, was further examined and testified as follows:

DIRECT EXAMINATION

BY MS. WRIGHT:

Q Mr. Kane, have you -- or are you familiar with the testimony of Dr. Woods?

A Yes, I am.

Q Do you have any response to that testimony?

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8-3

testimony

1 A. I have reviewed it. I had one question with respect
2 to the actual boring on the depth interval and the relative
3 densities that were used with respect to the railroad bay area.
4 In speaking to members of Bechtel staff, I had that answered
5 this morning.

6 The values of settlement that are indicated in Dr.
7 Woods' testimony, a brief check of those would indicate that they
8 are reasonable and the values are acceptable to the Staff to be
9 used in design calculations.

10 Consumers has witnesses that address how these
11 settlements have been used in design. So from our aspect, our
12 aspect being the geotechnical engineering, we are in agreement
13 with the magnitude of the settlements, that they are reasonable
14 and acceptable for use in the design.

15 Q Do you have any further comments?

16 A. No.

17 JUDGE HARBOUR: Does anyone else have any cross
18 examination?

19 MR. PATON: Excuse me, we need a minute.

20 (Discussion had off the record.)

21 BY MS. WRIGHT:

22 Q Mr. Kane, have you previously testified as to the
23 seismic shakedown characteristics of the Deisel Generator
24 Building?

25 A. Yes, I did.

1 Q And what was your conclusion?

2 A The conclusion with respect to the seismic-induced
3 settlements for the Deisel Generator Building were presented by
4 Dr. Hendron. It's my recollection the maximum settlement that
5 was estimated, was a quarter of an inch plus or minus .15 inch.

6 I checked those calculations and we're satisfied they
7 were conservative and reasonable for the settlement to be used
8 for seismic shakedown of the Deisel Generator Building. And so
9 the Staff indicated in previous testimony that we were in
10 agreement with these values.

11 Q Have you now addressed the seismic shakedown
12 characteristics for all buildings at the site?

13 A With the submittal of Dr. Woods' testimony, all areas
14 that would be of concern for seismic shakedown have been addressed
15 to the Staff's satisfaction.

16 MS. WRIGHT: Thank you. Staff has no further questions.

17 CHAIRMAN BECHHOEFER: Okay. Mrs. Stamiris?

18 MRS. STAMIRIS: I have no questions on seismic
19 shakedown.

20 CHAIRMAN BECHHOEFER: Did you wish to ask some
21 questions?

22 MR. GADLER: No questions.

23 MR. STEPTOE: No questions.

24 BOARD EXAMINATION

25 BY JUDGE HARBOUR:

1 Q Is the methodology which is represented in Dr. Woods'
2 testimony, acceptable methodology and within the limits of
3 acceptability by NRC regulations?

4 A To answer your question, yes, it is acceptable to the
5 Staff. It is recognized by the Staff that what we are trying
6 to estimate, and that is the amount of settlement induced by
7 seismic loading, is very limited in our knowledge.

8 NRC is still funding research. I understand the corp's
9 of engineers is about to submit a report to the NRC on
10 seismic-induced settlements. So it is an acceptable method as
11 it presently stands, but the facts are that we do not know a
12 great deal about it.

13 The method that has been used for this plant has been
14 used on other plants and it has been accepted as an acceptable
15 method.

16 The factor three that we talked about for multi-
17 directional shaking, that factor three was -- is being used to
18 give a settlement when that method is used for -- when you compare
19 it to actually observed cases you need the factor of three to
20 come out with what was observed.

21 And so to me, the factor of three is being -- also
22 being influenced by the fact that the method needs that factor
23 to compare to what has actually been observed. It's not an
24 exact science by any means.

25 Q But do you believe that the results and conclusions

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1 that were arrived at using this methodology are conservative?

2 A. Yes.

3 BY CHAIRMAN BECHHOEFER:

4 Q From your answer you seem to, on the multi-dimensional
5 settling, you seem to say that you needed a factor of three in
6 order to take into account cases of settlement that had already
7 occurred.

8 Does the factor of three take into account all such
9 cases or should, perhaps, a larger factor have been used?

10 A It's my recollection from articles that I have read
11 that when a comparison was made using this method with a few
12 cases where settlement was actually observed, there was not good
13 comparison until the factor was three.

14 I don't think there is any basis for saying because
15 it's three directional shaking, that the factor should be three.

16 I don't think they are directly comparable.

17 Q But as far as you know, three -- a factor of three
18 would envelope the cases that you are aware of?

19 A That is correct.

20 CHAIRMAN BECHHOEFER: That is all the Board has. Any
21 follow-up? Any redirect?

22 MS. WRIGHT: No.

23 MR. STEPTOE: No.

24 CHAIRMAN BECHHOEFER: Mr. Kane, I guess you are
25 excused.

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THE WITNESS: Thank you.

CHAIRMAN BECHHOEFER: For the time being. We'll ask Mr. Bird and Mr. Wheeler to resume the stand.

MR. PATON: Mr. Chairman, could I make a very brief response on the record to Mrs. Stamiris' question about the SALP report? I was advised by Region III that the present official date for the issuance of the SALP report is June 1, 1983, but that they intend to delay that. It has not been delayed, but that is what they intend to do right now.

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now

1 JUDGE COWAN: Any indication of what sort of delay
2 they're talking about?

3 MR. PATON: No, sir. I didn't pursue that.

4 JUDGE HARBOUR: Do you have any indication of what the
5 reasons for the delay are?

6 MR. PATON: Judge Harbour, I have heard some reasons,
7 but if the Court wants to have a response, I prefer to get back
8 to Region III. And these were rather casually stated. I'd
9 rather get back to Region III if the Board wants that information
10 and tell them that the Board wants that information and to see
11 what this response is.

12 If the Board wants that, I'd be very glad to do that,
13 but I'm afraid that the reports I heard might not help the Board
14 because they were stated in a very casual way. I can get that
15 information for you very promptly.

16 CHAIRMAN BECHHOEFER: I think at your convenience we
17 would appreciate finding out what you can.

18 MR. PATON: I will do that, Mr. Chairman. I'm sure
19 I will be able to get you that by tomorrow at the latest.

20 JUDGE COWAN: You can ask my question, too.

21 MR. PATON: I will, Judge Cowan.

22 MS. STAMIRIS: Which is?

23 JUDGE COWAN: How much of a delay.

24 MS. STAMIRIS: Oh, how much, yes.

25 JUDGE COWAN: Weeks, months, or years.

1 MR. PATON: The two questions I have are how much of a
2 delay and why.

3 MS. STAMIRIS: I have some questions I'd like you to
4 ask about this, too. Might as well get them all taken care of
5 at once.

6 I would like -- I just find it difficult to believe
7 that they have told you that it's due in June of '83 but they
8 are already telling you that they know that will have to be
9 delayed.

10 Are you sure that they didn't mean that the June '83
11 issuance represents a delay from what Mr. Keppler said was going
12 to take place at the end of this June?

13 MR. PATON: I will check that. I am quite certain
14 that I heard what I heard, but I will make sure that that's the
15 case.

16 MS. STAMIRIS: When you check into it, would you see if
17 -- I mean, I'm not asking you to look too deeply into this for
18 me, but if someone has a record of the letter that Mr. Keppler
19 wrote which indicated -- and it came out sometime at the end of
20 the summer, which indicated that the 1981-82 SALP report would
21 be delayed, and I think his delay was, like, it was going to be
22 out by the end of 1982.

23 If anybody has a recollection of that letter in which
24 Mr. Keppler made the original delay and gave some reasons for
25 that delay, would you let me know?

1 MR. PATON: Judge Bechhoefer, I would not really like
2 to do that. Now I'm sort of getting to run errands for the
3 Intervenors. I don't mind getting information, but this begins
4 to become some kind of an investigation about why -- I mean, I
5 will get whatever information she wants, but I don't want to have
6 people start looking up letters and finding out some statement
7 that she isn't sure what statement it's in, that I don't think
8 that that's appropriate.

9 MS. STAMIRIS: When I ask you this, I'm telling you as
10 much as I can remember about it as far as the dates. And I'm
11 not asking you to dig into it for me, other than to ask someone --

12 MR. PATON: Let me try one thing, Mrs. Stamiris. What
13 do you really want to know, why we changed our minds? I will
14 try to get an answer for you, but what do you really want to know?

15 MS. STAMIRIS: I want to know the answer to the two
16 questions that the Board posed. But I also would like a record
17 of what the original reason for the delay was from Mr. Keppler.

18 MR. PATON: Judge Bechhoefer, I will do that only if you
19 instruct me to. I mean, the Board has said how much of a delay
20 and why, and I think that's 98 percent of what anybody needs to
21 know at this point.

22 If the Board instructs me to do something else, I will.

23 CHAIRMAN BECHHOEFER: I think that at this stage we
24 won't ask you to do that. Mr. Keppler will be here in April and
25 perhaps he may be asked that at that time.

1 MS. STAMIRIS: Okay. I would -- and when Mr. Paton
2 asks me what I am really going after, that what my bottom line
3 is, I will tell you that right now, is that I think that this
4 SALP report which reviews 1981 and '82 could and certainly should
5 be made a part of the quality assurance hearings in April. And I
6 see absolutely no reason why it should have to be delayed until
7 June and already beyond that.

8 MR. PATON: My only response is that that is not a
9 question.

10 MS. STAMIRIS: You asked me what I was really getting
11 at before.

12 MR. PATON: Okay.

13 MS. STAMIRIS: That is what I am really getting at.

14 MR. PATON: Okay. I can't help you with that.

15 MS. STAMIRIS: Okay.

16 CHAIRMAN BECHHOEFER: Mr. Wilcove, do you want to
17 resume?

18 MR. WILCOVE: I've decided that the line of questioning
19 that I was pursuing does not need to be pursued any further, so
20 Mrs. Stamiris may continue her cross examination. The Staff
21 would then complete its cross examination when it's the Staff's
22 turn.

23 CHAIRMAN BECHHOEFER: Yours are --

24 MR. WILCOVE: Other matters, yes.

25

7-1, pjl

1 (Discussion had off the
2 record.)

3 CROSS EXAMINATION
4 BY MS. STAMIRIS:

5 Q All right, Mr. Bird, when I left off my question
6 and I was asking the Board to require in some way that
7 you would go back to any documents on the subject of the
8 4199 drilling incident and what possible conversations
9 took place around 4-28-82 on that subject with Mr. Cook,
10 Margulio or others, the question I'd like to ask you
11 now in relation to that discussion is: Did the question
12 ever arise in your mind about whether a stop work order,
13 a formal stop work order by MPQAD should be issued at
14 that point in time?

15 MS. WEST: Excuse me. Chairman Bechhoefer,
16 could I have a clarification of this question? It's
17 uncertain what time period the question is referring to
18 as to when the question may or may not have arisen in
19 Mr. Bird's mind.

20 BY MS. STAMIRIS:

21 Q Okay, what I mean to ask Mr. Bird is: Around
22 4-28-82, prior to or shortly after your conversation with
23 Mr. Shafer on the subject of this drilling incident, did
24 the question arise in your mind, as the quality assurance
25 manager, as to whether a formal MPQAD stop work
order should be instituted at that time?

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A I really don't remember if it did or not.

MS. STAMIRIS: Well, in light of Mr. Bird's lack of recollection about the discussions and his own thoughts and actions surrounding this incident on about 4-28-82, I would like to re-request that the Board have him go back to his -- any records that are in existence about communications that took place at this point in time so that we have some way to establish in the record whether or not the question had arisen to people in charge of MPQAD that a stop work should be instituted and a deliberate decision was, or a conscious decision was made not to issue such a stop work or was it a question of a stop work by MPQAD never even arose to the people in charge.

That is the question I want pursued when he would go back and look at the telexes, records, any kind of documentation of conversations or communications at this point in time.

MS. WEST: Chief Judge Bechhoefer, I have to renew my objection at this point. The question which Miss Stamiris just asked, apparently to try to lay the foundation for this request, does not lay it.

The requests in expanded form now is even more irrelevant to the proceedings that are before us. We just have the testimony on these five NCRs. What may

1 have been going through Mr. Bird's mind at that point does
 2 not seem to me to be relevant, especially when we have
 3 documented evidence and testimony before us that a verbal
 4 stop work was issued, a letter stop was issued that same
 5 day, and a formal stop work was issued later.

6 It just seems to me to be sending the Applicant
 7 on a digging request without showing any real need to
 8 complete the record before this Board.

9 I don't see how these documents are needed.
 10 I think the record is complete as it is.

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is.

1 MS. STAMIRIS: I would like to respond by saying
2 I do not consider it a digging request in that it is
3 very narrow, the time frame that would be involved is
4 very narrow. The question for which I am asking him to
5 look at records regarding this incident concerning is a
6 very specific question.

7 Therefore, what I'm asking him to do is a very
8 specific task and narrow, and its relevance to this
9 proceeding really goes to the heart of the quality
10 assurance and implementation of quality assurance matters
11 that are the key issues before this Board and have been
12 since December 6, 1979.

13 And in the February 8 enforcement action taken
14 by the NRC, at the end of that action one of the very
15 specific requirements of Consumers Power Company was
16 that they go back and look into the incidences regarding
17 quality assurance reporting and determine how wide spread
18 the practice was that the special inspection team had
19 uncovered by which there was a deliberate effort made to
20 keep quality assurance reporting at a minimum or keep
21 it out of the record and it didn't go into the trending
22 system and people were told not to report quality inci-
23 dents when they exceeded certain numbers. And I think
24 this would be very much in keeping with what the NRC
25 asked the Applicant to do and the Applicant should feel

1 they need to do on their own is to look and see how wide-
2 spread this practice was and if, indeed, it did extend
3 to the soils remedial work area.

4 MS. WEST: Your Honor, I'd like to respond to
5 that.

6 The February 8th incidents and inspection report
7 has nothing to do with the information that Mrs. Stamiris
8 is presently seeking.

9 What was at issue in the February 8th report
10 was a very specific procedure, I-pins, in process in
11 spection notices.

12 What Mrs. Stamiris is seeking has nothing to
13 do with how or whether quality related incidents are
14 reported. What's she's looking for is information on
15 whether anyone ever thought of issueing a stop -- an
16 MPQAD, a formal stop work notice, that's unrelated to
17 the issue of reporting.

18 MS. STAMIRIS: In response to Miss West, since
19 she has brought up this subject of I-pins and she thinks
20 that it relates to the in-process inspection notices,
21 as opposed to what she thinks I was talking about, I
22 would like to bring to the parties attention -- and I'd
23 be happy to get copies of this made and introduce it
24 as an exhibit. For the time being, I will identify it
25 as a quality action request dated -- well, it's signed

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on 7-21-82, and it was included with all the non-con-
formance reports that we get from the Applicant, and
cited as Item 25 in my September motion, where I made
Attachment A and went through a series of events.

And this quality action request by -- well,
it's to L. E. Davis, who I believe is a Bechtel person,
and it's signed by Bryon Palmer for D. W. Puhalla. It
doesn't say at the top whether it's Consumers or Bechtel,
but I will read the action requested on this quality
action request.

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request.

1 It says:

2 "26 QC in-process inspection notices --"
3 and it gives the date --

4 "identifying 71 individual deficiencies rele-
5 vent to the installation of underpinning
6 instrumentation have been issued between
7 7-8-82 and 7-19-82. Repetitive deficiencies,
8 although identified by QC in accordance with
9 their program, are contrary to the jobsite
10 policy of doing the job right the first time.
11 See attached."

12 And I didn't have anything attached to it,
13 I don't believe.

14 "Construction supervision and field
15 engineering are requested to provide correc-
16 tive action to assure that construction
17 activities are performed properly the first
18 time and to avoid repetition of the per-
19 formance noted by the above I-pins.

20 "This corrective action is requested
21 to include as a minimum training of crack
22 supervision and field engineering and, too,
23 monitoring of work in process to ensure that
24 ongoing work is in compliance with the
25 specified requirements."

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And I think the fact that there were 75 deficiencies reported between such a brief period as 7-8-82 and 7-19-82 indicates that indeed there were a lot of problems going on with these sort of incidents in the quality assurance area, and I think that it indicates that it should be looked into further to determine the seriousness of this incident and how widespread it was and whether a stop work order was considered and rejected or whether the thought of issuing a stop work order never arose to the MPQAD people.

It's a question here of trying to get a handle on the basic question which we have been faced with throughout this proceeding: Are these problems due to their unwillingness to correct problems or their inability? Is it just they didn't even realize this should be done, or is it a question that they realize and know full well that something should have been done but they deliberately turned away from it.

(Discussion had off the record.)

MS. WEST: Your Honor, if I could just say one or two things.

We don't have the copy of the QAR that Mrs. Stamiris is reading from before us, but, from what she has read out of it, I see no connection with the

1 testimony of these witnesses or especially the requests
2 she's making of these witnesses.

3 It's a different time period. What she is
4 requesting is telephone conversations that may or may
5 not have occurred, which may or may not have led up to a
6 stop work order. What she has read out of the QAR has
7 nothing to do with that.

8 In addition, I'd just like to briefly address
9 her later remarks.

10 These witnesses have pointed out over and over
11 again that a stop work order at this time was, in fact,
12 in effect and that the Consumer Powers MPQAD did, in
13 fact, a few days later, issue their own formal stop
14 work order.

15 It's not like work was continuing in the field
16 and they were doing nothing about it.

17 MS. STAMIRIS: I would just like to respond to
18 that.

19 I don't consider from April 24th, when the
20 original incident occurred, until May 19th, when the
21 formal stop work was written up, to be a few days.

7-4,pjl
days.
1 (Discussion had off the
2 record.)

3 MS. WEST: In addition, your Honor, the subject
4 of the ~~MPQAD~~-pins will be taken up during the April hearings.

5 CHAIRMAN BECHHOEFER: Does the Staff have any
6 view on Mrs. Stamiris' request as to whether the informa-
7 tion requested would be of any use to the record?

8 MR. WILCOVE: As I understand Mrs. Stamiris'
9 requests to be -- and I would like her to correct me if
10 I mischaracterize it -- is that she wants to know whether
11 the MPQAD was considering issuing a stop work order around
12 the same time that the site manager issued it.

13 I will ask Mrs. Stamiris, is that --

14 MS. STAMIRIS: That is essentially the question
15 I am pursuing, yes.

16 CHAIRMAN BECHHOEFER: Would your cutoff date
17 be the date Mr. Miller sent this notice out?

18 MS. STAMIRIS: Not necessarily. That was sent
19 out on 4-28 and the NCR was not even written up until
20 4-29.

21 BY MS. STAMIRIS:

22 Q And I can't remember the date on the oral
23 communication that you called Mr. Shafer at the NRC?

24 A (WITNESS BIRD) It was the 28th.

25 Q That was the 28th?

1 A (WITNESS BIRD) Yes.

2 MS. STAMIRIS: Could it extend to the 30th?
3 And I think that would still be a very narrow timeframe
4 if we just included a few days after. That would be one
5 day after the NCR was written up, April 30th, 1982.

6 I think between April 24th, 1982 and April
7 30th, 1982, whether there was any consideration given
8 by MPQAD to issue a formal stop work order is the period
9 I would like Mr. Bird to look into.

10 CHAIRMAN BECHHOEFER: Mr. Wilcove?

11 MR. WILCOVE: Just a moment, Mr. Chairman.

12 (Discussion had off the
13 record.)

14 MR. WILCOVE: Mr. Chairman?

15 CHAIRMAN BECHHOEFER: Yes.

16 MR. WILCOVE: The Staff doesn't have any objec-
17 tion to Miss Stamiris' request. On the other hand, it's
18 not something the Staff would necessarily ask for, so
19 that, basically, the Staff feels that this should be
20 worked out between the Applicant and Mrs. Stamiris.

21 To repeat, the Staff, of course, does not
22 object. On the other hand, the Staff is not asking for
23 it.

24 (Discussion had off the
25 record.)

1 JUDGE HARBOUR: You don't have a position,
2 then, whether it would help the record or not?

3 MR. WILCOVE: It certainly would not hurt
4 the record.

5 (Laughter.)

6 And it might help the record. I think the
7 Board should determine the extent to which it would help
8 the record balance out against the burden that it would
9 impose on the Applicant.

10 MR. STEPTOE: Chief Judge Bechhoefer, it's not
11 the burden of looking, a fairly narrow search for docu-
12 ments among a fairly narrow number of people, it's the
13 delay and the notion that Mrs. Stamiris is apparently
14 able to wander down every side road and every path that
15 she comes to and force us all to wait while this is going
16 on.

17 We just can't see the conceivable relevance of
18 this kind of information, given the testimony that has
19 already been given on just why the site manager issued
20 the stop work order and why MQPAD eventually did issue
21 a formal stop work order.

22 MS. STAMIRIS: I would just like to say that
23 a few minutes ago Miss West said that the burden was a
24 significant reason for them wishing not to have to respond
25 to this request.

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MR. STEPTOE: I don't think we did say that.

MS. STAMIRIS: And I might add that I am asking

(Discussion had off the
record.)

CHAIRMAN BECHHOEFER: We think that the answer
to the question could be useful. I don't know that it
would be.

I also don't think it has to be done in this
hearing session, but if Mr. Bird could report if there
was nothing in the files or, if there were something,
he's likely to be back at a later date for some purpose
or other, he could then correct that.

I do think the information could be useful.
I don't know that it will be, but I think a simple
report that there's nothing in the files would be suf-
ficient. Mr. Bird wouldn't have to come back for that.
I think he could do that.

MS. WEST: So, just to get it straight, what
you would like the Applicant to do is search for and
provide, if found, a written record of oral communica-
tions between Mr. Bird and Mr. Cook or Mr. Margulio that
took place between the 24th and 30th of April, 1982 regard-
ing the possibility of issuing a stop work order for this
incident.

CHAIRMAN BECHHOEFER: Right, oral or written.

1 MS. STAMIRIS: Well, I would like to add that --
2 well, when you say oral or written, I mean, we know an
3 oral stop work order was given, so I had said a formal
4 stop work order by MPQAD is what I'm really going after,
5 whether a formal stop work written by MPQAD or -- well,
6 any kind of formal action by MPQAD was considered.

7 And at one point earlier, although Miss West
8 didn't say it now, it was said telephone conversations,
9 and I think the way she said it now, any written record
10 of oral communication would cover -- any oral communica-
11 tion, and I would also like it to cover any written
12 communication in itself or written record of a written
13 communication, if we need to make that distinction.

14 CHAIRMAN BECHHOEFER: Well, that's what we
15 intended by saying oral. A telephone conversation or
16 that type of thing is certainly covered by what they
17 have in mind or what we thought you'd have in mind.

18 This is, again, concerning the possibility
19 of MPQAD issuing the stop work order.

20 MS. STAMIRIS: So, if there was any written
21 communication, let's just say, for example, between
22 Mr. Cook, Margulio and Mr. Bird about whether a formal
23 stop work order should be issued, then they would be
24 looking for that also, wouldn't they?

25 MS. WEST: Yes.

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CHAIRMAN BECHHOEFER: Well, yes.

MS. STAMIRIS: I just wanted to make sure.

Thank you.

(Discussion had off the
record.)

CHAIRMAN BECHHOEFER: I might add that the
Board wanted to add to that request.

I would like to know what kind of written
record -- I say written now because we don't have any
before us -- that Consumers made or is reflected in
Consumers' files concerning the decision whether or not
to report both this incident and the one reflected
by 4245 whether or not to report those to NRC.

The documents we have -- and maybe we
have all of them -- do not have anything about saying
who made the decision or how it was made. Mr. Bird
didn't testify, or he answered one of my questions
but the decision had been made. But I would like to see
how the system reflects such germinations or reflections.

1 reflectio

MS. WEST: We'll do that, your Honor.

2

CHAIRMAN BECHHOEFER: Okay.

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BY MS. STAMIRIS:

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Q Mr. Bird, to return to the line of questioning we were on before and some questions that Mr. Wilcove asked in his cross examination on this subject, I believe that you indicated that the verbal stop work was issued by Mr. Miller because he happened to be there first and so he made the stop order. Does that agree with what you remember of your testimony?

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A (WITNESS BIRD) Well, essentially, yes. He had the first opportunity.

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Q Okay. And, in his verbal stop -- no, not verbal, but in his written record of the verbal stop work order, I believe that you indicated that Mr. Miller had come to the conclusion, or Mr. Miller perceived that Bechtel was not in control or in good control, adequate control of the Mergentime operations at that time. Does that paraphrasing capture the essence of your testimony about Mr. Bird's perception of Bechtel?

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MR. STEPTOE: Mr. Miller's perception of Bechtel.

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MS. STAMIRIS: I'm sorry; Mr. Miller's perception of Bechtel.

25

BY THE WITNESS :

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1 A (WITNESS BIRD) Yes, it does. To be more
2 specific, on the work order, or on the stop work direc-
3 tive, it was Bechtel's control over Mergentime and any
4 Mergentime's subcontractors.

5 BY MS. STAMIRIS:

6 Q Mr. Bird, do you believe that -- I guess I
7 should put a time frame on it. Do you believe now that
8 Mr. Miller was correct in his perception that Bechtel
9 was not in adequate control of Mergentime's operations?

10 A (WITNESS BIRD) Yes.

11 Q Okay. Did you believe at the time of this
12 verbal stop work at about 4-28-82 -- did you believe at
13 that time that Mr. Miller was essentially correct in
14 his perception that Bechtel was not in control of the
15 Mergentine's operations.

16 A (WITNESS BIRD) I don't recollect going through
17 that thought process whether Mr. Miller was correct or
18 not.

19 The fact is that if the site manager has any
20 reason at all that he wants to stop work Quality is
21 100 percent behind that because, again, if there's any
22 indeterminacy at that's something is out of control, the
23 safe thing to do is to stop it, get the facts and
24 then go from there.

25 So in principle we supported it completely

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1 without even knowing his reasons.

2 Q But am I correct in understanding that as of
3 4-28-82 that you did not have any particular opinion
4 as to whether or not Bechtel was in control of Mergen-
5 time's operation?

6 A (WITNESS BIRD) On the date of 4-28, a
7 lot of things were happening that day. I believe I
8 was in Jackson I got some phone calls, and I got
9 enough information to know that something has happened
10 to the point that we considered it to be within the
11 ground rules that I had to call Ross Landsman. And,
12 in fact, I talked to Mr. Shafer instead that we had
13 hit something there.

14 I did not have all the details of what was
15 hit what all the circumstances were involving that.

16 Q Well, wouldn't it be more correct to say
17 that you had hit something four days earlier and you had
18 confirmed on the 28th that indeed it was this safety
19 related electrical, or the duct bank -- safety related
20 duct bank at the Auxiliary Building?

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building.

1 A (WITNESS BIRD) That could be made as a correct
2 statement now, and for quite a while now that could be
3 made as a correct statement, but that could not be made
4 as a correct statement as of the 28th, because at that
5 point in time I didn't know about the 24th. I did not
6 see any of the backup information.

7 Q Well, what were you told about this incident
8 when you first got your phone call on the 28th?

9 A (WITNESS BIRD) That we thought the electrical
10 duct bank, the Q electrical duct bank had been hit quite
11 a bit in operation.

12 Q So, on the 28th, you were told that you thought
13 they -- or that whoever was on site thought the electrical
14 duct bank at the Auxiliary Building had been penetrated
15 but it wasn't decided for sure at that point?

16 A (WITNESS BIRD) To say it hadn't been decided
17 for sure, it might have been for sure in some people's
18 minds and not for sure in other people's minds. I think
19 our conversation with NRC is the most accurate way to
20 describe it was that we didn't have all the facts and
21 we have to investigate.

22 Q So, when you received your phone call on the
23 28th, is your recollecton of that phone call that you
24 were not told that something was hit on the 24th and
25 we have now determined on the 28th that it's the electrical

1 duct banks at the Auxiliary Building?

2 A (WITNESS BIRD) I do not remember any specific
3 information having to do with the date of the 24th in
4 the first initial conversation with Mr. Miller.

5 Q Going back to Mr. Miller's stop work that took
6 place on 4-28-82, did you indicate that this stop work
7 covered drilling in both Q and non-Q areas?

8 A (WITNESS BIRD) Yes, it did.

9 Q Okay, then why did the drilling incident, which
10 took place on 5-19-82, which is memorialized on Attach-
11 ment 7-D -- why was there still drilling going on in
12 relation to that incident if a stop work was supposed to
13 be in effect and was still going to be in effect until
14 the 26th of May?

15 A (WITNESS BIRD) He didn't make the complete
16 statement. Stop work was in Q and non-Q applied to
17 Mergentime Corporation and its subcontractors. There
18 were some other people who were doing drilling which
19 were not covered by the stop work.

20 Q And do you believe that this was a good -- I
21 mean, from your position as quality assurance manager,
22 do you believe that the decision that this verbal stop
23 work need not extend to all drilling procedures was in
24 accordance with good quality assurance principles?

25 A (WITNESS BIRD) Your question really doesn't

1 make sense to me. There's more to it than that.

2 First of all, at that point in time there was
3 more than just a verbal stop work, there was a written
4 stop work directive, and it was written specifically to
5 apply to the areas that it was indetermined as to whether
6 it was in control or not.

7 And from that standpoint it was perfectly
8 placed.

9 Q Would you agree that the stop work that was
10 instituted on 4-28-82 addressed the specific drilling
11 that was going on by Mergentime but did not address the
12 generic implications of other drilling incidents?

13 A (WITNESS BIRD) That statement doesn't make
14 enough sense to agree or disagree.

15 What do you mean by generic implications?
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implications

Q Well, do you think that this is the best application of good quality assurance principals when you stopped the particular drilling by Mergentime but you do not address the drilling that's going on in the soils work in general?

A. (WITNESS BIRD) I think Mr. Wheeler may be able to add better statistics than I can, but my recollection was that the bulk of the drilling which would have been going on was being done by Mergentime and the Mergentime subcontractors. There were one, or possibly two -- maybe Bob can say -- other people who could drill out there or some specific things quite separate from the work that Mergentime was responsible for.

Q Okay.

CHAIRMAN BECHHOEFER: Let me ask you one question here. There's a reference on the second incident to Kelly dewatering, and is that the subcontractor which was doing the drilling the second time around?

MS. WEST: Are you referring to NCR --

CHAIRMAN BECHHOEFER: 4245.

MS. WEST: 4245.

WITNESS WHEELER: Kelly dewatering was the subcontractor of Bechtel's who was installing the permanent dewatering wells, all right? Mergentime and his subcontractor's scope of work involved the freeze wall and some temporary dewatering wells.

CHAIRMAN BECHHOEFER: Now, Kelly was a subcontractor to Bechtel but not to Mergentime?

1 WITNESS WHEELER: That is correct.

2 CHAIRMAN BECHHOEFER: Thank you.

3 BY MS. STAMIRIS:

4 Q Mr. Bird, when you replied to questions from Mr.

5 Wilcove that the stop-work was instituted on 4-28-82 not in
6 relation to only this one incident but there were other incidents
7 that had occurred prior to that that led to the conclusion that
8 a stop-work needed to be instituted, do you agree with that
9 recollection of your testimony, that you said it was not this
10 one incident in itself but there were others?

11 A (WITNESS BIRD) I said that there were three other
12 incidences which were written up on an MPQAD nonconformance
13 report for which Mr. Miller was certainly aware of because he's
14 on the distribution for those nonconformance reports.

15 Q And, of all the other incidents that you have had in
16 your mind that may have contributed to the decision for a need
17 for the stop-work on 4-28-82, did any of those incidents concern
18 the Kelly dewatering people?

19 MS. WEST: Chairman Bechhoefer, if we could have a
20 clarification of this question. I think this witness has
21 testified that he was not the one that issued the stop-work order,
22 so whatever was in his mind prior to issuing a stop-work order
23 isn't in conformity with his testimony.

24 MS. STAMIRIS: Well, I think maybe I can ask the
25 question more precisely.

1 CHAIRMAN BECHHOEFER: Why don't you just ask him
2 directly were the incidents reported in -- well, the earlier
3 incidents, particularly the ones attached with 7A and 7B did
4 they relate to Mergentime or did they relate to some other
5 contractor.

6 WITNESS BIRD: Kelly was not involved with any of
7 their decision.

8 CHAIRMAN BECHHOEFER: Well, do you know whether anybody
9 other than Mergentime was involved?

10 WITNESS BIRD: I'm looking back to see what the NCR
11 said, and I'm sure it was Mergentime on the 42-inch hole.

12 Wasn't it?

13 WITNESS WHEELER: No, I think the subcontract -- it
14 did talk about the subcontractor installing the freeze wall,
15 which was Mor Trench, which is a subcontractor to Mergentime.

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Mergentime¹

BY MS. STAMIRIS:

2 Q Did you say Mor Trench was a subcontractor to
3 whom?

4 A (WITNESS WHEELER) Mergentime.

5 Q Mr. Bird or Mr. Wheeler, are you aware of any
6 incidents prior to 4-28-82 involving drilling problems
7 by the Kelly Dewatering?

8 A (WITNESS WHEELER) I'm not aware of any.

9 A (WITNESS BIRD) I'm not either.

10 Q Okay. Mr. Bird, I believe you have testified
11 that Mr. Miller was the site manager who instituted the
12 stop work order that was instituted on 4-28-82, is that
13 correct?

14 A (WITNESS BIRD) Stop work directive.

15 Q This stop work what, directive?

16 A (WITNESS BIRD) Directive was the words that he
17 had used in his letter.

18 MS. STAMIRIS: Okay, I'd like to pass out now
19 what I'd like the parties to identify as Stamiris Exhibit
20 37.

21 I may be missing a number. I think my last one
22 was 36. I'm sure it's not beyond that, so I'll go to --
23 it could be that I had Stamiris Exhibit 35 as my last
24 exhibit. But, to be on the safe side, I will number this
25 Stamiris Exhibit 37. And I may be missing a number in

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1 sequence, but if you will cross out the number 15 that
2 is in the corner of this document. That number corres-
3 ponds to the chronology of events attached to my 9-4-82
4 motion, and it might be confusing. So if you will cross
5 out the No. 15 and write Stamiris Exhibit 37.

6 Oh, I'm sorry; cross out the number -- ah, no.
7 I've got it wrong. There's no number to cross out, but
8 this exhibit will be Stamiris Exhibit 37.

9 MR. STEPTOE: Judge Bechhoefer?

10 CHAIRMAN BECHHOEFER: Yes.

11 MR. STEPTOE: There is already, unfortunately,
12 a Stamiris Exhibit 38 which was introduced on November
13 18th, and I believe that was the last one.

14 CHAIRMAN BECHHOEFER: So we're at 39 now?

15 MR. STEPTOE: Yes.

16 MS. STAMIRIS: Thank you, Mr. Steptoe. I'm
17 sorry.

18 MR. STEPTOE: That's okay.

19 (The document referred to,
20 previously marked for identi-
21 fication as Stamiris Exhibit
22 39, was received in evidence.)

1 CHAIRMAN BECHHOEFER: This will be marked as Stamiris 39
2 for identification.

3 MS. STAMIRIS: This document, I would like to identify
4 where I got it in case the Applicant is interested. It came to
5 me in the mail with the big pile of nonconformance reports that
6 came out under a cover letter from Mr. Brunner to the Board and
7 all parties in this proceeding. And it was attached to the
8 stop-work order of FSW-22, and was stapled to that in relation
9 to this incident.

10 BY MS. STAMIRIS:

11 Q I'd like to ask you, Mr. Bird, whether this letter from
12 a Mr. Miller constitutes the written confirmation of the stop-work
13 order which took place on April 28, 1982, from Mr. Miller, the
14 site manager?

15 A (WITNESS BIRD) The answer is yes, but I need to
16 clarify that, again. This is the confirmation of the verbal
17 stop-work order given on the 28th (indicating). They were both
18 given on the same day.

19 Q You say they were both given on the same day. This is
20 the confirmation of the verbal stop-work order?

21 A (WITNESS BIRD) Mr. Miller's letter is the confirmation
22 of the verbal stop-work order directive.

23 Q Was there any other stop-work directive that was given
24 on the same day or stop-work order?

25 A (WITNESS BIRD) The verbal and the letter, that's all

1 there is for that day.

2 Q Then you do not agree with the statement that Miss
3 West made at the beginning of your cross examination today when
4 she indicated that there was a formal stop-work issued on the --
5 later on the same day of the 28th in relation to this incident?

6 MS. WEST: Chairman Bechhoefer, if I said there was a
7 formal stop-work order, I don't recall saying that. But if I
8 did say that there was a formal stop-work order issued on the 28th,
9 it was entirely a tongue-slip.

10 JUDGE HARBOUR: Were you, indeed, referring to this
11 (indicating)?

12 MS. WEST: Yes, I was.

13 BY MS. STAMIRIS:

14 Q Mr. Bird, you have testified this morning and this
15 afternoon that Mr. Miller was the one to institute the stop-work
16 order and that he happened to be there first and the implication
17 being that that was why it was done by site management as opposed
18 to MPQAD.

19 But this written communication that the verbal
20 stop-work order was given by Mr. Bruce H. Peck at about 10:30
21 A.M. on April 28, 1982. And I would like to ask you whether Mr.
22 Peck is a member of MPQAD?

23 A. (WITNESS BIRD) He is not.

24 Q Is he also a member of the site management office?

25 A. (WITNESS BIRD) Yes, he is.

1 Q Can you tell me Mr. Peck's title and job, please?

2 A (WITNESS BIRD) I will defer that to Mr. Wheeler.

3 A (WITNESS WHEELER) He's the construction superintendent.

4 Q And would you -- can you tell me, Mr. Wheeler, who Mr.
5 Fischer is and what his job title is?

6 A (WITNESS WHEELER) Mr. Fischer works for Bechtel and
7 he was the -- or is -- at that time was the subcontractor's
8 manager for the soils work. I don't know that that is the correct
9 title or not, but --

10 Q Thank you. Mr. Bird, are you aware of any quality
11 assurance or quality control people who were aware of this
12 incident on April 24th or the confirmation of this incident on
13 April 28th, 1982?

14 CHAIRMAN BECHHOEFER: Are you referring to MPQAD
15 people?

16 MS. STAMIRIS: Yes.

17 BY THE WITNESS:

18 A (WITNESS BIRD) I don't recollect who all --

19 MS. WEST: If we could specify when these people were
20 supposed to have been aware of these incidents.

21 CHAIRMAN BECHHOEFER: Well, at any time between April
22 24th and April 28th, I think, was part of the question.

23 WITNESS BIRD: I don't remember who all was aware in
24 MPQAD on the date of the 28th. I most certainly know that
25 some people were because it was my own people who called me to

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1 tell me about it.

2 But I remember talking to both people in the civil
3 section, who was worried about the soils work at that time, and
4 people in the electrical section who were worried about hitting
5 the duct bank and what possible damage there was and what
6 implications there might be there.

7 BY MS. STAMIRIS:

8 Q I can't remember if I asked you before, but when you
9 say your own people called you, can you remember who called you?

10 A (WITNESS BIRD) That is what I say, I don't remember
11 the specific names.

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names 1 Q You don't remember who made the phone call to you and
2 relayed this information to you?

3 A (WITNESS BIRD) At this point in time I can -- I could
4 make some fairly good guesses of who, what the individual names
5 were, but if I came up with that list, probably someone would be
6 wrong.

7 Q Can you remember any of them? It sounds like you talked
8 to more than one person.

9 A (WITNESS BIRD) I'm almost certain that Mike Shafer
10 of the electrical section, I was talking to him. And I'm less
11 certain whether it was Don Horn or some of the people that were
12 working for Don Horn who I was talking to.

13 MS. STAMIRIS: Well, since Mr. Horn happens to be here,
14 I wonder if we can in any way confirm whether or not he was one
15 of the people who talked to Mr. Bird about this incident on or
16 about the 28th.

17 Isn't he here?

18 MS. WEST: Is there a ruling?

19 CHAIRMAN BECHHOEFER: I didn't hear any objection.

20 MR. HORN: I don't recall whether I had contacted Walt
21 or whether it was one of my people. I just don't recall whether I
22 personally contacted him on that date based on this stop-work.

23 BY MS. STAMIRIS:

24 Q One of the sentences about in the middle of this
25 paragraph on Stamiris Exhibit 39, indicates that we are very

1 concerned about the lack of control by Bechtel over the activities
2 of Mergentime as evidenced by the recent penetration of an
3 electrical duct bank by a drilling operation.

4 Mr. Bird, what is your understanding of who it meant
5 when it says "we are very concerned"? Who does "we" mean in your
6 mind?

7 A. (WITNESS BIRD) From the rules of English, if an
8 author says we, he means he and whoever else he's thinking of.

9 Q Mr. Bird, why do you think that the people who were
10 drilling on April 24, 1982, didn't seem to have any idea that
11 they were -- well, I should ask it more in the form of -- I will
12 change the question.

13 Mr. Bird, why didn't the people who were drilling on
14 April 24, 1982, seem to know that they were in the vicinity, at
15 least, of the duct banks, the safety-related duct banks at the
16 Auxiliary Building?

17 A. (WITNESS BIRD) The people who were doing the drilling
18 thought they knew where the duct bank was and in fact the duct
19 bank was as shown on the drawings. They had -- the rig had
20 actually been misplaced over several feet from where they thought
21 they were, so it was carelessness on the placement of the rig.

22 Q Did the drawings that they had, which indicated the
23 location of the duct bank for the auxiliary, were those drawings
24 in fact correct in indicating the position of where the
25 electrical -- or I don't know if it was an electrical duct bank,

1 where the duct bank for the Auxiliary Building actually turned
2 out to be?

3 A. (WITNESS BIRD) Yes.

4 Q. So there was no problem in correlation between the field
5 design drawings that they were using and the actual location of
6 the electrical duct bank, is that correct?

7 A. (WITNESS BIRD) It's my understanding they matched up
8 when they went back to check that.

9 Q. Can you estimate for me how many feet off the drilling
10 rig was from where they thought they were?

11 A. (WITNESS BIRD) I remember a couple. Mr. Wheeler was
12 thinking it might have been a few more feet than that, up to
13 five, but I remember it was a couple feet off.

14 Q. Since this incident on 4-24-82, represented, at least,
15 the third such drilling incident by Mergentime or their
16 subcontractors, was there not some procedure by which quality
17 people wanted to insure that they couldn't be a couple feet off
18 before they started their drilling?

19 A. (WITNESS BIRD) At this point in time?

20 Q. Yes, at that point in time.

21 A. (WITNESS BIRD) The first two instances really had
22 nothing to do with the physical location of the hole they were
23 going to drill. This case was the first case where they had
24 hit something because they were someplace other than they thought
25 they were.

1 MS. STAMIRIS: I don't have any further questions on
2 Stamiris Exhibit 39 at that point, but I want to go back and --

3 MR. WILCOVE: I don't believe it's been offered and
4 received into evidence yet.

5 CHAIRMAN BECHHOEFER: He just identified it.

6 MR. WILCOVE: Well, the Staff has no objection to its
7 introduction.

8 MS. WEST: Applicant has no objection.

9 MS. SINCLAIR: I have no objection.

10 MS. STAMIRIS: I'd like Stamiris' Exhibit 39 then to
11 be introduced into the record as evidence and I would provide
12 three copies to the court reporter.

13 CHAIRMAN BECHHOEFER: Okay. Then Stamiris Exhibit 39
14 will be received into evidence.

15 (The document referred to, previously
16 marked Stamiris Exhibit No. 39 for
17 identification, was received in
18 evidence.)

19 BY MS. STAMIRIS:

20 Q Mr. Bird, at this point in time on 4-28-82, wasn't the
21 soils remedial work under the direction and control of MPQAD?

22 A (WITNESS BIRD) The soils remedial work, as far as the
23 QA program went, for which Mergentime -- which Mergentime was
24 doing, when it was in what was then defined as QA areas, did come
25 under our coverage.

1 Q Well, you emphasize the word program, when you made
 2 that answer, and I'd like to ask you whether MPQAD was not also
 3 in control of quality control and quality assurance implementation
 4 of soils remedial work at that time in April of 1982.

5 A (WITNESS BIRD) That is what I was having a hard time
 6 remembering when the soils -- what was under the Bechtel quality
 7 control, had their own soils group, and I forget the specific
 8 date of which they became under MPQAD, but I believe it was
 9 sometime after this.

10 Q Can you find out that information and confirm the date
 11 as to when the soils remedial work was put directly under MPQAD
 12 as opposed to under Bechtel and get that information for me later?

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later 1 A. (WITNESS BIRD) The answer is yes, but we'll go find
2 out when the soils quality control directly came under
3 Consumers Power. The other was such a broad thing that I'm not
4 sure there is any given point in time.

5 Q Well, isn't soils quality assurance also under MPQAD
6 control at this point?

7 A. (WITNESS BIRD) The quality assurance aspects have
8 always been under Consumers.

9 Q Then --

10 CHAIRMAN BECHHOEFER: Wasn't that other date
11 considerably later than what we're talking about? Wasn't it
12 August or September of '82? We have some documentation in here.
13 I don't know that I have it with me, but --

14 WITNESS BIRD: I believe it was late summer.

15 JUDGE COWAN: Certainly not in the spring, is my
16 recollection.

17 WITNESS BIRD: But that is something we can certainly
18 find out.

19 MR. STEPTOE: We'll check on that, Judge Bechhoefer.

20 BY MS. STAMIRIS:

21 Q But quality assurance aspects were all -- of soils
22 remedial work were always under MPQAD?

23 A. (WITNESS BIRD) That's correct.

24 Q Mr. Bird, in your testimony on page two, near the
25 bottom, you talk about the field engineering administered

1 excavation permit system was in place at the time that these
2 drilling incidents took place.

3 And the one that you are talking about in that
4 paragraph is the one that took place in February of 1982 and
5 is on NCR MO1-4-2-008.

6 Can you describe for me what were the controls of
7 the field engineering excavation permit system that were in place
8 at that time?

9 A. (WITNESS BIRD) Mr. Wheeler is much more into that
10 than I am. He can give you a more -- a fuller answer the first
11 time through.

12 A. (WITNESS WHEELER) At this particular time Bechtel had
13 what they called an administrative guideline and it was entitled,
14 I believe, Excavation Permit System.

15 However, it was not a formal procedure and did not fall
16 under the QA program.

17 Q. Okay. But, Mr. Wheeler, emphasizing not so much where
18 the procedure fit into your program, but on the actions or the
19 implementation of this original excavation permit system, what
20 kind of rules or procedures were the people who were doing the
21 drilling supposed to be following to meet this field engineering
22 excavation permit system?

23 A. (WITNESS WHEELER) Without going back and reviewing
24 that administrative guideline, I guess I can't give you an
25 answer right now.

1 Q I won't ask any further questions then about that
2 original excavation permit system.

3 But, Mr. Bird, I do want to ask you, on page 1147 of
4 yesterday's testimony, and I think perhaps you will recall
5 testifying that the new, more stringently controlled excavation
6 permit system that was going to come under your quality
7 department was implemented on May 24th, 1982, is that correct?

8 A. (WITNESS BIRD) That's correct.

9 Q The attachment -- I think the Attachment 1, I think it
10 was the only attachment to your testimony, has somewhere in the
11 middle of these documents you have included a quality-related
12 Bechtel Power Corporation field instruction entitled Excavation
13 Permit System, and it's dated 6-24-82.

14 And I wonder why you have included this June 24, '82,
15 excavation permit system in the documentation to go with your
16 testimony while your testimony refers to a May 24th excavation
17 permit system.

18 A. (WITNESS BIRD) The May 24th date was the day that the
19 original or Rev. 0 of that procedure was issued when we put our
20 testimony together. Rev. 1 had by then, which is June 26, you
21 said, or 24th, was then the official version as of that day.

22 Q Since you were testifying about the controls of the
23 excavation permit system that was -- that were put into place on
24 May 24, 1982, in relationship to your decision to lift the stop-work
25 on May 26, 1982, why didn't you include the original revision to

1 show us what was in place at that time that led to the lifting
2 of the stop work?

3 A. (WITNESS BIRD) I don't remember any conscious decision
4 on that at all. We were gathering materials together for the
5 testimony and that came out of the official pile for what was in
6 place and that is how we got it. I'm certain we could find the
7 other one.

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one

1 CHAIRMAN BECHHOEFER: Was there any significant
2 differences between Rev. 0 and Rev. 1?

3 WITNESS WHEELER: The differences between Rev. 0 and
4 Rev. 1, there are some minor changes to the procedures. But the
5 major difference is that Rev. 1 includes a drawing list which
6 Rev. 0 didn't have.

7 BY MS. STAMIRIS:

8 Q Mr. Bird, or, Mr. Wheeler, would I be correct, then, in
9 understanding that you don't -- that your recollection is that
10 there were no differences in the purpose, scope, or definitions --
11 well, I better ask it a different way.

12 Mr. Wheeler, in addition to the listing that is included
13 with Revision 1, that you indicated was not with Revision 2, what
14 other differences are you aware of that existed between these
15 two excavation permit systems?

16 Q (WITNESS WHEELER) There is some minor changes. I don't
17 know right offhand what they are. We're talking about Rev. 0 and
18 Rev. 1, not Rev. 1 and Rev. 2, also.

19 Q I thought that is what I said. If I misspoke myself,
20 I'm sorry. Has there been a Rev. 2 since 6-24-82?

21 A. (WITNESS WHEELER) No.

22 CHAIRMAN BECHHOEFER: When you get to a good breaking
23 point we wouldn't mind taking an afternoon break.

24 MS. STAMIRIS: I'm at a good breaking point. It would
25 help me organize my exhibit or whatever I need to come back to.

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MS. WEST: If we could --

WITNESS BIRD: We'd like to answer that question on the finish of her last question.

CHAIRMAN BECHHOEFER: All right.

WITNESS WHEELER: Regarding the changes from Rev. 0 to Rev. 1, on the procedure part with the delta one and the straight line, indicate sections of the procedure that have been changed (indicating).

BY MS. STAMIRIS:

Q. May I look at -- on this break may I look at Rev. 0, if you have it, and compare it to those sections identified by delta one and Rev. 1?

A. (WITNESS WHEELER) I don't have Rev. 0 with me.

Q. I thought you had it.

CHAIRMAN BECHHOEFER: We'll take a 15 minute break.

(Recess taken.)

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1 CHAIRMAN BECHHOEFER: Is the Staff ready?

2 MR. WILCOVE: Yes, Staff is ready.

3 CHAIRMAN BECHHOEFER: I guess we'll just resume Mrs.
4 Stamiris' cross examination at this stage.

5 BY MS. STAMIRIS:

6 Q Mr. Bird, in connection with the NCR 4199 that we've
7 been discussing --

8 MS. STAMIRIS: Before I start back with that. I would
9 like to ask if the Applicant would mind providing me a copy of
10 Revisions -- a copy of Revision 0 to the excavation permit
11 system and also a copy of the field engineering excavation permit
12 system that was in place in February of 1982.

13 And I wouldn't think that I would have significant or
14 extensive questions from it. I probably won't have any, but I'd
15 like to be able to look at the differences between those documents
16 and what was submitted as an attachment, if possible.

17 MS. WEST: We'll try to get copies for Mrs. Stamiris
18 tonight.

19 (Discussion had off the record.)

20 MS. WEST: Chairman Bechhoefer, there may be a delay
21 in obtaining copies of field engineering procedure, however.

22 MS. STAMIRIS: Thank you very much.

23 BY MS. STAMIRIS:

24 Q Mr. Bird, I'd like to read to you a description of the --
25 oh, just a minute, I'm sorry, no. Regarding NCR 4199, and looking --

1 directing your attention to Attachment 7E to Dr. Landsman's
2 testimony, the Bechtel nonconformance report that was written on
3 4-29-82 indicates at the bottom of block 16, which is titled
4 Nonconforming Condition, after a description of the conduits that
5 were damaged, there is the statement that -- it says, "No hold
6 tags apply."

7 And then I see the word "no" has been crossed out and
8 I believe that there is a date. And I'm having a little difficulty
9 reading the date at which one hold tag was applied.

10 Can you help me decipher the date that is written in
11 as a correction to this NCR 4199?

12 A. (WITNESS BIRD) I would read that as 5-10-82.

13 Q. Can you explain why no hold tags were applied on
14 4-29-82?

15 A. (WITNESS BIRD) I don't remember any reason why no
16 specific hold tag was put on as of the 29th. I do remember
17 because I had looked at some notes that indicated that in fact
18 the Bechtel QC hold tag had been applied to that location, but
19 the date I'm not certain of. But it was before -- or I guess I
20 can't say when it was.

21 This would indicate that it was May 10th. By May 10th
22 the hold tag had to have been applied in order for them to
23 revise the NCR at that date.

24 Q. Do you have any idea what that -- whether that word
25 above -- before the number that you interpreted to be 5-10-82,

1 what that word is that starts with a J?

2 Do you have any guesses as to what that says?

3 A. (WITNESS BIRD) Between the word one and the date?

4 Q Yes.

5 A. (WITNESS BIRD) That's most likely somebody's initials.

6 The rule is, when you change something, you initial off. And it
7 would -- it's very small initials, but I would not be surprised
8 if that is not also a JWM, which would correspond to J. W. Miller
9 who wrote out the NCR to start with.

10 Q I was going to suggest that it probably correlated to
11 box 24, a column over at the right-hand side of this same NCR,
12 where it says disposition concurrence.

13 And there is a name signed there, J, and I can't read
14 it, either, and the date is 5-10-82.

15 So would you agree that that date of 5-10-82 on the
16 right-hand column would correspond with the date of 5-10-82 at
17 which it was noted that one hold tag was applied?

18 A. (WITNESS BIRD) No, I would not make that assumption.
19 That may be true, but I cannot say that it is true.

20 CHAIRMAN BECHHOEFER: The Js look different.

21 MS. STAMIRIS: Well, whatever.

22 BY MS. STAMIRIS:

23 Q What is the purpose, Mr. Bird, what is the purpose of
24 a holding tag?

25 A. (WITNESS BIRD) A holding tag is to prevent further work

1 within the limits as described on a holding tag on the item for
2 which it is applied.

3 Q Does the indication that no hold tags were applied on
4 4-29-82 represent any discrepancy in your mind between that action
5 and the verbal stop-work that was put into effect on 4-28-82?

6 A. (WITNESS BIRD) No.

7 Q Would you explain?

8 A. (WITNESS BIRD) They're two separate actions. One is a
9 holding tag put on by the quality organization; the other was a
10 stop-work directive from a totally different company, but which
11 applied to the organization, total Bechtel organization and
12 Mergentime and the subcontractors. They're just different
13 subjects.

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subjects 1

2 Q Would this then indicate to you that as far as quality
3 assurance or quality control is concerned, that there were no holds
4 applied by them as of 4-29-82 on this work?

5 A. (WITNESS BIRD) Given what is here, that would be the
6 conservative assumption that I would make, that there is no
7 evidence that any holding tag was applied prior to 5-10-82.

8 Q Do you have any recollection of what occurred on
9 5-10-82 to initiate the need for a hold tag to be applied at
10 that point?

11 A. (WITNESS BIRD) I have just some vague recollections of
12 discussing with some of the MPQAD people of whether a holding
13 tag had been applied or not and whether it should be. And my
14 recollection is we thought there ought to be one and they went
15 and got it done.

16 Q Do you have any idea why the word repair in the box 22
17 on this NCR, why a revision was made to change the word repair
18 these ducts to the word rework for these ducts?

19 A. (WITNESS BIRD) No, I do not. There is really not
20 much different between rework and repair, and I couldn't be
21 certain that the people doing this were accurately using one
22 word or the other.

23 Q Would you agree that those duct banks were damaged?

24 A. (WITNESS BIRD) Yes.

25 Q And would you agree that they were then repaired?

A. (WITNESS BIRD) No, they have not been.

1 Q They have not yet been repaired?

2 A (WITNESS BIRD) That's correct.

3 Q What is the status of those duct banks today?

4 A (WITNESS BIRD) Do you want to answer that?

5 A (WITNESS WHEELER) Currently there is a -- there's been
6 a procedure that is under development from Mergentime to go in
7 that area and repair the duct banks. That has, to my knowledge,
8 that has not been issued yet.

9 A (WITNESS BIRD) But there was some protective measures
10 taken down at that point in time to prevent water from going in
11 or from any further degradation of the area.

12 Q Okay. On page two of this nonconformance report, is
13 the note in relation to a continuation of block 16, that it is
14 indeterminate if any other conduits in the duct bank are damaged.

15 And I wondered if any further study has taken place
16 since -- well, I first would like to ask you whether you consider
17 that that statement, that it was indeterminate if any other duct
18 banks or conduits in the duct banks were damaged, was made on
19 5-4 or 5-5-82, according to the dates with the signatures
20 underneath that statement?

21 A (WITNESS BIRD) I didn't catch your question.

22 Q Do you think that that statement was accurate as of
23 5-4-1982?

24 A (WITNESS BIRD) I have no reason to disbelieve that the
25 people who wrote this thought that was accurate.

1 Q I just wanted to make sure that those signatures and
2 that date did indeed indicate to you that they went with the
3 statement just above them.

4 I'd like to ask you now whether any further studies
5 or determination as to further damage of the conduits has taken
6 place since May of 1982?

7 A (WITNESS BIRD) I remember that work was -- investigative
8 work was going on at the time and I believe they were checking all
9 the various cables that ran through that duct bank in terms of
10 the continuity to check to see if anything had been severed.

11 Q Was it determined that there were others that were
12 damaged?

13 A (WITNESS BIRD) I do not believe that they found any
14 damage beyond what was discovered initially with the water
15 coming out of certain conduits.

16 Q The note that is continued underneath, which reads:
17 In addition, water was noted in certain conduits. That is not a
18 precise quote.

19 And it says at the end, it says: Cable pit IBMH004,
20 I believe, also contained a significant amount of water.

21 Would you explain, Mr. Bird, or, Mr. Wheeler, the
22 source of this water and the reason for this notation?

23 A (WITNESS BIRD) The source of the water was most likely
24 the drilling mud or the -- maybe just ground water that was in the
25 area that could have also got through the same damage in the duct

1 bank. But now we cannot -- Bob and I cannot say that with
2 certainty.

3 Q Mr. Wheeler, when it talks about drilling fluid being
4 found in the Auxiliary Building, what does the drilling fluid
5 consist of?

6 A (WITNESS WHEELER) It's a -- they use a revert. It's
7 a -- I think it's a soybean derivative that is used to stabilize
8 the hole. It's like -- sort of like a very thin or -- yeah,
9 thin mud.

10 Q Mr. Bird, or, Mr. Wheeler, do you have any recollection
11 as to when any water was first -- no, I'm sorry, I will ask a
12 different question.

13 Where is this cable pit which was found to have contained
14 a significant amount of water in relation to the duct bank at the
15 Auxiliary Building?

16 A (WITNESS WHEELER) Let me answer that question. The
17 pit, itself, is in the Auxiliary Building. The duct bank that
18 we're referring to here is a duct bank that goes to the service
19 water structure. And the duct bank was hit just east of the
20 Turbine Building.

21 Q Well, if the duct bank that was hit goes to the service
22 water structure, how did it -- how did the drilling fluid from
23 that drilling end up in the Auxiliary Building?

24 A (WITNESS WHEELER) Because that is the location where
25 the low point of the duct bank is.

1 Q And then in all my question when I have been referring
2 to the damage at the duct bank of the Auxiliary Building, that I
3 have been incorrect in believing that the duct banks at the
4 Auxiliary Building were damaged?

5 A (WITNESS WHEELER) That's correct.

6 JUDGE HARBOUR: Excuse me, I think there is a
7 distinction here between the duct bank, which goes to the
8 Auxiliary Building, being damaged, and the duct bank being
9 damaged at the Auxiliary Building. The location is not at the
10 Auxiliary Building.

11 WITNESS WHEELER: That is correct.

12 JUDGE HARBOUR: But does the duct bank run from the
13 Auxiliary Building to the service water pump structure?

14 WITNESS WHEELER: That's correct.

15 JUDGE HARBOUR: And the damage occurred in between, I
16 believe, did you say, west or south of the Turbine Building?

17 WITNESS WHEELER: East of the Turbine Building.

18 JUDGE HARBOUR: East, excuse me, yes.

19 BY MS. STAMIRIS:

20 Q Was this water that was found in the cable pit at the
21 Auxiliary Building, found at approximately -- well, was it found
22 at the same time when the grilling fluid was found in the
23 Auxiliary Building on 4-28-82?

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4-28-82 1 A. (WITNESS BIRD) We can't make a statement to that based
2 on what information is contained in the NCR, and I don't believe I
3 have any other information I could look at to ascertain that.

4 Q All right. I would like to now move on and ask some
5 questions about NCR 4245 and some of it may relate back to 4199,
6 but -- on page five of your testimony -- I'm sorry, on page four
7 of your testimony, before I leave the drilling incident, 4199,
8 in just about the middle of the page, a little bit up from the
9 middle, is the statement in your testimony that says, "The root
10 cause of the nonconformance was that the procedural control
11 to not drill closer than two feet to any known buried utility
12 for vertical holes was not adequately implemented."

13 And, Mr. Bird, would you agree that there is similarity
14 in being too close to the buried utilities in this case, to the
15 incident in which someone was excavating too close to the buried
16 water storage tank incident on 4-21-82?

17 A. (WITNESS BIRD) There is a difference in that for the
18 BWST Excavation, they were trying -- physically trying to go right
19 down next to it. Where in this case, procedurally they should
20 have stayed two feet away, but not knowing that they weren't in
21 the right place, that's how they violated that requirement.

22 Q So your recollection of the 4-21-82 BWST incident
23 was not that they were working in an area that they weren't
24 supposed to be?

25 A. (WITNESS BIRD) That's right.

1 Q Now, on page five of your testimony relating to NCR
2 4245, I believe you testified earlier that your first indication,
3 Mr. Bird, of a problem in relation to this drilling incident near
4 Observation Wall 4, was -- well, I'd like to read to you a
5 description of that incident which I am reading from a letter
6 dated May 25, 1982, which was a cover letter to the Board members
7 from Mr. Brunner, in which all of these non -- that accompanied
8 these nonconformance reports. And in this May 25th letter Mr.
9 Brunner describes the incident this way.

10 He says, "On May 1st a drilling team working on one of
11 the last permanent dewatering wells to be installed, encountered
12 and damaged a noncatetory one circulating water drain line. The
13 resultant hole in the drain line is believed to have provided a
14 path for the flow of ground water and fill material, creating
15 a cavity in the category one fill material in the near vicinity
16 of the pipe."

17 Do you agree with Mr. Brunner's description of this
18 incident, as I have read it to you?

19 A (WITNESS BIRD) As it was read, yes. He said it was
20 believed that, and at that time he was writing the letter, that
21 is what was believed.

22 Q Since this letter was written on May 25th, then, does
23 that description of the likely cause of the void which was
24 encountered in relation to Observation Wall 4 -- I'll strike that
25 and ask the question this way.

1 You indicated that the subsidance was the first
2 indication of a problem and you made that statement today. And
3 when you made that statement, I assumed that you were stating this
4 as your belief as of today that the soil subsidance, the visual
5 observation was your first indication of a problem in that area,
6 is that correct?

7 A. (WITNESS BIRD) That's correct, that was my understanding
8 of what other people had seen.

9 Q I understand that you said you did not have first-hand --
10 you were not present at either the 4-22 incident -- or the 4-24
11 incident or at this 5-19 incident, you were not present on-site,
12 is that correct, when the incident occurred?

13 A. (WITNESS BIRD) I believe I was on-site on 5-19, but I
14 do not believe I went out and looked that day. I went out several
15 days later for someone to show me exactly what the problem was.

16 Q If you are the quality assurance manager and you were
17 on-site on May 19 when this drilling incident occurred, why didn't
18 you go out and look at it?

19 A. (WITNESS BIRD) I don't remember what all I was involved
20 in that day to be able to tell you what I might have thought was
21 more important at that point in time.

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1 Q What do you believe today caused the void that
2 was encountered during the drilling on May 19th, 1982?

3 A (WITNESS BIRD) Well, I since that time have
4 read the geotechnical engineering report which goes in
5 and describes in great detail what they believe is the
6 cause, which has to do with the prevailing action of the
7 specific drill rig they were using and to the way they
8 were advancing that rig down in the ground, causing a
9 quick condition in the sand and causing, essentially,
10 suction to pull material from outside the casing all the
11 way down to the bottom of the rig and back up through
12 the top.

13 And I have no reason to doubt that that is the
14 proper explanation.

15 Q Mr. Wheeler, you were present and did see this
16 incident as it took place, didn't you?

17 A (WITNESS WHEELER) Not as it took place.

18 Q Okay, then you saw it that day -- I can't
19 remember if you said you saw it -- the first you saw it
20 was in the afternoon, the first that you saw the sub-
21 sidance?

22 A (WITNESS WHEELER) As I remember it, yes.

23 Q Okay. Mr. Wheeler, according to your recollec-
24 tion of the events as they were related to you concern-
25 ing the drilling incident on 5-1982, what do you think

9-1,pj2

1 happened first, the hitting of an unidentified obstruction
2 or the observation of some subsidence?

3 A (WITNESS WHEELER) As I understand, it was the
4 hitting of the obstruction.

5 Q And, at the point that the obstruction was hit,
6 did drilling stop?

7 A (WITNESS WHEELER) I do not know.

8 Q Mr. Bird, do you know?

9 A (WITNESS BIRD) I believe that it stopped for
10 at least some point in time while they were trying to
11 figure out what was down there, and then they continued,
12 or maybe they had - I just don't remember what happened.

13 Q Mr. Bird, as the quality assurance manager,
14 do you believe that when an obstruction, an unidentified
15 obstruction is hit that drilling should stop?

16 A (WITNESS BIRD) I do believe that, and that is
17 now in the new procedure.

18 Q And do you believe that that drilling should
19 stop as soon as something is hit?

20 A (WITNESS BIRD) Yes.

21 Q Okay, I'd like to direct your attention to
22 Attachment 7-D to the Landsman testimony.

23 Before I ask questions from this attachment,
24 there is another question or two that I would like to ask
25 on page 5 of your testimony.

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In the first full paragraph on page 5 of your testimony is the statement that -- and it's four lines down in that paragraph -- "This void --" speaking of the void in relation to NCR 4245 --

"This void is apparently only indirectly related to another condition associated with observation Well 4 observed at approximately the same time, that being the penetration of a 12-inch non-Q condensate drain line at the depth of 38 feet."

Can you specify anymore exactly what you meant that this void is apparently only indirectly related to the hitting of the 12-inch line?

A (WITNESS BIRD) The next line from where you stopped reading provides that.

that.

1 Q All right, when you say that the striking of
2 the line and the associated vibration may have contributed
3 to the void formation, what else do you think contributed
4 to the void formation?

5 A (WITNESS BIRD) The what else is everything
6 else, which is what I said before. It was the way the
7 drilling rig was advanced, causing the material from
8 outside the casing to be loosened and sucked up to be
9 excavated from the hole.

10 Q But shouldn't the drillers have known how to
11 prevent such removal of soil fines from the area by
12 their drilling process?

13 A You're asking me a question that goes beyond
14 my specific technical competence in there from my own
15 background, but, from the geotechnical engineering
16 report that I read, they said that the conditions here
17 were unique to OBS-4 and that it hadn't happened anywhere
18 else and that it was really unique that it did happen
19 here. But, in any case, the procedures were changed
20 such that it could not happen again if they had used
21 the same technique over again.

22 Q Well, you say that it was unique to Observation
23 Well 4, but I think there is something in this series'
24 of documents attached or that are entitled Attachment
25 7-D that indicates that there was subsidence and void

1 formation at another well. And I will try and direct
2 your attention to that now.

3 Okay, on the fourth page into this packet, on
4 a continuation of this non-conformance report numbered
5 page 2 at this time, under Block 22, near the bottom,
6 is an item 2 which says:

7 "An abandoned 12-inch drill hole for
8 a Mor Trench ejector well approximately 30
9 feet away -- "

10 and I won't read the coordinates --

11 "has caved in for the bottom 14 feet, approxi-
12 mately. The void covered by this NCR is
13 aligned in the direction of this 12-inch drill
14 hole."

15 So does this statement indicate to you that
16 the void and the subsidence at Observation Well 4 was
17 not unique, as you just testified?

18 A (WITNESS BIRD) I don't see any relationship
19 between this statement and my previous statements as far
20 as changing the uniqueness of the drilling method in
21 the type of soil that they were drilling OBS-40.

22 This is merely a fact that was written down
23 here to aid in the investigation to determine what the
24 real root cause was at the time such a determination
25 could be made.

1 Q Well, when you made the statement -- and I don't
2 know if this -- these are not your exact words, but when
3 you made the statement indicating that the subsidance and
4 void encountered at Observation Well 4 was unique, did you
5 not mean to imply by that that this was the only instance
6 or example of such subsidance?

7 A (WITNESS BIRD) I didn't say it was unique. I
8 said the geotechnical report which I read said it was
9 unique.

10 Q Well --

11 JUDGE HARBOUR: Excuse me. Is there any indica-
12 tion in this NCR as to the cause of the caving in on July
13 14th of that 12 inch diameter hole? Or do you have any
14 knowledge of the cause of the caving in of that lower
15 14 feet of that 12-inch diameter nole?

16 WITNESS WHEELER: Let me answer that. The 12-
17 inch hole was, as it says in the SER, was drilled by
18 Mergentime, and the reason that the hole collapsed was
19 that after a period of time the revert that's used breaks
20 down and the hole will collapse under its own pressure.
21 And this hole was left open too long, so it collapsed on
22 itself.

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itself.

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JUDGE HARBOUR: So it did not form a cavity or did not cave in during drilling of the well, is that correct?

WITNESS WHEELER: No, it caved in after the well was left open.

JUDGE HARBOUR: Whereas, the one that we're talking about in the procedure describing the cause of the void formation had to do with the drilling method that would occur only while that hole was in the process of being drilled, is that correct?

WITNESS WHEELER: That's correct.

MS. WEST: Chairman Bechhoefer, we'd just like to remind everyone now that the technical aspects of the geotechnical report, to which Mr. Bird has just referred, were testified to previously by Dr. Hendron on November the 15th on transcript pages 8646 and following.

It was on the same subject, the cause of this void.

JUDGE HARBOUR: Is this the geotechnical report to which Mr. Bird has been referring?

A (WITNESS BIRD) It is.

MS. WEST: Yes, sir.

MR. STEPTOE: Judge Harbour, I'm not sure that the report is mentioned by Dr. Hendron in his testimony, but he was talking about the same thing, and he had -- I

9-3,pj2

1 I guess I can represent to you that he had read the report
2 when he was testifying.

3 JUDGE HARBOUR: Well, would you repeat your
4 statement, then, please?

5 MR. STEPTOE: The same subject, which was what
6 caused the void in this OBS No. 4 -- that is, the drilling
7 technique and the baling technique -- was testified to by
8 Dr. Hendron.

9 MS. STAMIRIS: Do you have the date of Dr.
10 Hendron's testimony?

11 MR. STEPTOE: November 15, 1982.

12 MS. STAMIRIS: Thank you.

13 BY MS. STAMIRIS:

14 Q Mr. Bird, the geotechnical report on this void,
15 that Observation Well 4, that you cited and that Dr.
16 Hendron had read, is it attached as a part of any of the
17 documents that we have as attachments to Mr. Landsman's
18 testimony in this proceeding?

19 A (WITNESS BIRD) It was not part of Dr. Landsman's
20 testimony, nor was it part of ours.

21 Whether it was part of anybody else's, I wasn't
22 here all those times so I can't say.

23 Q Who conducted that geotechnical report or study
24 on the void?

25 A (WITNESS BIRD) They were geotechnical people

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1 under the employment of Bechtel Power.

2 Q Was that report provided to anyone at the NRC?

3 A (WITNESS BIRD) I don't have any knowledge of
4 that.

5 Q Okay, I think there was an indication in --
6 somewhere in this document, and I'll just ask you from
7 your own recollecton, and we could detail it if we need
8 to.

9 Do you recall, Mr. Bird, that the void that is
10 referred to in connection with Observation Well 4 sup-
11 posedly went in the direction of the other void at the
12 abandoned 12-inch drill hole that Judge Harbour just asked
13 about?

14 A (WITNESS BIRD) When you said "this document,"
15 you're talking about the NCR?

16 Q Well, in this packet of documents that is
17 attached to 7-D as it is stapled together.

18 A (WITNESS BIRD) Okay.

19 Q No; I'm not asking you to look for it, I'm
20 asking you if you have a recollection just from your
21 memory, at this point, that the void extended, you know,
22 from Observation Well 4 towards this other 12-inch well.

23 A (WITNESS BIRD) It's too late, I already found
24 it.

25 Q All right, where is it?

9-3,pj4

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A (WITNESS BIRD) It's in what you read before.
It's Item No. 2.

JUDGE HARBOUR: I believe she was asking you,
from your recollection, is it the same as what is written
here.

Is that correct?

9-4

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correct.

1 MS. STAMIRIS: Well, I wish my question had been
2 that intelligent, but in this case I had missed the bottom
3 line there and I really was just asking if there was a
4 line in the direction of the 12-inch drill hole.

5 BY THE WITNESS:

6 A (WITNESS BIRD) My own knowledge on this subject
7 is what I read here. I have no further knowledge from
8 any source.

9 BY MS. STAMIRIS:

10 Q Mr. Wheeler, do you make any connection between
11 the voids at Observation Well 4 and this 12-inch drill
12 hole?

13 A (WITNESS WHEELER) I can't say.

14 Q You can't? Okay, to go through some of the
15 questions that I have from Attachment 7-D, on the second
16 page of this packet of documents is the continuation of
17 the NCR and a note that the drill bit for hole, Observation
18 Well 4, has apparently an unidentified obstruction at
19 approximately 35 feet.

20 When was that obstruction identified?

21 A (WITNESS BIRD) Do you mean when was it
22 physically ascertained what the obstruction was?

23 Q Yes.

24 A (WITNESS BIRD) Our consensus here is it was
25 after they hit it and it stopped. But, in timing

1 relationship of whether it was the next hour or the next
2 day, we don't remember.

3 Q Well, do you think they identified what was
4 hit after they stopped drilling?

5 A (WITNESS BIRD) Yes.

6 Q I'll just flip through these pages, because I
7 have notes on some of them. So, on the fourth page --
8 well, I think I already asked some of the questions on
9 that page.

10 Mr. Bird or Mr. Wheeler, did the Bechtel geo-
11 technical study that you have referred to -- did it con-
12 sider the possibility that this void existed in the soils
13 prior to the drilling and was not caused by the drilling
14 incident but was caused or, you know, was, let's say,
15 due to the random fill or the placement of the fill soils
16 in this area?

17 MS. WEST: Excuse me, Chairman Bechhoefer, I'll
18 have to object at this point.

19 Dr. Hendron's testimony was directed to this
20 very point, explaining the cause of the void.

21 These witnesses are essentially up here --
22 especially Mr. Bird -- for the legal aspects of this.

23 The technical part has been testified to
24 earlier.

25 CHAIRMAN BECHHOEFER: I think that's right.

9-4,pj3

1 That question is probably beyond his competence.

2 MS. STAMIRIS: Well, but I asked him whether
3 he knew -- I didn't ask him what he thought, I asked him
4 whether the study considered that possibility, whether
5 he remembers that the geotechnical people, who were expert
6 in this area, considered the possibility that that void
7 existed in the soils separate from the drilling incident.

8 BY THE WITNESS:

9 A (WITNESS BIRD) I cannot state whether the
10 study considered that or not, but I can state that I do
11 not recollect them making a positive statement that
12 there was no void beforehand.

13 BY MS. STAMIRIS:

14 Q Do you think that the geotechnical people have
15 not felt a need to identify precisely the cause for
16 this hole?

17 MS. WEST: Chairman Bechhoefer, I'll have to
18 object to this, too. This witness can't testify or,
19 obviously, be called upon to speculate as to what the
20 geotechnical people may or may not have felt about
21 something.

1 something

(Discussion had off the record.)

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CHAIRMAN BECHHOEFER: I'll have to uphold that objection on the grounds that Miss West stated.

4

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BY MS. STAMIRIS:

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Q You testified earlier that -- all right, now, what I want to ask you about now, before the questions I have noted in this document, is: Was there a stop work order issued, a formal stop work order by MPQAD in relation to this 4245 drilling incident?

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11

A (WITNESS BIRD) No, there was not.

12

Q Why not?

13

14

A (WITNESS BIRD) There was no need to. They had already stopped work, and I believe that Bechtel had issued a stop work directive. Bechtel QC had already issued a stop work directive.

15

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JUDGE HARBOUR: Would that have been verbal or in writing?

18

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WITNESS BIRD: I believe it's in writing, and I'm thinking of the terminology. I know what they actually call theirs is an activity hold.

20

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22

BY MS. STAMIRIS:

23

Q When was this Bechtel activity hold instigated?

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A (WITNESS BIRD) I'm looking at the piece of paper now.

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1 It's dated 5-19-82.

2 Q And is that in this packet of attachment 7-D?

3 A (WITNESS BIRD) I don't believe so.

4 Q Okay. Do you have any identification numbers
5 for the documents?

6 A (WITNESS BIRD) This is labeled Activity Hold,
7 Order No. 4 and with the date, page 1 of 1.

8 Q Page what?

9 A (WITNESS BIRD) Page 1 of 1, so it's a one-page
10 form.

11 Q Is there a generic name for the -- is this
12 the type of document titled Activity Hold -- is there
13 any other generic name for this type of document?

14 A (WITNESS BIRD) It's entitled Midland Project
15 1 and 2, Quality Control Activity Hold Order.

16 Q Okay. May I see that?

17 MS. WEST: Certainly.

18 BY MS. STAMIRIS:

19 Q Okay, I'd just like to read into the record a
20 description of the work activities to be held and the
21 start up system number affected from Box 3 on this report,
22 if that's agreeable.

23 It says:

24 "Further drilling work is to be held on
25 Kelly Dewatering Wells OBS 4 and OBS 1-A

1 until utility locations are reconfirmed for
2 OBS 1-A and the non-conforming condition
3 state OBS 4 is specifically identified and a
4 course of action is established for corrective
5 action. Note. This hold order is for the
6 drilling operation only. Gravel path and
7 grant installations may continue on other wells.
8 Thank you.

9 Mr. Bird, you had indicated earlier in your
10 testimony, I believe, that you did not receive copies
11 of Bechtel nonconformance reports, and I wondered if
12 you received copies of Bechtel activity holds such as
13 this?

14 A (WITNESS BIRD) No.

15 Q What action did MPQAD take in relation to the
16 5-19-82 drilling incident at Observation Well 4?

17 A (WITNESS BIRD) The MPQAD people were involved
18 in what was happening and were out there looking, as
19 testified earlier, with everybody else, agreeing to the
20 course of action.

21 And, from what I see here and what I heard then,
22 the right course of action was taken, so they really
23 didn't have to do any active participation themselves to
24 have generated any paper on that.

25

that.

1 Q So I asked you -- I want to ask you again, and
2 I'll add one word to my question. What written or docu-
3 mented action did MPQAD take in relation to the 5-19-82
4 drilling incident at Observation Well 4?

5 A (WITNESS BIRD) After the incident there was
6 a SCRE written to cover that condition to look at it
7 for reportability.

8 Q Okay. Did MPQAD -- did you, as the quality
9 assurance manager for MPQAD, consider instituting a
10 formal MPQAD stop work in relation to this incident?

11 A (WITNESS BIRD) I don't recollect myself con-
12 sidering a stop work in this case. Whether anyone on
13 my staff considered it or not I can't tell you.

14 Q Do you consider that, as quality assurance
15 manager, that you were seeing to it that the quality
16 control and quality assurance incidents were being prop-
17 erly reported and tracked and trended by MPQAD?

18 A (WITNESS BIRD) Yes, that's within our total
19 scope of our responsibility.

20 Q But what I mean is, in this incident on 5-19-82,
21 the fact that MPQAD did not write up a stop work order
22 directly related to this and south of the Bechtel QC
23 activity hold was sufficient to get the job done.

24 What I want to ask you now is do you feel it
25 was sufficient in terms of reporting and tracking and

1 trending responsibilities of the MPQAD program?

2 A (WITNESS BIRD) Yes.

3 Q Would you like to explain why or how you think
4 it is sufficient?

5 A (WITNESS BIRD) A nonconformance report was
6 written which documented the circumstances of the non-
7 conformance, which provides the mechanism to get the
8 corrective action to fix the non-conformance. A stop
9 work activity was placed by Bechtel QC, which prevented
10 any further work in the area which could have caused
11 any further deleterious effects in the areas, so that
12 was under control. And Consumers Power initiated this
13 SCRE which looked at this condition in terms of repor-
14 tability.

15 So, really, all aspects that needed to be
16 addressed were addressed.

t10

1 BY MS. STAMIRIS:

2 Q So as you sit here today, you do believe that all
3 aspects that needed to be addressed as far as MPQAD responsibilities,
4 have been properly addressed in relation to the 5-19 incident?

5 A (WITNESS BIRD) That's correct.

6 Q You indicated that -- and I saw and read an excerpt
7 from the Bechtel activity hold, which took place on 5-19-82, and
8 I'd like to ask you, Mr. Bird, when that activity hold was lifted?

9 A (WITNESS BIRD) From the document we're looking at --

10 Q Which is what?

11 A (WITNESS BIRD) The one you looked at a minute ago,
12 it's blank as far as the activity hold having been lifted. So as
13 of the date when this copy was made, and Mr. Wheeler had this,
14 so I can't tell you when the copy was made, but at least as of
15 that date it had been -- it had not been lifted yet.

16 Q Do you have any recollection as to when you made that
17 copy and --

18 A (WITNESS WHEELER) At the top there is a note which
19 says that we wanted to get the stop work resolved and that was
20 dated 6-1-82. So this copy was obviously made before 6-1-82.

21 Q Don't you mean after?

22 A (WITNESS WHEELER) Or after.

23 Q Okay. Mr. Bird, on, I think, about the fifth page into
24 the packet of attachments with 7D, it is a Bechtel nonconforming
25 material installation conditional release dated 5-24-82.

1 Do you consider that release, which was granted to
2 temporarily backfill the referenced void, represents an exception
3 to the activity hold that was still to be in place at this time?

4 A. (WITNESS BIRD) You use the words grants and
5 exception. If they were the words you used, that is proper, that
6 this is a means to allow an item to be worked on which has a
7 holding tag applied against it.

8 The quality control activity hold order, as you had it
9 read in the record, was for the drilling operation only.

10 Q. Um-hum.

11 A. (WITNESS BIRD) And this conditional release appears
12 to allow things to happen other than drilling on that specific
13 hole, which would indicate to me that they're really having this
14 conditional releas^t against the hold tag that was placed on that
15 observation well and not against the activity hold.

16 Q. The next page is another nonconforming material
17 installation conditional release form dated 5 -- I think that --
18 I checked that out, I think that is the date at the top there, is
19 probably 5-25 or 5-26-82.

20 Would you agree with that?

21 A. (WITNESS BIRD) Are you looking at page four of 4?

22 Q. Yes.

23 A. (WITNESS BIRD) I would say that is 5-26.

24 CHAIRMAN BECHHOEFER: I might add, is that the same
25 document, although it may be a different version of it, as the

1 last page of the packet?

2 WITNESS BIRD: There appears to be the -- the specific
3 page that we were discussing, has on the first line, all the way
4 over to the right-hand side it says: Three period page four of
5 four, which was -- which apparently this was four of four of
6 something at one point in time.

7 Down in the other corner that we have a different
8 writing, it's been several revisions and we have it up to page
9 four of 22 in the total package.

10 Now, maybe I'm looking at a later version than what
11 was 7D.

12 MS. WEST: I'm not sure you are looking at --

13 CHAIRMAN BECHHOEFER: There is an additional initial
14 on the one we were talking about first, but at least it will clear
15 out that that was 5-26.

16 MR. STEPTOE: Yes. If for no other reason that it would
17 seem to clarify that first -- the date on the first page we were
18 referring to is the 26th.

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26th 1 BY MS. STAMIRIS:

2 Q All right. This conditional release granted to allow
3 cleaning and flushing of the casing and inspection. It says
4 an inspection of the 12-inch circulating water drain line which
5 was encountered by the casing.

6 So is this 12-inch circulating water drain line in fact
7 the obstruction that was hit on 5-19-82 at Observation Wall 4?

8 A. (WITNESS BIRD) That is right.

9 Q The next sentence that's written in there, says,
10 "The water level within the casing will be maintained at
11 elevation 619 feet, approximately, or higher, during the
12 flushing or any recharge experiment.

13 Do you have any personal recollection of what happened
14 with the water levels in relation to this notation and following
15 this notation, Mr. Bird?

16 A. (WITNESS BIRD) No, I don't. A lot of this material,
17 the first time I saw it was when we were getting ready to try
18 to prepare ourself for the testimony on this. So I didn't have
19 any specific involvement back at that point in time as far as the
20 testing that they were doing, to try to determine what the cause
21 of the void formation was.

22 A. (WITNESS WHEELER) Let me answer that. The concern
23 at, I think, that particular time, was that the water level be
24 maintained at such an elevation that further sands, material
25 around the casing, not come into the casing, via ground water.

1 So I think that is why that note was put in there.

2 Q I want to go back and ask you -- let's see now, Mr.
3 Bird, you were on the site on the 19th when this 4245 incident
4 took place.

5 And when did you first -- did you go and look into
6 this situation at all on 5-19-82, to your recollection?

7 A. (WITNESS BIRD) I remember I was on-site because I
8 remember I was in some kind of meeting when I first heard about
9 this. And I certainly had some discussion with some of my
10 staff, the first opportunity that I had after that, to get what
11 details were available to me. But I don't remember exactly who
12 or what the exact content of those discussions was.

13 Q Mr. Wheeler, I'm going to ask you, and I'm getting a
14 little bit mixed up in my mind now about the sequence of events
15 in relation to NCR 4199, and I want to ask you to clarify, Mr.
16 Wheeler, when you first -- when you first observed anything in
17 relation with the observation well drilling incident 4245.

18 A. (WITNESS WHEELER) As I remember it, I went out the
19 afternoon of the 19th.

20 Q And is this -- I'm sorry to be asking you this, because
21 I know we covered it, but was this when you were called in by
22 someone else and there were about four people called in to look
23 at it on the afternoon of the 19th?

24 A. (WITNESS WHEELER) There was a lot of people looking
25 at it. There wasn't just four people, but I was told about it,

1 and I went out and looked at it.

2 Q Okay. Thank you. And do you have any recollection,
3 Mr. Wheeler, of who the MPQAD people were that were first looking
4 at this?

5 A (WITNESS WHEELER) As I recall, I have answered this
6 before, but as I recall, it was Bob Sevo.

7 Q Okay. On, well, a couple pages beyond the page we
8 were just on, is a Bechtel field engineer's report form dated
9 5-19-82. And in the top right-hand corner it says page one
10 of two.

11 And it's written in script and signed by a Mr. John.
12 Do you have that page, Mr. Bird?

13 A (WITNESS BIRD) Yes, we do.

14 Q I would like to read the first paragraph and then ask
15 you a question about it. It reads, "During installation of
16 outside casing for permanent dewatering Observation Well 4,
17 an obstruction was encountered at approximately 35 feet in depth.
18 This installation of casing proceeded for approximately four
19 hours. At this time the fill around casing was discovered to
20 be caving in and drilling was stopped."

21 Mr. Bird, you have previously testified that you believe
22 that drilling should stop whenever an obstruction is encountered.
23 And do you believe that the continuation of drilling for four
24 hours after the observation was encountered was improper
25 procedures?

1 A. (WITNESS BIRD) It wasn't against the then-existing
2 procedures. It would be against the one that was released
3 shortly after May 24, I believe we said it was released.

4 Q Well, do you believe that this was in keeping with
5 good quality assurance principals?

6 A. (WITNESS BIRD) All we have to go on is what was
7 written here. I do not know what else they might have been
8 thinking or what else they -- what other facts they might have
9 had as to what they thought they were hitting.

10 We ascertained later that the -- they did not know
11 about that specific utility being in that area. They didn't
12 expect it to be there.

13 Q Regardless of what they expected or not, didn't you
14 testify last summer that -- and I'm sure I won't have the exact
15 words, but something to the effect that a proper quality
16 assurance attitude is to conservatively assume the worst and
17 until you verify otherwise, proceed with an investigation or
18 activities to look into the incident on the assumption that it
19 could have been worse than happened?

20 A. (WITNESS BIRD) That was not a bad characterization
21 of what I said, but the context of what I said was that is what
22 a quality assurance professional does. That is why the
23 nonconformance report was written on the BWST when they had some
24 undermining there because it was indeterminate whether that
25 could have affected that structure. The nonconformance report

1 was a registered document of that condition to force a resolution
2 of that issue.

3 Q But what we're talking about here is the drilling
4 incident and the fact that the drilling continued for four hours
5 after an obstruction was hit.

6 Do you see a similarity in this incident, and I'll
7 specify exactly what I mean, the fact that it says that this
8 time -- I will have to read both sentences again.

9 "Installation of the casing proceeded for approximately
10 four hours. At this time the fill around casing was discovered
11 to be caving in and drilling was stopped."

12 So does the sequence of events here where drilling
13 was stopped when the hole began to cave in, as opposed to when
14 the obstruction was first hit, is there a similarity in your
15 mind to the previous drilling incident, 4199, in which an
16 obstruction was hit, but it was not written up on a nonconformance
17 report or looked into until it was determined that a safety-
18 related duct bank had been damaged?

19 Do you see a similarity in the procedures found here,
20 that an obstruction was hit but that no quality action or
21 stop-work action was taken until it was confirmed at some later
22 time what the damage was that had been caused?

23 A. (WITNESS BIRD) The similarity was in the lack of
24 specific direction at that point in time to cause people to have
25 to stop and have to get a consensus of opinion from several

1 organizations as to whatever you are hitting. Is it something
2 you want to hit, and should you continue to drill, or, no,
3 you can't drill there any more? And that's what the new procedure
4 picks up, it provides that control.

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control 1 Q So under these circumstances, at the time of the
2 incident on 5-19-82, do you believe that drilling should have
3 stopped sooner than it did?

4 A. (WITNESS BIRD) Knowing what we know today, most
5 certainly, in hindsight. But whether this individual, having
6 the knowledge he had, made a proper decision or not is really
7 beyond us to say today.

8 The four hours of hitting something, from just my
9 own personal opinion, seems like that was a little long.

10 A. (WITNESS WHEELER) Could I make one comment here? I
11 see that this field engineer report that we're talking about is
12 signed by a D. L. John.

13 Q Yes.

14 A. (WITNESS WHEELER) He is a mechanical engineer and
15 the purpose of this report is to document what was done after
16 this incident. I do not believe it's the intent of this report
17 to recreate or talk about the drilling operation itself. So
18 there may be some assumptions in here that aren't correct. This
19 person is not responsible for the drilling operation.

20 Q Well, didn't -- I can't remember where, but I think I
21 can find somewhere later. Didn't the -- what time was the
22 obstruction hit? Do you know that, Mr. Wheeler?

23 A. (WITNESS WHEELER: No, I don't.

24 Q Well, maybe this would be the proper time to introduce
25 an exhibit that I think will clarify that.

1 MS. STAMIRIS: I would like to ask the parties to
2 cross out the number 15 that is in the corner of this document
3 and identify this document as Stamiris Exhibit 40.

4 And it is a copy of the stop-work order FSW-22 that
5 is dated 5-19-82. And I will provide the court reporter with
6 three copies afterwards.

7 BY MS. STAMIRIS:

8 Q Well, this is not the document that has the times on
9 it that I was thinking it was going to have. But, Mr. Bird,
10 would you identify Stamiris Exhibit 40 as the stop-work order
11 which was instigated on May 19, 1982, that related to the
12 drilling incident 4199 which took place on April 24, 1982?

13 A. (WITNESS BIRD) Everything you said was proper
14 except it took place starting April 24, 1982, and went on
15 through April 28, at which time the stop-work order was issued.

16 Q I believe from your previous testimony, Mr. Bird,
17 that the date of this stop-work order for the earlier drilling
18 incident, which was stopped on 4-28-82, did not relate directly
19 to the drilling incident identified on NCR 4245 which took place
20 on 5-19-82.

21 A. (WITNESS BIRD) That is correct.

22 Q Going back to --

23 MR. WILCOVE: Mr. Chairman, I again think this
24 document better be received into evidence.

25 MS. STAMIRIS: Yes, I meant to ask that Stamiris

1 Exhibit 40 be received into evidence at this time.

2 MS. WEST: Applicant has no objection.

3 MS. SINCLAIR: I have no objection.

4 MR. WILCOVE: Staff has no objection.

5 CHAIRMAN BECHHOEFER: Without objections, Stamiris

6 Exhibit 40 will be received into evidence.

7 (The document referred to,
8 previously marked Stamaris
9 Exhibit 40 for identification,
10 was received in evidence.)

11 BY MS. STAMIRIS:

12 Q Okay. Continuing through Attachment 7D, on this
13 field engineer's report form that I was looking at before, on
14 the second page of it is the statement that after attaching
15 pressure guage system -- no, after attaching pressure guage,
16 system was discovered to be partially filled with water and
17 approximately -- what is that notation, 10 inches was noted
18 on the guage, Mr. Wheeler?

19 A. (WITNESS WHEELER) PSI.

20 A. (WITNESS BIRD) What is crossed off there looks like
21 someone started to write the abbreviation for pounds and then
22 crossed that out and put PSI instead.

23 Q Mr. Bird, do you have any recollection of at what
24 time the obstruction was first encountered on 5-19-82?

25 MS. WEST: Excuse me. Chairman Bechhoefer, I think

1 this witness has testified repeatedly that he has no personal
2 knowledge of what time the obstruction was encountered on
3 May 19, 1982.

4 WITNESS BIRD: I do not even remember reading that
5 anywheres on the background information I had looked at.

6 BY MS. STAMIRIS:

7 Q Mr. Wheeler, do you know whether the NRC was advised
8 of this drilling incident on 5-19-82?

9 A (WITNESS WHEELER) I'm not aware of that.

10 Q Mr. Bird, are you aware of whether the NRC was
11 advised of this incident on 5-19-82?

12 A (WITNESS BIRD) I can't say for certain that they
13 were, but -- I kind of recollect that they were in the area
14 and had seen it, but I might be wrong. I might be thinking of
15 another incident.

16 Q Well, Mr. Bird, it appears from many of your
17 statements in testifying about these drilling incidents,
18 that you were not directly in charge of or closely involved
19 in following up on the activities in relation to these drilling
20 incidents, is that correct?

21 A (WITNESS BIRD) You are asking -- you have been
22 asking detailed questions of which I did not ever have the
23 knowledge on. But I do believe that I have followed up on
24 these incidences, specifically that is shown through my
25 involvement with these stop-work on the duct bank and my

1 issuing of the SCRE for Observation Well No. 4.

2 Q Mr. Bird, is there someone, organizationally speaking,
3 within the MPQAD who would be more in direct involvement or
4 responsibility for these drilling incidents?

5 A (WITNESS BIRD) we could probably search the records
6 to find out which particular quality assurance department
7 personnel was specifically involved or specifically assigned
8 to the work associated with each one of these, but there is a
9 great deal of work going on out there with literally dozens
10 of people assigned to various areas, so that the manager does
11 not get involved with all the work that is going on. He only
12 gets involved with the work that requires his direct attention,
13 depending on the circumstances.

14 MS. WEST: Chairman Bechhoefer, if I could interject
15 at this point. The Board -- the reason for this testimony was
16 the Board was interested in quality assurance aspects of these
17 five incidents. Mrs. Stamiris has been asking very specific
18 technical, not QA, questions, on many of these incidents, and
19 those are the questions that Mr. Bird has been unfamiliar with.
20 You did not indicate a desire to hear specific technical
21 details of each drilling incident.

22 Also, we'd like to point out this has been unusually
23 prolonged, especially in terms of delving into the technical
24 details of these things, which as we said, we provided witnesses
25 for the QA part and not for the technical part.

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JUDGE HARBOUR: May I ask you, Mrs. Stamiris, why you are interested in the times that these things occurred?

MS. STAMIRIS: I'm interested in the timing in relation to how and when it was reported and what instigated the reporting of the incident.

JUDGE HARBOUR: Are there -- within Bechtel are there well logs that exist for the drilling incidents here?

WITNESS WHEELER: Yes, there would be.

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1 MR. STEPTOE: Judge Harbor and Judge Bechhoefer,
2 it's my recollection with respect to this particular
3 incident that it occurred about the same time that the
4 ACRS was meeting in Midland and there was a guided tour
5 that was provided with the entire ACRS past this thing.

6 I can't believe that there's any question about
7 reportability of this incident.

8 Maybe the Staff would correct me if I'm wrong,
9 but it does seem that that's not a reasonable issue to
10 be raising at this point with respect to this NCR.

11 (Discussion had off the
12 record.)

13 MR. STEPTOE: Judge Bechhoefer, I believe that
14 the Staff probably can answer that question very easily.
15 I'd hate to go rooting through the quality assurance
16 organization or construction organization out there at
17 the plant to find out something that is this simple.

18 CHAIRMAN BECHHOEFER: I would guess, on reportability,
19 that is probably right, --

20 MR. WILCOVE: It is the Staff's understanding
21 as well that the ACRS Subcommittee was informed of this
22 incident during a site tour.

23 Mr. Hood can provide some more detail about
24 what they were told.

25 MR. HOOD: My name is Daryl Hood. I'm with

1 the NRC Staff.

2 On about May, I believe, the 21st -- if some-
3 one has Supplement 1 to the SCR in the chronology section
4 you can correct me if my date is wrong --I attended,
5 along with the ACRS Subcommittee, a tour of this site,
6 and the first phase of that tour included a briefing.

7 At that time, during the briefing, we were
8 advised by Mr. Jim Cook of the penetration of this duct
9 and how it came about.

10 During the actual tour I met with Mr. Landsman.
11 He and I did observe this cavity associated with this
12 particular drilling.

13 I do not know if members of the ACRS Subcom-
14 mittee observed the cavity or not, but I can state, on
15 the basis of the briefing that they along with myself
16 and others present, were aware of that cavity.

17 CHAIRMAN BECHHOEFER: Were you told by someone
18 in Consumers, or did you just stumble into it?

19 MR. HOOD: We were told during the briefing
20 that preceded the tour that they had struck this, I
21 believe he said, the day before. It was sort of within
22 a very few days, and I think it was the day before that
23 he had struck this. And we were given some estimation
24 of it, but they didn't know a great deal about it at
25 the time. But they had observed the cavity. during the

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tour of this plant, and I looked at it. It was covered by boards, I believe, for protection purposes. But we observed a rather large cavity.

WITNESS BIRD: I might state for the record that I was present when the ACRS toured this site and this particular cavity was pointed out to the ACRS during the tour.

(Discussion had off the record.)

BY MS. STAMIRIS:

Q Well, rather than trying to go through the details of the documents on my next question -- and some of them are hard to read -- Mr. Bird and Mr. Wheeler, could either of you describe the thrust of the relationship between this drilling incident and the colored dye that was in the water and what significance that had as far as this particular incident was concerned?

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A (WITNESS WHEELER) I can't.

A (WITNESS BIRD) I can't either.

JUDGE HARBOUR: Was that discussed during the November hearing by Mr. Hendron?

JUDGE COWAN: Who are you asking?

JUDGE HARBOUR: The Applicant.

WITNESS BIRD: They were asking if this last business about the dye was discussed during the November hearings.

I wasn't there, and I think you people --

MS. WEST: Not that we know of, no.

MR. STEPTOE: I don't know.

(Discussion had off the record.)

BY MS. STAMIRIS:

Q Well, I'd like to ask some questions about four pages after the page I was last reading from on the field engineer's report form, and it's also entitled field engineer's report form dated -- and I can't read the first part -- something 2882, page 1 of 1, and in the top right-hand corner it says CY-93.

Do you have this page, Mr. Bird?

A (WITNESS BIRD) Yeah, I believe so.

Q Are you familiar with -- well, a statement about two thirds of the way through this paragraph

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1 reads:

2 "Field engineering believes this increase
3 in water surface is due to the heavy rain
4 received last night."

5 And they're speaking of a rise in the water elevation from
6 6-19 to -- well, I'm not sure of what the rise was.

7 In the second sentence it says:

8 "The water surface prior to pumping was
9 at approximately elevation 634. The water
10 surface within the casing had been between
11 elevation 629 and 630 for the past few days."

12 So there appears to have been a rise of about
13 four feet in the water level, and I wonder if either
14 of you are familiar with what was the cause for this
15 rise in water level beyond this statement, you know,
16 about someone assumed that it was probably due to the
17 heavy rain.

18 A (WITNESS BIRD) As I said before, the first
19 time I saw any of this is when we got Attachment 7-D.
20 I had not looked at it prior to that. So the only
21 thing I could say about it is what I read here, and I
22 have no reason to doubt that it was not an accurate
23 statement that the engineer made.

24 Q Okay. Mr. Wheeler, do you have any knowledge
25 of the water levels in this case?

1 A (WITNESS WHEELER) No, I don't.

2 Q I mean other than what you read here.

3 Okay, well, I will simply ask you, does this
4 last sentence indicate to you, Mr. Bird, that it says:

5 "The laborers will attempt to seal the
6 top of this casing with a polyethylene film
7 to prevent further run-off collection."

8 I guess I don't want to ask you a question
9 about that, I just want to point that out to you in
10 relation to the question I'm going to ask next, and
11 two pages further on is the field engineer's report
12 form dated 6-1-82, which is quite difficult to read
13 because of the quality of the Xeroxing.

14 But it says, under Item 1, that the water level
15 within observation well 4 casing was at approximately
16 elevation 619. -- I guess that's 25 -- this morning,
17 6-1-82.

18 This is a three inch increase from the level
19 reported on 5-28-82. All of the top of the casing was
20 sealed outside with polyethylene film with -- I'm not sure
21 if it says two bonds -- it is possible that some of the
22 surface water did leak into the top of the casing.

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casing. 1

2 Do you believe that -- are you concerned about
3 the possibility of the water level rising from below, as
4 posed to it leaking in from the top where it had been
5 covered with this polyethylene?

6 WITNESS BIRD: Well, I don't have the technical
7 competence to or have a concern in that area.

8 Q Mr. Wheeler, are you -- all right. If that
9 original four-foot rise in ground water in addition to
10 that two-inch rise in ground water were due to something
11 other than rain water getting in from the top, would they
12 indicate any reason for concern with you?

13 MS. WEST: Objection, Chairman Bechhoefer.
14 There's been no foundation laid for any supposition or
15 speculation that there was any cause other than rain
16 water for these incidents.

17 BY.MS. STAMIRIS:

18 Q Well, I think that it probably is beyond both
19 of your fields of expertise to comment about the signi-
20 ficance of rising waters, but I would like to ask either
21 Mr. Bird or Mr. Wheeler if they are aware of other inci-
22 dents on site in relation with the soils remedial work
23 which indicated that there was ground water collection
24 or rising when it was not anticipated.

25 MS. WEST: Objection, your Honor. This is very
far off the scope of these witnesses' testimony.

1 The possibility and the subject of ground water
2 rise another drilling has nothing to do with the QA
3 aspects of these five drilling incidents, which are
4 what these men are here to testify about.

5 MS. STAMIRIS: Well, I would be satisfied and
6 happy to withhold these questions. I'd like to ask who
7 would be the proper witness to question about repeated
8 incidents of water level rising in relation with the
9 soils work. Because I can't document quite a few
10 other incidents.

11 MR. WILCOVE: Mr. Chairman, I also feel that
12 this is getting far afield of the issues to be presented
13 here at this time, and I would have to also oppose bring-
14 ing in witnesses to answer this question.

15 I think it's getting off on a tangent that
16 wasn't intended and very much prolonging the proceeding.

17 MS. STAMIRIS: Well, I'd like to say that I
18 don't care particularly how or when it is addressed, but
19 I think that the parties would have to agree that if it
20 were established -- and I have to address any hypothetical
21 at this point in time; I'm not prepared to bring out
22 documents to show other incidents at this time -- but if
23 it were established that there was a pattern of, let's say,
24 six or ten different incidents where ground water was
25 seeping in or rising -- and it seems to always to be

1 attributed to a collection of surface water or perched
2 water, or something else -- when it can't be proven if
3 there is an unidentified source of ground water seepage
4 and a repeated pattern of water seeping into various
5 drillings or excavations at the site in relation to the
6 soils remedial work, wouldn't the Board and the parties
7 feel that this would be a significant matter in geo-
8 technical terms to look into as to what is the reason for
9 this ground water seeping in, this unanticipated ground
10 water seeping in or rising?

11 (Discussion had off the
12 record.)

13 CHAIRMAN BECHHOEFER: I think we will sustain
14 the objection. I think it's not close enough to their
15 expertise, and I don't see what relationship it has to
16 the QA aspects of these incidents.

incident 1

2 MS. STAMIRIS: Well, I was already accepting that
3 myself when I said that I didn't care if I asked it in relation
4 to quality assurance at this time, but the issues that I raised
5 that, in the hypothetical, if it could be established that there
6 was a pattern of incidents where water was rising up unexpectedly
7 in drilling or excavation at the site --

8 JUDGE COWAN: Mrs. Stamiris, aren't you just repeating
9 what we just heard?

10 MS. STAMIRIS: No, just -- well, I'm asking that
11 if this pattern were established would it have geotechnical
12 significance.

13 JUDGE COWAN: We've heard that.

14 MR. WILCOVE: Mr. Chairman, I might also add that if
15 Mrs. Stamiris wishes to attempt to sponsor a new contention she
16 is, of course, free to do so, and the parties will then respond
17 accordingly. But I think just to immediately disembark on a
18 new issue would not be the proper procedural way of doing so.

19 CHAIRMAN BECHHOEFER: I don't think these witnesses
20 are --

21 MS. STAMIRIS: I agree with you then. I don't intend
22 to pursue it, or I didn't intend to pursue it with these
23 witnesses.

24 And would I be correct in following Mr. Wilcove's
25 advice then, that if I could establish such a pattern that the
proper way to raise it before this Board would be through a new

1 contention through the OM proceeding?

2 CHAIRMAN BECHHOEFER: Well, it would be proper if the
3 information were not so stale that should have been raised
4 a lot earlier.

5 I mean, it would have to be something reasonably new
6 and something the Staff wasn't aware of or wouldn't do anything
7 about; something along that line.

8 There are many issues that may affect the overall
9 structure of the soils matters which we aren't considering here
10 but the Staff still must consider them, and if it were
11 information that no one was considering and it is relevant,
12 we can consider new contentions.

13 MS. STAMIRIS: Okay, I will try to --

14 CHAIRMAN BECHHOEFER: But normal timeliness rules
15 do apply and we have to balance a number of factors.

16 As you are aware, we have done it before.

17 MS. STAMIRIS: Well, I will try and determine with the
18 Staff off the record whether or not they have pursued any
19 interest or inspections into this area.

20 BY MS. STAMIRIS:

21 Q A few pages further into the Attachment 7D -- well,
22 there is a Bechtel Power Corporation daily report sheet
23 number 10F1 dated 4-27-82. Do you have that page before you,
24 Mr. Wheeler and Mr. Bird?

25 A. (WITNESS BIRD) We have flipped back somewhere else.

1 It won't take a minute to find it.

2 (Discussion had off the record.)

3 WITNESS BIRD: If you'd give us that description
4 again, please.

5 BY STAMIRIS: I'll hold it up. I don't know if that
6 will help you.

7 It's titled at the top Bechtel Power Corporation
8 daily report. In the center it says sheet number 10F1. The
9 date is 4-27-82.

10 A. (WITNESS BIRD) We have it.

11 Q Okay, in the first paragraph, under the words Moore
12 Trench, I'd like to read this and ask you your understanding of
13 whether it relates to the drilling incident on NCR 4245.

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4245 1 "Gardner Denver set up on an ejector well
2 M-E-54 drilled and hit obstruction at eight
3 feet, moved two feet east and hit obstruc-
4 tion at eight feet again. Moved two feet
5 west and drilled to 28 feet and hit obstruc-
6 tion. Issued stop work order because of
7 the main utilities in the area. Moved to
8 ejector well M.E. 27B. Drilled and set
9 surface casing."

10 This description doesn't seem to fit the
11 description that I had in my mind for either the NCR
12 4245 or the other NCR, 4199.

13 I'd like to ask you whether this description
14 does relate to either of the drilling incidents that
15 we've discussed today.

16 (Discussion had off the
17 record.)

18 MS. STAMIRIS: I think that maybe the next
19 paragraph, from that description in the next paragraph,
20 it might relate back to the 4199 incident, because it
21 says:

22 "Drill team drill freeze hole. Not
23 complete. Hit mud mat for duct bank at
24 11 and drilled third -- I can't read this
25 exactly, but it sounds like it might have

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more to do with the earlier drilling incident,
especially considering the 4-27 date.

CHAIRMAN BECHHOEFER: Let me inquire of the
Staff, which one of your witnesses will address this one?

MR. WILCOVE: Dr. Landsman will do so.

Mr. Chairman, could we go off the record?

(Discussion had off the
record.)

(Whereupon an adjournment was
taken in the above-entitled
cause at 6:05 p.m., to resume
the next day, Wednesday, February
February 16, 1983, at 9:00
a.m.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the
NUCLEAR REGULATORY COMMISSION

in the matter of: CONSUMERS POWER COMPANY, Midland Plant,
Units 1 & 2

Date of Proceeding: February 15, 1983

Docket Number: 50-329 & 330 OL & OM

Place of Proceeding: Midland, Michigan

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

Pauline James & Associates

Official Reporter (Typed)

Pauline James

Official Reporter (Signature)