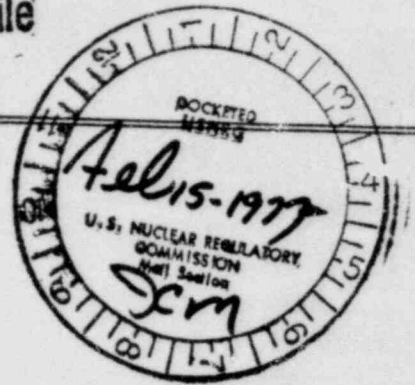


NUCLEAR REGULATORY COMMISSION

Regulatory Docket File



IN THE MATTER OF:

CONSUMERS POWER COMPANY

(Midland Units 1 and 2)

Docket Nos. 50-329
50-330

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES



Place - Chicago, Illinois

Date - Friday, 11 February 1977

Pages - 4205

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2 NUCLEAR REGULATORY COMMISSION

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4 In the matter of: :
5 CONSUMERS POWER COMPANY : Docket Nos. 50-329
6 (Midland Units 1 and 2) : 50-330
7 ----- x

9 Room 2503
10 Everett M. Dirksen Building
11 219 South Dearborn Street
12 Chicago, Illinois

13 Friday, 11 February 1977

14 Hearing in the above-entitled matter was
15 reconvened, pursuant to adjournment at 9:05 a.m.

16 BEFORE:

17 FREDERIC J. COUPAL, Esq., Chairman

18 DR. J. VINN LEBDS, Member

19 DR. FRIEDEM LUEBKE, Member

20 APPEARANCES:

21 (As heretofore noted.)
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C O N T E N T S

<u>Witness</u>	<u>Direct</u>	<u>Voir Dire</u>	<u>Cross</u>	<u>Redirect</u>	<u>Recross</u>	<u>Board Exam.</u>
Lawrence P. Crocker	4130	4146				
	4178		4186			4231

E X H I B I T S

<u>No.</u>	<u>Identified</u>	<u>Received</u>
Staff Exhibits Nos. 1, 2 and 3		4183

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1 P R O C E E D I N G S

2 CHAIRMAN COUFAL: Let the record show that Mr.
3 Cherry is here for the Intervenors, other than Dow; Mr.
4 Hoefling and Mr. Brenner for the Staff; Miss Bartelman and
5 Mr. Renfrow for the Licensee; and Mr. Nute for Intervenor Dow.

6 Mr. Nute indicated before we started that he had
7 something that he wanted to say.

8 MR. NUTE: Yes, Mr. Chairman.

9 Staff served upon Dow by mail on January 27
10 interrogatories which are due on February 14.

11 I've talked to the attorneys for the Staff about
12 more time in which to answer these. Part of the problem is
13 some of the interrogatories go to our meetings with the EPA,
14 and that meeting takes place on the day the interrogatories
15 are due.

16 So, I would like to request from the presiding
17 officer, under Section 2.74(g), more time in which to answer
18 these interrogatories. I have committed to the staff that
19 we will answer interrogatories 1(b), 1(d), 1(i), 1(j), 1(l),
20 2, 3, 4 and 12 by February 18, which is next Friday, and the
21 remainder on February 25, which is a week from that Friday.

22 MR. HOEFLING: That's acceptable to the Staff, Mr.
23 Chairman.

24 CHAIRMAN COUFAL: All right, Mr. Nute.

25 MR. NUTE: Thank you.

1 MR. CHERRY: Mr. Chairman, could we set a date for
2 the further answers by the Licensee and the Regulatory Staff?

3 CHAIRMAN COUFAL: What further answers are due
4 from the Regulatory Staff?

5 MR. CHERRY: Well, I made the same motion that
6 they haven't listed the documents and people, and since you
7 approved that in connection with the Licensee I assumed that
8 ruling would be consistent.

9 CHAIRMAN COUFAL: Well, let's make that --

10 MR. HOEFLING: Mr. Chairman, I think the Staff
11 pointed out the other day that it had objected to the complete-
12 ness requirement by Mr. Cherry in his initial objection to
13 the interrogatories. The objection was made over three weeks
14 ago.

15 With regard to the remaining two interrogatories
16 to which the Staff responded this Monday, again the Staff
17 response was prepared by the individual responsible in a
18 particular area of inquiry, and in the one interrogatory
19 going to cost-benefit, the documents relied on were referenced.
20 In the response to the interrogatory dealing with the ACRS
21 items, as I pointed out to the Board, that response was a
22 judgment response, and there were no small number of identified
23 documents that were relied on for that response. It was rather
24 a reliance upon Reg Guides, PSAR's, FSAR's and a whole spectrum
25 of materials, that formed the judgment that was the basis of

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1 that response.

2 MR. CHERRY: Mr. Chairman, if there's a broad
3 spectrum of materials, it is an incredible task for me to
4 assume at some point in the further hearings in this case,
5 for me to be able to deal with that judgment in any analytical
6 form with any scientific help if I don't know what the
7 documents are.

8 That's the purpose of a law suit, to --

9 CHAIRMAN COUFAL: I understand your point, Mr.
10 Cherry. I neglected -- I forgot, frankly, in that set of
11 interrogatories, to look at them. I will look at them and
12 I will rule. And from the time I advise you of the ruling,
13 Staff, you'll have five days. And you, Applicant, can have
14 until next Wednesday to do whatever you have to do on yours.

15 MR. CHERRY: Mr. Chairman, do I understand that
16 this completeness requirement applies to every answer the
17 Licensee has made, because I have continued to make this
18 objection and they haven't listed documents for any questions
19 that --

20 CHAIRMAN COUFAL: I understand that's the case,
21 Mr. Cherry.

22 MR. CHERRY: Okay. And my request is for the
23 Licensee to list documents for every one. And that's been
24 approved.

25 And now the Regulatory Staff: My outstanding

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1 request is for every single question they've answered, now,
2 not just the last ones.

3 CHAIRMAN COUFAL: I understand your motion.

4 MR. RENFROW: Mr. Chairman, you've given us until
5 Wednesday to supply all those documents with the interrogatory
6 answers. I'm asking you to move that until Friday, to give
7 us a full week to do that, since at least at this point it
8 doesn't appear as if any of our witnesses are going on next
9 week. That'll still give the parties until the 7th of March,
10 according to your schedule, to look at that list.

11 CHAIRMAN COUFAL: All right, Friday.

12 MR. CHERRY: Mr. Renfrow, just so it's clear, I
13 understood the Board's ruling to include documents and
14 persons.

15 CHAIRMAN COUFAL: All right, do you want to make
16 a motion, Mr. Cherry?

17 MR. CHERRY: Yes.

18 Mr. Chairman, I'd like to make a motion now to
19 suspend the license on the basis of the evidence thus far.

20 It will literally take just two minutes to tell
21 you what my underlying support for that is.

22 Number one, Licensee has to prove, according to
23 his theory, although not mine, that he has an urgent need by
24 1981-82 to get this plant on line, and that the suspension
25 hearings will prevent that need, and that that need somehow

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1 prevents the remanded hearing from going forward.

2 I think the evidence thus far shows as follows:

3 That the probability encoding analysis which led
4 to the official review of the Company was really a futile
5 exercise. We don't know what that number stands for. Mr.
6 Mosely admitted he never asked any of the people why they
7 based their number on it. It's then a judgment of a group
8 of people who work for the Licensee, and who, in my judgment,
9 came up with a load growth which supported the case for
10 Midland.

11 None of the matters which all of the witnesses,
12 including Bickel, Heins and Mosely, admitted were true, to
13 have a tendency to reduce the demand, were ever factored in.

14 Number one, none of the studies on price were
15 factored in. None of the studies on elasticity were factored
16 in. None of the studies on inverted rate structure were
17 factored in.

18 And so even assuming that the load growth was
19 arrived at by some computational source which is reliable by
20 their own definitions and admissions they have not included
21 inquiry into the factors which all of their witnesses admitted
22 would have a tendency to reduce demand.

23 Next, the Licensee has admitted that it has no
24 program to reduce conservation. It has the suggestion that
25 conservation is "factored into its load forecast."

1 But there is no explicit definition of what conser-
 2 vation is, and Mr. Mosely admitted on cross-examination that
 3 the conservation as a goal in terms of both waste and reducing
 4 demand was not something that the Licensee was looking forward
 5 to specifically doing.

6 Now, since the Aeschliman opinion and this
 7 Commission's remand dealt specifically with conservation, it
 8 is quite clear that the Licensee has not carried its burden
 9 of proof that an aggressive program of conservation will
 10 impact upon the size of the plant.

11 Since we know that there are factors in conserva-
 12 tion which will impact upon the size of the plant which have
 13 to be examined in the remanded hearing and which could very
 14 likely lead to a different sized plant, it is absolutely
 15 unfair, prejudicial and foolhardy to continue to build the
 16 plant when that inquiry has not been made.

17 Lastly, with respect to the load forecast, the
 18 Applicant has indicated that its load forecast is based on a
 19 lot of assumptions. Some of these assumptions are arguable
 20 in terms of calculations; others are clearly wrong.

21 There is no showing that the Palisades plant is
 22 being derated, and, as the record now shows, Palisades is
 23 being asked to operate at 786 megawatts, there's a license
 24 outstanding, and it's been evaluated by the draft environmental
 25 impact statement and the Regulatory Staff to show no problems.

1 Also, Mr. Heins admitted on cross-examination that
2 he used the Dow figure of 300 megawatts for sales, and Dow
3 has admitted on cross-examination that that figure is only
4 175 megawatts.

5 Finally, the Applicant has admitted that he has
6 calculated in his 1981-82 figures sales to cooperatives,
7 which have not been made and are not the subject of contract.

8 Yesterday Mr. Heins testified that if the
9 Palisades assumptions were not true, if he used the correct
10 sales for Dow, and if he ignored the sales to cooperatives,
11 he would have a 27 percent reserve in 1981-82. That's seven
12 percent higher, or almost 50 percent higher, than what he
13 deems adequate for the Consumers Power system.

14 Clearly, there can be no suggestion that in that
15 period of time there is the kind of an emergency that should
16 require an absolute wiping out of the rights which Intervenors
17 have to a hearing pursuant to the Court of Appeals judgment.

18 The next major segment of the Applicant's case
19 deals with Dow's need for power. It is clear that Dow Chemical
20 and Consumers Power Company have at best a tenuous relation-
21 ship right now. The parties are fighting with each other.
22 It's an antagonistic relationship.

23 Mr. Orrefice testified that he did not know whether
24 or not Dow would continue to buy power from this plant if any
25 of the assumptions changed.

1 Number one, he said that if everything stays the
2 same, the cost that the Applicant has stated, et cetera, that
3 he will buy power by the end of 1984.

4 Since we know that a delay for the time that it
5 would take to have a remanded hearing will still permit
6 the Company, pursuant to their obligations, to have the
7 plant on by 1984 because there's a 2-1/2 year lead time
8 between 1983, March, which is the last day they want to have
9 it on, and the 1984 date for these two units, it is clear
10 that if the Applicant is telling the truth about the cost
11 and about their schedules, that they could have the plant
12 on in 1984, and, therefore, suspension will not irrevocably
13 upset the Dow contract.

14 Mr. Orrefice so stated that even if construction
15 continued and they finished by 1981, he still kept his
16 options open not to buy if the cost soared out of sight, or
17 if there were other changed circumstances.

18 So it is clear that Mr. Orrefice and Dow's
19 judgment is not based on the suspension; it's based upon the
20 economic realities. And since we have the time to examine
21 those economic realities without adversely affecting the
22 Dow relationship, it seems to me Applicant hasn't carried
23 the very high burden of proof.

24 The next point is that Applicant has argued his
25 case on the grounds that he's entitled to continue construction

1 because it wants to meet a schedule.

2 Now, the schedule of that plant plus the cost
3 involved has been remanded for further hearings. Since we
4 are now determining ultimately whether the Midland plant
5 ought to be built at all, it seems to me totally unfair to
6 start with the assumption that Applicant is entitled to build
7 the Midland plant.

8 In other words, their whole assumption in this
9 proceeding has been that they are entitled to build the plant;
10 ergo, they're entitled to meet that schedule. And that is
11 a totally unfair and prejudicial assumption to make in
12 connection with the legal case.

13 In my judgment, the law is clear that further
14 expenditures will foreclose alternatives. I just want to list
15 the open-ended kinds of problems that we have right now, which
16 have to be analyzed in the remanded hearing and which are
17 foreclosed:

18 Consumers Power Company has financial difficulties.
19 The exact nature of those difficulties, the breadth of those
20 difficulties, and the character of those difficulties are,
21 at the moment, unclear. But we do know that Mr. Keeley says
22 that the Company does not have all the money in the world,
23 and so did Mr. Howell. And the exhibits we've produced
24 indicate that.

25 Accordingly, for the Company to move forward and

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1 spend 80 to another 100 million dollars will foreclose the
2 amount of available capital ready for them to do something
3 else. If they really needed a coal plant or any plant on line
4 by 1981, they could begin, by their own admission, right now,
5 without the regulatory delays, and begin to build an 800
6 megawatt coal-fired plant, or a host of other alternatives
7 like peaking boilers and other kinds of capacity that would
8 permit them to realistically meet a 1981-82 date, if they
9 believe it's really necessary to have that limitation.

10 Don't forget, Dow says it can operate until 1984
11 so we don't have to worry anything about Dow.

12 Consumers Power Company, on the basis of the
13 computation in Mr. Heins' testimony, even if you believe every
14 one of their assumptions -- which I don't think this Board
15 does, or can -- needs about 467 megawatts.

16 Now, 467 megawatts can be gotten in a heck of a
17 lot of ways, and I'm saying that only if you believe Palisades
18 is going to be shut down in '81, if you believe they're going
19 to make these sales to cooperatives -- and that's a relevant
20 inquiry in this proceeding-- and if you believe that they
21 should be able to use a contract figure on megawatt sales to
22 Dow Chemical as 300 megawatts, when Dow says actually only
23 175 megawatts.

24 The last portion of why the suspension should be
25 granted as of this time is because the Licensee has now

1 admitted that there are 43 of the 86 ACRS and regulatory
2 problems which have not been a result of any judgment by
3 the Regulatory Staff.

4 We know we live in a changing world. We know that
5 the Regulatory Staff could take a different position. There
6 has been absolutely no discovery in those underlying elements
7 that have to be analyzed.

8 The Applicant has suggested that he has a blue-sky
9 estimate of \$24 million to resolve those 43 problems, but
10 it's not been the subject of any specific detail.

11 So at the moment we have a plant that the Applicant
12 said is going to cost \$1.67 billion, but we don't know whether
13 it will. And there are a lot of variables in costs. It is
14 an important factor in balancing the equity.

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1 Finally, Mr. Chairman, all of the witnesses for
2 Consumers Power Company had the chance to say, if they wanted
3 to, that that schedule of 1981 was important enough to them
4 in terms of meeting their requirements that they would spend
5 the money to do it.

6 Mr. Keeley said that Bechtel told them the
7 additional \$30 million would be necessary to meet that, and
8 he said that the company hadn't decided to spend that money
9 and would not automatically spend the money if that was the
10 difference between meeting the schedule or not. So clearly
11 the company doesn't seriously believe that it's got a
12 problem in 1981 and '82, that it isn't going to flat out say
13 it isn't going to meet the \$30 million.

14 So it seems to me the 1981-82 schedule is a sham,
15 a charade, a suggestion that neatly fits in with the
16 Applicant's purposes.

17 Finally, I'd like to renew for consideration by
18 the Board the fact that if we're going to do a revised cost-
19 benefit analysis and sunk costs can't be considered, that
20 it's absolutely a slap to the public interest and the consumers
21 in Michigan and people everywhere who are affected by increased
22 costs to continue to let the money be spent; because if this
23 Board permits construction to continue the Applicant by the
24 time of the end of the remanded hearing could have spent
25 \$700 million or thereabouts. They've got figures that go up

1 to 5- or 6- right now, but that remanded hearing is going to
2 go longer than the time schedule they've analyzed because
3 we're almost there now.

4 If this Board lets them spend \$700 million with
5 the kinds of financial problems that are floating around
6 right now, or even 600, or even 100 more, and you decide
7 fairly that there ought to be some other alternative or Dow
8 pulls out, where is the money going to come from to implement
9 that alternative?

10 And that's just a minor question. How are we
11 really going to deal with those kinds of problems in a
12 revised cost-benefit analysis?

13 Members of the Board, the Commission was wrong
14 when it did not automatically suspend construction. They
15 were wrong because as a matter of logic you cannot have a
16 fair hearing with all of these variables.

17 We've now spent the time to demonstrate to this
18 Board that the Applicant has not carried its burden of proof
19 with respect to those variables. The public interest is
20 being adversely affected. The people who are being involved
21 in this proceeding, who have assisted in bringing out the
22 facts, are running out of funds. You don't need any more
23 information, and you can suspend the license now.

24 Just one last point I want to get into, and that
25 is the credibility of Consumers Power Company.

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1 I don't care whether you call it lies, or whether
2 you call it negligence, or whether you call it malpractice
3 by lawyers, or whether you call it just plain utility way
4 of doing business because they don't believe regulatory staffs
5 or boards will push, but the following is clear: Consumers
6 Power Company no more intended to come into this proceeding
7 to have an open analysis of the facts than I intend tomorrow
8 to walk out and jump off the Empire State Building.

9 We know they didn't intend to do that from the
10 preparation of the Temple testimony. We know they didn't
11 intend to do that from the Palahoe memorandum, Exhibit 25,
12 which says, "Let's delay the proceeding." We know they
13 didn't intend to do that from their expression from the
14 Board of Directors when they said they could finesse the
15 Dow-Consumers relationship if Cherry didn't show up, because
16 they weren't worried about the Regulatory Staff because
17 Renfrow had gone down to shape up Brenner. They weren't
18 worried about you because of the historical lack of exercise
19 of responsibility by boards. I'm not talking about this
20 particular Board, but I am talking about the way boards
21 generally have handled Consumers Power Company activities.

22 They've always been able to get something from
23 the Nuclear Regulatory Commission, so they believed that
24 there was really no problem for them to get it here. As
25 the Applicant has told you many times, "Tell me how many

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1 witnesses you want. Want another one?" so that you can feel
2 comfortable that you've got a stack of papers and you've
3 got thirty-five or forty people so you can create the fiction
4 and all those people can't be wrong.

5 The Applicant has not carried its burden of proof.
6 There is no need to continue this case. We should adjourn,
7 have the suspension take place, and begin the remanded hear-
8 ing.

9 CHAIRMAN COUFAL: Do you want to respond, Mr.
10 Renfrow? I think counsel spoke for about 10 minutes. You
11 can have a like time.

12 MR. RENFROW: I guess, Mr. Chairman, I'd like to
13 start with the question of the Commission being wrong in not
14 suspending it immediately.

15 We started this proceeding with that same alle-
16 gation. We discussed the fact that the coalition case indeed
17 set forth the standards for what you do when a court remands
18 a case to the Commission after a decision is made.

19 The Commission was not wrong. It did what the
20 Court of Appeals tells it to do when the case is remanded,
21 determined how long it would take to do a revised cost-
22 benefit analysis, then determined it did not have the infor-
23 mation; so it gave this Board the discretion to hold a
24 suspension hearing. That's what the Court of Appeals
25 requires; that's what was done. They are right.

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1 Second of all, when you look at the question as
2 to what you're supposed to do in a suspension proceeding,
3 Mr. Cherry keeps talking about having to establish an urgent
4 need. The question of urgent need is not the question.
5 What this Board has to do is balance a number of factors.
6 It has to look at all those factors and determine whether
7 or not it makes more sense to suspend pending a revised cost-
8 benefit analysis than it does to continue.

9 It has to look at the benefits that would result
10 from continued construction; it has to look at the detriments
11 that would result from continued construction; it has to
12 look at the benefits that might result from suspension; it
13 has to look at the detriments that might result from sus-
14 pension; it has to balance all of those and reach a decision.

15 It does not depend on urgent need. It does not
16 have -- the Applicant does not have to establish that he
17 would be prejudiced totally by not being able to go forward.
18 It's a balancing factor, a number of considerations.

19 Now, there were a number of statements made that
20 I could go back to. Mr. Cherry's argument in its entirety
21 is based on assumptions that he was allowed to put into his
22 questions on cross-examination which he has provided no basis
23 for.

24 While the Board allowed him to ask those kinds
25 of questions, they did rule that until he provided the basis

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1 for the assumptions they would have no weight. As of yet
2 those assumptions have no basis.

3 I would like to go through just a few of those.

4 Mr. Cherry talks about price elasticity and
5 conservation not being factored in at all. That was not the
6 testimony. The testimony was that you could not separate
7 out change in living, price elasticity and conservation, but
8 that there was a factor which had been identified as a result
9 of all those items which had been applied to the forecast
10 and did indeed dampen demand.

11 The testimony was you could not separate out what
12 portion of the whole segment was attributable to price
13 elasticity or to conservation or to change in living styles.
14 That was the testimony.

15 We then get to Palisades, on which we've had a
16 running argument. Mr. Cherry talks about the DES. This Board
17 knows that the DES does not address the safety considerations.

18 As part of my proffer of proof I will establish,
19 when and if the Board allows me to, that there have been no
20 calculations submitted by Palisades on the safety side which
21 would allow that unit to go from 686 megawatts to 786 mega-
22 watts.

23 What is before the Commission is an application
24 filed in January 1974 for : retch which has the environmental
25 information in it and all the other information except the

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1 cc a physics which go to whether or not this unit could
2 raise its power level and operate. The problem at Palisades
3 is uncertainty. The technical people cannot tell at this
4 point in time whether or not that unit will have to be
5 derated, taken out of service, or whether they may get some-
6 thing above the 686 megawatts. Now, that would be the
7 state of the record.

8 The state of the record now is an assumption by
9 Mr. Cherry with no other evidence that there will be an
10 increased power level and that somehow or other you could
11 take it out and have it on line back in the 80s. There is
12 no basis for those statements; it's just a hypothesis.

13 Until he provides the basis, you cannot rely
14 upon that for a ruling.

15 As to Dow, Dow has stated its corporate position.
16 Mr. Orrefice testified as to Dow's corporate position.
17 Dow's corporate position is that it tends to go along, it
18 tends to comply with the contract -- whatever the words
19 Dow used. I will not try to paraphrase it, since that seems
20 to be a problem. But at this point in time they're con-
21 tinuing.

22 Mr. Orrefice also testified that the \$90 million,
23 which is the maximum in the Bechtel budget, would not affect
24 that economic analysis.

25 We have set forth in our brief to this Board the

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1 question of the Dow position. Dow has said they intend to
2 honor that. They need the steam. Mr. Cherry says, well, they
3 cannot get it until 1984; then they will stay in the contract.
4 But 1984, if it stayed in the contract until that time, is
5 not relevant to the question of when do they need it. They
6 need it as soon as they can get it. Mr. Temple stated that;
7 Mr. Orrefice stated that.

8 Consumers has a schedule by which it believes it
9 can supply steam in that time period of '81 and '82.
10 Certainly there are some parameters in there.

11 Mr. Cherry talks about Mr. Keeley's testimony.
12 Mr. Cherry says that if we really wanted to do it we would
13 spend all this money and make it. Well, that's not quite
14 the testimony.

15 As Mr. Keeley stated, they already have contingencies
16 in the schedule to absorb delays, so the question comes
17 whether or not those contingencies can absorb the delays
18 without spending the money --that was Mr. Keeley's testimony--
19 until they could analyze whether the contingencies already
20 in the schedule can absorb what Bechtel perceives to be a
21 problem, and certainly they're not going to say right now
22 whether they're going to spend the money.

23 Mr. Keeley also testified that in doing that
24 they would shoot for having these units on line in March
25 of '81 and March of '82, and that he believed that was a

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1 realistic schedule. So did Mr. Howell.

2 Now, to talk about the need for the Dow plant,
3 Mr. Cherry mentioned two figures for you, 300 megawatts
4 versus 175. That's not the testimony.

5 Mr. Bickel testified that the number he used
6 was 200 megawatts. Dow says they only need 175 megawatts.
7 If you subtract the 200 megawatts it makes less than 1 percent
8 difference in the forecast. So whichever one of them is
9 correct, the 175 or the 200, it does not affect the forecast
10 as to what the Consumers system demand will be during the
11 period in question.

12 Next we talked about financial difficulties, once
13 again based on Mr. Cherry's assumptions as to financial
14 difficulties. We have proffered evidence to this Board on
15 those to show that in fact Consumers is able to finance and
16 can finance this unit. There are interrogatories in this
17 case which also show that Consumers can finance it, so once
18 again we're on his unproven hypothesis.

19 Mr. Cherry misstated the record again when he
20 said that a coal alternative could be built by 1981. Mr.
21 Keeley's testimony was that it would be seven years from
22 today if we started, at a minimum, and that would be 1984-1985.

23 Once again, with ACRS, we have a misstatement.
24 Mr. Cherry said forty-three out of eighty-six were not okayed
25 by the Staff. If the Board will look at Exhibit 33 in

10
1 conjunction with the answers to interrogatories, it will
2 see that forty-three out of eighty-six of the items have
3 not been approved by the Staff in the form of a letter as
4 a result of Reg. Guide issuance. It does not take into
5 account those matters approved in the PSAR, those matters
6 committed to by the Applicant in questions from the Staff
7 with regard to their review.

8 Certainly there are some open items, but this
9 Board can look at those exhibits and see that provisions
10 have been made for them in both the schedule and the cost.

11 Now, Mr. Cherry finally gets back to the revised
12 cost-benefit. He says that we shouldn't be allowed to
13 spend any money and decide to stop. The problem that I
14 have with that argument is that, if you look at what the
15 Court of Appeals has said, especially in the coalition case
16 where they added this factor of tilting the balance of the
17 cost-benefit away from the abandonment as an alternative, if
18 you analyze the reason why you will see that the court was
19 logical. It said, "Look, if your cost-benefit balance was
20 correct when you first made it, every dollar that you spend
21 will make that first analysis more correct."

22 So it said what a Board has to do is, it has to
23 look at whether, knowing this fact, the amount of money to
24 be spent in the interim suspension period will tilt the
25 balance away from the alternative of abandonment.

903 #3

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1 That is one of the factors this Board has to
2 consider. There is testimony on that which has not been
3 touched, which indicates that if construction is allowed to
4 continue you will not tilt the balance away from the alternative.

5 That factor has to be laid up against the other
6 factors. The question is not whether or not you have to do a
7 revised cost-benefit analysis and to do that you have to stop
8 construction to enable yourself to do that. The Court has
9 already addressed that question and said what the Board has
10 to do to before it determines whether or not to continue,
11 is balance all of the factors.

12 There is evidence in this case, evidence in this
13 case, evidence that has been proffered, which clearly shows
14 that the Applicant meets its burden of proof and to grant
15 Mr. Cherry's motion at this time would be incorrect.

16 CHAIRMAN COUFAL: Thank you gentlemen.

17 MR. HOEFLING: Mr. Chairman?

18 CHAIRMAN COUFAL: Did you want to say anything,
19 Mr. Hoefling?

20 MR. HOEFLING: Just a few words.

21 With regard to Mr. Cherry's motion, I would simply
22 comment that I think the motion is premature at this time.
23 The question of suspension should be treated when we have a
24 complete record on the factors that the Board has to use to
25 make its judgment.

Jmm2

1 The Staff has not yet put on its case and we haven't
2 seen Dr. Timm's direct case put into evidence either at this
3 point.

4 But going more to the question of prematurity, I
5 think, is the assumption in Mr. Chexry's motion that the
6 Applicant at this point has failed to meet its burden of
7 proof. And I think that that assumption is only valid if,
8 indeed, the Applicant takes the position that it has closed
9 its direct case at this point in time and the Applicant clearly
10 has not taken that position.

11 This case has been transformed from a TRO type
12 case. The Board has permitted the Intervenor's extensive
13 discovery, almost unlimited discovery, and the Board has
14 permitted the Intervenor's unlimited cross-examination of
15 the prefiled testimony of the Applicant.

16 And it would appear in this kind of context, that the
17 Applicant is clearly entitled to supplement its direct case.
18 And these go back to the arguments that Mr. Renfrow made
19 yesterday. And until the Applicant is entitled to supplement
20 its direct case, I don't think we can discuss a motion to
21 suspend, based on the failure of the Applicant to meet its
22 burden of proof.

23 CHAIRMAN COUFAL: Mr. Nute?

24 MR. NUTE: I have nothing to add to what Mr. Renfrow
25 said, Mr. Chairman.

mm3

1 MR. CHERRY: Do you support Mr. Renfrow, Mr. Nute?

2 MR. NUTE: I said I have nothing to add to what
3 Mr. Renfrow has said. That is what I said, Mr. Cherry.

4 MR. CHERRY: Mr. Chairman, I ask that Dow
5 Chemical be ordered to take a position on the motion.

6 You ordered them to act like a party. What does
7 that mean, "I have nothing." Do you have anything further to
8 add to what I said, Mr. Nute?

9 CHAIRMAN COUFAL: Mr. Cherry --

10 MR. CHERRY: Mr. Chairman, I ask for an implementa-
11 tion of your order to require them to be a party.

12 Dow Chemical has sat here and has spent money and
13 has participated as a party, and I ask you to have them --
14 to tell them -- that they have no position on the motion, or
15 that they have a position, or that they don't care about it,
16 or they haven't analyzed it, or why haven't they analyzed it,
17 or is it important to them, et cetera.

18 CHAIRMAN COUFAL: Do you have a position on it,
19 Mr. Nute?

20 MR. NUTE: Mr. Chairman, as I stated, I have nothing
21 to add to what Mr. Renfrow has said.

22 I support Mr. Renfrow's responses.

23 Any additional comments we have to make, we would
24 prefer to make in brief. At some time I am sure the Board
25 will ask for them.

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CHAIRMAN COUFAL: All right.

2

MR. CHERRY: Mr. Chairman?

3

CHAIRMAN COUFAL: We are not going to rule on that
4 this morning.

5

MR. CHERRY: I appreciate that.

6

But I would like to make three points in rebuttal.

7

CHAIRMAN COUFAL: Do it very quickly.

8

MR. CHERRY: Yes.

9

My argument was not based on a legal standard.

10

I believe that we should prevail on the balancing.

11

Second point, if the Board doesn't suspend, then
12 it must theoretically be able to say that the hearing on the
13 remand can end when the construction ends, because you haven't
14 made any limitation nor has anybody argued that a particular
15 number would tilt the balance.

16

And if you do believe that, then it is absolutely
17 insane to suggest that we can analyze alternatives when the
18 plant is completed.

19

If you don't believe that, then what is the magic
20 number? Why isn't it \$5- or \$700 million.

20

21

Next, Mr. Renfrow says that the balancing should
22 be taking away from abandonment.

22

23

That is not true. It is tilting away from any
24 alternative, including abandonment.

24

25

And lastly, in terms of Mr. Hoefling's complete

mm5

1 record point, in a lawsuit when a plaintiff moves forward and
2 his witnesses are cross-examined, he doesn't get a chance to
3 put on rebuttal testimony. He gets a chance to put on redirect
4 testimony. And redirect testimony is of the witnesses who
5 were on in the first place.

6 The Applicant has rested. And I don't care whether
7 he thinks he has rested or hasn't, the Board has properly
8 ruled that his other testimony is rebuttal.

9 If I choose not to put on a case at all, he
10 doesn't have a chance to put on any rebuttal, because there is
11 nothing to rebut. Ergo, I am making this motion asking the
12 Board to rule on the state of the record at the close of the
13 Applicant's case with the full knowledge that we may not
14 put on any evidence, and Dr. Timm may not be available to this
15 Board.

16 CHAIRMAN COUFAL: All right.

17 Mr. Hoefling, do you want to call your witness?

18 MR. HOEFLING: Yes.

19 I call Mr. Lawrence Crocker to the stand.

20 Whereupon,

21 LAWRENCE P. CROCKER

22 was called as a witness on behalf of the Regulatory Staff,
23 and having been first duly sworn, was examined and testified
24 as follows:

25 MR. CHERRY: Mr. Chairman, I ask that all witnesses

mm6

1 in the room who have not testified be asked to leave, pursuant
2 to the reasons I have given earlier.

3 MR. HOEFLING: Staff objects to the motion for the
4 reasons that it stated earlier.

5 CHAIRMAN COUFAL: I have forgotten what -- is it
6 Mr. Crocker?

7 THE WITNESS: Yes.

8 CHAIRMAN COUFAL: What is the subject of his
9 testimony?

10 MR. HOEFLING: Mr. Crocker discusses ACRS items
11 and also the question of the smaller Midland facility as
12 scheduled.

13 CHAIRMAN COUFAL: All right.

14 Overruled, Mr. Cherry.

15 DIRECT EXAMINATION

16 BY MR. HOEFLING:

17 Q Mr. Crocker, would you give your full name and
18 state your position?

19 A My name is Lawrence P. Crocker.

20 I am the technical assistant to the director of
21 project management for the Nuclear Regulatory Commission.

22 Q What is your relationship to the Midland project?

23 A Until August of last year, I was the project
24 manager, licensing project manager on the Midland project,
25 and had been in that capacity for a period of about five months.

mm7

1 Q Do you have before you a document, two-page document
2 entitled, "Lawrence P. Crocker, Professional Qualifications"?

3 A I do.

4 Q Was that document prepared by you or under
5 your supervision?

6 A Yes, it was.

7 I should say that is a three-page document, not a
8 two-page document.

9 Q Excuse me, a three-page document.

10 A It was prepared by me.

11 Q Is it true and correct to the best of your knowledge
12 and belief?

13 A Yes, it is.

14 Q Do you have before you a three-page document
15 entitled "NRC Staff Testimony of Lawrence P. Crocker Relating
16 to the Possibility of Constructing a Smaller Nuclear Plant at
17 Midland"?

18 A I do.

19 Q Did you prepare that testimony?

20 A Yes, I did.

21 Q Is it true and correct?

22 A It is.

23 Q Do you have before you a seven-page document
24 entitled "NRC Staff Testimony of Lawrence P. Crocker Relating
25 to Delay of Construction and Makeup of Lost Time"?

mm8

1 A Yes, I did.

2 Q Did you prepare that document?

3 A I did.

4 Q Is it true?

5 A Yes, it is.

6 Q Do you have before you a 20-page document entitled
7 "Draft Analysis of ACRS Report of 11/18/76?"

8 A Yes, I do.

9 Q Did you prepare that document?

10 A I did.

11 MR. CHERRY: Mr. Hoefling, was that document
12 distributed in November?

13 MR. HOEFLING: Oh, thank you, Mr. Cherry.

14 By way of clarification, Mr. Chairman, we prefiled
15 our testimony on November 5 with the Board. The ACRS letter
16 came out on November 18, 1976 subsequent to the filing of the
17 prefiled testimony.

18 This material was prepared following the issuance
19 of that letter and was brought to the hearing in Midland,
20 which I believe commenced on November 30th, and was distributed
21 to the Parties and the Board at that time.

22 MR. CHERRY: Do you have another copy?

23 MR. HOEFLING: Does the Board have copies?

24 I have additional copies here.

25 CHAIRMAN COUFAL: I don't have a copy in front of me.

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1

Wait a minute, maybe we do. Yes, we do.

2

MR. CHERRY: I have it. It doesn't have a title,
is that correct?

4

MR. HOEFLING: Right.

5

Does the Board need copies?

6

DR. LEEDS: No, we have a copy.

7

BY MR. HOEFLING:

8

Q Did you prepare that 20-page document, Mr. Crocker?

9

A Yes, I did.

10

Q Do you have any changes to that document?

11

A Yes, I would like to make some changes to it.

12

On the first page, I would like to delete the
word "draft."

13

14

Q Where does that word appear?

15

A On the first page of the document.

16

CHAIRMAN COUFAL: First line?

17

THE WITNESS: First line, "draft analysis," just
delete the word "draft." That would be my final testimony.

18

19

BY MR. HOEFLING:

20

Q Any other changes?

21

A Yes.

22

Towards the end of the document, Item No. 10,
Instrumentation to Follow the Course of an Accident. That
would be about five pages back from the end of the document.

23

24

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CHAIRMAN COUFAL: Wait, I am having difficulty.

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MR. CHERRY: Could you be more specific than the bottom five pages?

THE WITNESS: Yes.

Actually the fourth page back from the end of the document.

MR. CHERRY: What page number is that?

THE WITNESS: It has a number 2 on it going to that particular item, Instrumentation to Follow the Course of an Accident.

MR. RENTROW: Mr. Chairman, I get confused with the conversations back and forth.

If there is going to be questions up here, could they come through you, please?

THE WITNESS: On that I would like to point out --

CHAIRMAN COUFAL: This page starts with the word "license"?

THE WITNESS: Yes, sir.

CHAIRMAN COUFAL: And then it starts a new paragraph, "This aspect of the problem. . ."

THE WITNESS: That is correct.

CHAIRMAN COUFAL: Okay.

THE WITNESS: And indicate on that page that Regulatory Guide 1.97 was still under review by the Staff and the ACPS.

I would like to point out that that review is

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1 complete. The Final ACRS Review has been completed and we
2 expect the document to be published about the middle of March
3 of this year.

4 BY MR. HOEFLING:

5 Q Do you have any other --

6 CHAIRMAN COUFAL: That is going to be hard to write
7 in this testimony.

8 MR. HOEFLING: Mr. Chairman, it could simply be
9 reflected in the record by what Mr. Crocker said.

10 CHAIRMAN COUFAL: I guess it will have to be.

11 THE WITNESS: I have one further addition.

12 On the next-to-last page of the document, at the
13 end of the first full paragraph where we indicate that the
14 Staff had reviewed revised information on quality assurance
15 from the Applicant and that we consider the program to be
16 acceptable.

17 I should add that that was documented now in a
18 letter dated November 26, 1970 from Mr. Barker of the Staff
19 to Mr. Howell of Consumers Power.

20 BY MR. HOEFLING:

21 Q Is that the extent of your additions to that
22 document?

23 A Yes, it is.

24 Q With those additions, is the document true and
25 correct?

mml2

1 A Yes, it is.

2 MR. HOEFLING: The Staff would move that Mr. Crocker
3 qualifications and the three pieces of testimony that I have
4 identified, be admitted into evidence and bound into the
5 record as if read.

6 CHAIRMAN COUFAL: Is there an objection?

7 MR. CHERRY: Yes, your Honor, I object.

8 I have no objection to the documents being admitted
9 into evidence as if read, but I have objection to relevancy
10 on several portions of the testimony, which I would like to
11 address.

12 May I?

13 CHAIRMAN COUFAL: Yes.

14 MR. CHERRY: The testimony of Staff witness Crocker
15 dealing with the possibility of constructing a smaller nuclear
16 power plant, which deals with an economic analysis is beyond
17 this witness' expertise. None of his three-page expertise
18 includes anything about economics, unless he did it while
19 he was a platoon leader.

20 And his Army development in all that is all kind
21 of supporting the nuclear program from one end to another. But
22 it doesn't say that he has made any analysis that would
23 entitle this person to know about economics, which is what
24 he talks about in the Crocker Testimony, Related to the
25 Possibility of Constructing the Smaller Nuclear Power Plant.

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1 CHAIRMAN COUFAL: Can you direct me to the particu-
2 lar part of the testimony you are talking about, Mr. Cherry?

3 MR. CHERRY: I am talking about all of the testimony
4 contained in the three pages entitled "NRC Staff Testimony
5 of Lawrence P. Crocker Related to the Possibility of Construc-
6 ting a Smaller Nuclear Power Plant at Midland."

7 CHAIRMAN COUFAL: Wait a minute. I am having
8 trouble getting it.

9 All right.

10 MR. CHERRY: Mr. Crocker has submitted three
11 separate sections to his testimony. Two are prepared with
12 titles, the third has got "draft" stamped all over it, which
13 he has now adopted as his final testimony. But it doesn't
14 have his name written on it.

15 Have you found it now?

16 Okay. If you look at that testimony, he testifies
17 in very conclusory fashion, is the kinds of certainly
18 historical overview of what kind of reactors were available;
19 he talks about standardization; then he ends up that he
20 doubts that the purchase of the smaller unit is a realistic
21 alternative.

22 And he bases that on the cost analysis, the
23 cost of developing other designs, and the cost of moving
24 forward to do alternative analysis. And there simply isn't
25 anything in his qualifications, nor in the testimony, to

mm14 1 support any of that relevant at all, because the Regulatory
2 Staff has suggested that the only alternative which is
3 reasonable to analyze is the alternative of a 1600 megawatt
4 coal-fired plant.

5 And, having taken that position in their Draft
6 Environmental Impact Statement, they have as a matter of fact
7 and law, ruled out that any other alternative is a reasonable
8 one to analyze. Ergo, if this testimony is offered as an
9 alternative, then there should be a more express statement
10 that they have looked at this among other alternatives and
11 concluded it is unreasonable for certain reasons stated.

12 Since they haven't done that it is irrelevant,
13 because they are not claiming it is an alternative that
14 ought to be analyzed.

15 That is my relevancy argument.

16 My argument as to this witness's qualifications,
17 goes to the economic analysis which has to be the basis for
18 rejecting an alternative, because you don't reject an
19 alternative because you are in the Army and work for the
20 Nuclear Regulatory Commission.

21 And, if the Board is concerned at all about this
22 gentleman's qualifications on economic matters, I want them to
23 ask a few questions. If not, I will.

24 CHAIRMAN COUFAL: Just a second.

25 Go ahead, Mr. Hoefling.

mm15

1 MR. HOEFLING: I think Mr. Cherry has framed a
2 twofold objection.

3 First, he objects to the testimony on the grounds
4 of relevancy. And I think that the testimony is clearly
5 relevant.

6 It discusses the alternative of constructing, or
7 feasibility of constructing a smaller facility to supply whatever
8 quantities of power they judge to be required.

9 And I think the Aeschliman decision explicitly
10 indicated that consideration should be given to examining the
11 alternative of a smaller facility.

12 So I don't think the relevancy objection of
13 Mr. Cherry has any merit to the extent that the Staff has
14 determined that the Staff has determined that the coal
15 alternative is the only reasonable alternative for analysis.
16 We will clearly underline that conclusion as an examination of
17 other alternatives for reasonableness and rejection of them.

18 The second portion of Mr. Cherry's objection
19 goes to qualifications of Mr. Crocker to make these judgments.

20 I think we have to bear several factors in mind.
21 Mr. Crocker is qualified as an engineer, he is qualified in
22 the areas of construction. The judgment that he is making is
23 not a strictly economic judgment. It involves considerations
24 of availability, of plant design in an engineering sense, it
25 involves considerations of the feasibility of taking a facility

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1 that is under construction and converting it to a smaller
2 facility.

3 These are engineering-type judgments, and judgments
4 based on construction experience, Mr. Crocker is qualified to
5 make.

6 So, to the extent that Mr. Crocker is qualified
7 in these areas, he is making a judgment as to the feasibility
8 of going to a smaller facility. I think he is qualified to
9 make that judgment.

10 CHAIRMAN COUFAL: Have you got a copy of Mr. Crocker's
11 qualifications? I don't have them here.

12 (Mr. Hoefling handing document to Board.)

13 MR. CHERRY: Mr. Chairman, if I could, just for a
14 second, in rebuttal to Mr. Hoefling's remarks, he said that
15 the Aschliman decision contemplated discussion of the
16 smaller facility.

17 But it didn't contemplate discussion for a smaller
18 facility on the realistic ability to physically convert it to
19 one from what is there now, or where the components were there.

20 It did that in terms of what the demand would be,
21 in terms of energy conservation.

22 And indeed, if Mr. Crocker's position is that the
23 present facility can't be made smaller, then maybe he ought
24 to testify, because I take it if we build it any bigger, it
25 is going to make it even worse. So I will now withdraw my

mm17

1 objection to Mr. Crocker's testimony on this point. And I
2 have no objection to this testimony on relevance.

3 But I still press my objection on his expertise.

4 CHAIRMAN COUFAL: Okay.

5 Give me a couple of minutes to review this. It
6 has been a long time since I have read it.

7 (Pause.)

8 CHAIRMAN COUFAL: We are going to overrule your
9 objection on qualifications, Mr. Cherry.

10 You may ask some questions on the witness'
11 qualifications.

12 MR. CHERRY: May I do that now?

13 CHAIRMAN COUFAL: Yes, go ahead.

14 MR. HOEFLING: I have one other item I would like
15 to take care of with the witness, that doesn't go to
16 qualifications in this particular sense.

17 If Mr. Cherry wants to begin with his or --

18 MR. CHERRY: If you have offered all the testimony,
19 I have offered objections. But I will go to the voir dire
20 on economics right now.

21 But, if you have more on his qualifications --

22 MR. HOEFLING: No, I want to have him discuss
23 certain exhibits.

24 MR. CHERRY: You mean substantively?

25 MR. HOEFLING: Yes.

mm18

1 MR. CHERRY: Mr. Chairman, I would like to confirm
2 for the record I spoke to Mr. Gunderson during the recess,
3 and I asked him since the Federal Power Commission was
4 providing an expert to the Nuclear Regulatory Commission and
5 they were a public agency, could I get some assistance from
6 the Federal Power Commission from him.

7 And he said, well, he didn't think he could do it
8 because of the relationship, but he saw no reason why a
9 Federal Power Commission expert could not be made available to
10 me. And he gave me his telephone number and I told him I
11 would call him Monday.

12 And he said he would set up an arrangement whereby
13 an expert with at least Mr. Gunderson's qualifications could
14 meet with Dr. Timm and go over this information and make the
15 whole resources of the Federal Power Commission available to
16 me.

17 And I intend to do that.

18 MR. HOEFLING: Mr. Chairman, I think we have
19 identified Mr. Gunderson as a potential Staff witness, and
20 I certainly would appreciate it if, before Mr. Cherry talks
21 to any of my witnesses, that he either ask me or invite me
22 to be there when he does.

23 I don't know what the substance of his conversation
24 was, other than what Mr. Cherry has related to me. I am sure
25 that is an accurate relation, but I am going to have to reserve

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1 some comment on it until I speak with Mr. Gunderson.

2 MR. CHERRY: That is all the conversation entailed.

3 I did not discuss his testimony with him, because
4 I don't even know what it is.

5 There was a remark made by Mr. Brenner, "don't
6 talk to that 'expletive deleted'." But I just ignored that.

7 MR. RENFROW: Mr. Chairman, I'm sorry, I hate
8 representations made on the record that aren't quite full and
9 complete. That is not full and complete.

10 I won't go into the rest of the details, but I
11 think probably we will get along a lot better in this
12 proceeding if the Board did enforce its rule that counsel
13 were not to talk to witnesses in this case or other parties
14 without counsel for that party being there.

15 I have stated before that subjecting a witness to
16 the kind of abuse that is taking place in the halls and in
17 the courtroom during recess, is not proper. And I think the
18 Board ought to enforce that order.

19 CHAIRMAN COUFAL: Well, I don't know what kind of
20 abuse has taken place, if any.

21 Mr. Cherry, if you are abusing these people during
22 the recesses or in the courtroom, don't do it.

23 MR. CHERRY: Okay.

24 If I do it, if I believe I am doing it, I will stop.
25 But the only reason I talked to Mr. Gunderson is simply to

mm20 1 find out whether or not an agency of the United States
2 government would provide an Intervenor with some assistance
3 when he needs some help.

4 As a matter of fact, Mr. Gunderson told me he had
5 a high regard for what I was going in this proceeding, and I
6 assume that is why he agreed to get someone to help me.

7 CHAIRMAN COUFAL: Okay, fine.

8 MR. HOEFLING: Mr. Chairman, I don't think it is
9 Mr. Gunderson's place to make a decision that relates to this
10 proceeding without speaking with counsel or having the advice
11 of counsel.

12 Now, if Mr. Gunderson has made some representations
13 to Mr. Cherry, again I am reserving comment on those until I
14 have an opportunity to speak with Mr. Gunderson.

15 What I am asking the Board to do is to tell
16 Mr. Cherry not to talk to my witnesses without my being there
17 or seeking my consent.

18 CHAIRMAN COUFAL: I have got a little problem with
19 that. I know that was an order that was issued in this
20 proceeding some time ago, that counsel can't talk to anybody
21 else's witnesses. And I am not sure that I agree with that
22 kind of an order.

23 I am going to let it stand to get us through the
24 rest of the day. But you might be prepared to address that.
25 I am not sure that this Board has got a right to order any

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1 attorney in any case not to talk to a witness where he is a
2 public employee.

3 DR. LEEDS: Let's also be careful and look back in
4 the record. If I remember correctly, that occurred in
5 Michigan, in Midland, Michigan during the first week of the
6 hearing, and we were very concerned about it during the
7 hearing. But not talking to afterwards.

8 Our ruling, I think, went to witnesses alone. And
9 I share the Chairman's concern. And I can tell you that,
10 because I don't think -- Mr. Coufal obviously couldn't have
11 been a party to those discussions of the Board in Midland,
12 but we also share, at least I as a member of the Board, share
13 that concern about talking to members of the federal government
14 government employees.

15 I understand the problem of the witness, and I
16 understand the problem of an attorney wanting to be present.
17 I think our ruling at that time was that during the hearings,
18 and if they were continued over the weekend, it should be such
19 that an attorney for the party should be present.

20 MR. HOEFLING: I understand your concern,
21 Dr. Leeds. We will look into that question.

22 But I do think at the very least, if counsel is
23 going to talk to a witness or a prospective witness on the
24 part of the Staff, opportunity should be afforded for
25 counsel to be there during discussion.

mm22

1 CHAIRMAN COUFAL: We know your position, Mr. Hoefling.

2 DR. LEEDS: We understand.

3 CHAIRMAN COUFAL: We are just indicating we are not
4 entirely sure we agree with your position.

5 This is not to say that we are making any requirement
6 that any government witness or any other witness in this
7 lawsuit talk to Mr. Cherry if he doesn't want to.

8 VOIR DIRE EXAMINATION

9 BY MR. CHERRY:

10 Q Mr. Crocker, what graduate degrees do you have in
11 statistics?

12 A None.

13 Q What graduate degrees do you have in business
14 administration?

15 A None.

16 Q What graduate degrees do you have in economics?

17 A None.

18 Q What undergraduate degrees do you have in
19 statistics?

20 A None.

21 Q What undergraduate degrees do you have in business
22 administration?

23 A None.

24 Q What undergraduate degrees do you have in economics?

25 A None.

mm23 1

Q What courses have you had in statistics?

2

A I have had a course in -- undergraduate course in statistics. To my knowledge, that is the only one as I recall.

3

4

Q Was it a one-semester course?

5

A Yes.

6

Q Do you feel yourself competent as an expert in statistical analysis?

7

8

A No, I do not.

9

Q What economic courses have you had in undergraduate school?

10

11

A I have had, as I recall, one full year of economics undergraduate, and then a semester course at the graduate level in engineering.

12

13

14

Q Do you consider yourself an expert in economics?

15

A No, I do not.

16

Q What undergraduate courses have you had in business administration?

17

18

A None that I recall.

19

Q Does your testimony which relates to a smaller plant depend in part upon analysis of economic, statistical and accounting matters?

20

21

A Does it depend upon analysis of it?

22

No, I don't think it does.

23

Q Does it relate -- well, let me put it another way.

24

Is your judgment about your testimony in terms of a smaller

25

24 1 plant at Midland, substantially relate to economic, statistical
2 and accounting matters in connection with ultimately arriving
3 at the judgment?

4 A It does not relate substantially to it, no.

5 Q Does it relate to economics at all?

6 A Certainly, I think economics comes into it.

7 Q Tell me how without getting into the substantive
8 testimony. Tell me the procedural method by which economics
9 comes into your testimony?

10 A I would say just in terms of the overall costs of
11 the facility, availability of the facility -- of a facility of
12 that nature, whether or not one could purchase it.

13 Q Oh, you are not talking about the relative costs of
14 each one. You are just talking about the availability of
15 material?

16 A Essentially.

17 Q So that is not economics at all. You are just
18 talking about whether or not there is a supplier who might
19 be able to sell a particular component?

20 A That was the position I was in at the time I
21 prepared this testimony, yes.

22 Q So your testimony is not in connection with this
23 smaller plant? You do not represent that it has anything to
24 do with an economic inquiry as to alternatives, just to
25 the availability of material?

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1 A Yes, that is essentially correct.

2 Q And you are telling me that you rejected the
3 smaller plant on the basis of your judgment as to the
4 availability of components, but you made no economic analysis
5 at all?

6 Is that a fair statement?

7 A I made no economic analysis.

8 That is correct.

9 Q On page 2 of your testimony you state in the first
10 full paragraph --

11 CHAIRMAN COUFAL: You are getting a little beyond
12 voir dire, aren't you, Mr. Cherry?

13 MR. CHERRY: No, I don't think so.

14 I was just going to ask him, not questions
15 substantive, I was just going to ask him questions as to
16 whether or not that is an economic judgment at all.

17 BY MR. CHERRY:

18 Q In the second sentence in the first full paragraph
19 which reads:

20 "I doubt, however, the purchase of a smaller
21 unit is a realistic alternative."

22 Is it your testimony that that is not based upon
23 any economic evaluation?

24 A That is right.

25 MR. CHERRY: Mr. Chairman, I now move as an

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1 additional ground, renew my objection in terms of relevance.

2 This has been now proferred by Mr. Hoefling -- and
3 I think I remember his words, he says, "While we argued that
4 the 1600 megawatt coal-fired plant was the only alternative
5 that we thought was reasonable, that by definition meant
6 we excluded others. Therefore I am offering this alternative."

end #3

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1 And, therefore, I'm offering this alternative.
2 Clearly, this gentleman has stated that he has no expertise
3 in any of the underlying matters, that he has not made an
4 economic analysis. But yet it's being offered for that purpose
5 by Mr. Hoefling, and it contains economic judgments.

6 I think that it's a total imposition on the hearing
7 to have Mr. Crocker's judgments, when clearly he's not in
8 the position to make them.

9 MR. HOEFLING: I think that Mr. Cherry has essential
10 made our case for us of what Mr. Crocker is saying. He's
11 looked at the smaller alternative, he's looked at it in the
12 sense of component availability, in the sense of engineering
13 feasibility, in the sense of licensing such a smaller facility,
14 and he's reached the judgment, based on his engineering
15 knowledge, based on his construction experience that these
16 considerations make such an alternative feasible for this
17 facility. And the substance of his testimony is based on
18 these judgments.

19 Simply going forward with the Midland facility as
20 is, and perhaps running it at a reduced power level is clearly
21 the feasible approach, and not to, in essence, substitute the
22 entire facility with a smaller facility that has the
23 engineering limitations, the licensing limitations and
24 component availability limitations that he testifies to.

25 CHAIRMAN COUPAL: Your objection is overruled.

1 MR. CHERRY: On this portion of the testimony?

2 CHAIRMAN COUFAL: On whatever objection you made
3 so far, yes.

4 MR. CHERRY: All right. I'm going to make some
5 more objections, relating to the delay of construction and
6 the makeup of lost time, which is his next testimony.

7 Do you want me to --

8 CHAIRMAN COUFAL: That's not been offered, has it?

9 MR. CHERRY: Yes, it's offered.

10 CHAIRMAN COUFAL: All right. Where is that now?
11 It's entitled what?

12 MR. CHERRY: That's entitled NRC Staff Testimony
13 of Lawrence B. Crocker relating to Delay in Construction and
14 Makeup of Lost Time.

15 CHAIRMAN COUFAL: Okay, what's your objection?

16 MR. CHERRY: Well, I'd like to voir dire this
17 gentleman on a couple matters now.

18 CHAIRMAN COUFAL: All right.

19
20 BY MR. CHERRY:

21 Q What are the components of the present worth
22 analysis based upon a 34-year life of the plant, beginning
23 with the year, for example, 1980?

24 MR. HOEFLING: Objection to that, Mr. Chairman.

25 THE WITNESS: I told you, Mr. Cherry, I'm not an

1 expert in that and I don't pretend to be.

2 MR. HOEFLING: Mr. Chairman, I have an objection,
3 and I'd like that question and the answer stricken. There's
4 nothing in Mr. Crocker's testimony that goes to present worth
5 analysis.

6 MR. CHERRY: Yes, there is. He has stated that
7 he's made certain judgments in the second part of his testi-
8 mony regarding the delay in construction.

9 CHAIRMAN COUFAL: All right, give me a couple of
10 minutes. I've got to read this again.

11 (Pause.)

12 (Mr. Cherry leaving the hearing room.)

13 MR. BRENNER: Mr. Chairman, excuse me. I thought
14 the Board just spoke to Mr. Cherry about this, and he goes
15 out of the room and on the way out he's pestering and bother-
16 ing Mr. Gunderson again with snide comments. This is just
17 inappropriate to the decorum of a court of the United States
18 and, therefore, inappropriate to this hearing also.

19 I don't mean to take the Board's time, but this
20 is important in terms of what Mr. Cherry is doing to our
21 witnesses. They're not here for that kind of treatment.

22 CHAIRMAN COUFAL: All right.

23 MR. BRENNER: I'd appreciate you're saying something
24 to him on the record when he returns, Mr. Chairman.

25 CHAIRMAN COUFAL: Well, he's out of the room, so

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1 it's tough for me to say it to him now.

2 (Pause.)

3 DR. LEEDS: Mr. Hoefling, do you happen to have a
4 copy of Mr. Crocker's? We have two copies up here, and I
5 think if you could just hand me one of the Reporter's there.

6 (Document handed to the Board.)

7 MR. HOEFLING: That doesn't contain the ACRS --
8 I can get you a copy of that.

9 DR. LEEDS: No. I don't need that.

10 (Mr. Cherry returning to the hearing room.)

11 CHAIRMAN COUFAL: Mr. Cherry, an allegation was
12 made while you were gone that you made some sort of a remark
13 to Mr. Gunderson as you walked out of the room.

14 Now, don't talk to the Staff's witnesses.

15 MR. CHERRY: He's not a Staff witness.

16 CHAIRMAN COUFAL: -- or prospective witnesses.

17 MR. CHERRY: All right. I'd just like to state
18 what I said. I said, "Mr. Gunderson, you'd better stay in
19 the room because you might get in trouble with your lawyer."
20 That's what I said.

21 CHAIRMAN COUFAL: Well, I don't know what you said,
22 but don't talk to him and that will solve the problem.

23 MR. CHERRY: In this room?

24 CHAIRMAN COUFAL: In this room.

25 MR. BRENNER: Mr. Chairman, I'm sorry. As I

1 understand that limitation, it's just don't talk to him in
 2 this room, but he can badger and pester him outside.

3 CHAIRMAN COUFAL: Mr. Cherry, don't badger him
 4 anywhere.

5 MR. CHERRY: I won't badger or pester him anywhere.

6 MR. BRENNER: Or talk to him.

7 CHAIRMAN COUFAL: Well, now, I'm not going to go
 8 that far. He can talk to anybody he wants to in the whole
 9 world, you know.

10 MR. BRENNER: No, sir. I'm talking about our
 11 experts who are assisting us in this proceeding.

12 CHAIRMAN COUFAL: There is a rule in existance, an
 13 order made by this Board a long time ago, and I said this
 14 morning it still stands. I've got some doubts about it, but
 15 it still stands. For the rest of the day let's --

16 MR. CHERRY: Okay, but I just want the Board to
 17 know that on Monday morning I'm going to telephone Mr.
 18 Gunderson, so if you intend to reevaluate that rule -- I don't
 19 want to violate anything, but I'm going to make that call
 20 Monday morning, and I'd like you, in light of your remarks,
 21 to reconsider it before we recess.

22 DR. LEEDS: Could you make it a conference call,
 23 with Mr. Brenner on the line too? Let him initiate the call
 24 to you so it'll solve that problem, and you could get your
 25 information and Mr. Brenner could be on the line?

1 MR. CHERRY: Well, the only purpose of my call to
 2 Mr. Gunderson is to get the name of someone that I want to
 3 be able to talk to.

4 DR. LEEDS: I understand.

5 CHAIRMAN COUFAL: We'll get to you before --

6 DR. LEEDS: I'm trying to get you a free phone call.

7 MR. CHERRY: Okay. I'll be in my office at 10:00
 8 o'clock Chicago time. Mr. Brenner, will you and Mr. Gunderson
 9 telephone me?

10 MR. BRENNER: No, sir. I'm going to consult with
 11 Mr. Gunderson. We don't know what went on, because of your
 12 shabby tactics here this morning. This is not the first
 13 proceeding where this has been done, and Mr. Cherry has been
 14 chided by other Boards for the same thing. I'm surprised --

15 MR. CHERRY: I think it's clear where we stand.
 16 Can I go on with Mr. Crocker?

17 MR. BRENNER: We'll check the law on it for you,
 18 Mr. Chairman, and get it to you as soon as we can, dictated
 19 by the time we're spending here in this proceeding with this
 20 kind of --

21 CHAIRMAN COUFAL: All right, go on with your voir
 22 dire, please, Mr. Cherry.

23 MR. HOEFLING: Mr. Chairman, I think we had a
 24 motion to strike the question and answer on the grounds that
 25 Mr. Crocker's testimony doesn't contain any present worth

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1 analysis. I don't understand why Mr. Cherry is voir diring
2 him in the area of present worth, since that's not what he's
3 testifying to.

4 MR. CHERRY: Well, he's talking about delay costs.
5 The delay costs have to be put into a framework, and --

6 MR. HOEFLING: He's not.

7 CHAIRMAN COUFAL: I'm going to sustain the motion
8 to strike, Mr. Cherry, whatever it was.

9 Go ahead with your questions.

10 BY MR. CHERRY:

11 Q Mr. Crocker, have you made an analysis, or did you
12 purport to make an analysis, in this testimony of the economic
13 impact of what you say is a delay in construction?

14 A I have not made such an analysis for this, no.

15 Q But you conclude, do you, that construction will
16 have an adverse economic effect?

17 CHAIRMAN COUFAL: Mr. Hoefling, I know you're
18 doing that unconsciously, but you're nodding your head at
19 the witness when Mr. Cherry asked the question. I know that
20 was not intentional, and I'm not accusing you. But you kind
21 of sit there and go like this (indicating) and please don't
22 do it.

23 MR. HOEFLING: I'm sorry, Mr. Chairman.

24 CHAIRMAN COUFAL: It could be construed by someone
25 to be a signal to the witness. I'm sure it wasn't intended

1 as such, but don't do it, anyway.

2 Go ahead, Mr. Cherry.

3 BY MR. CHERRY:

4 Q Mr. Crocker, would you?

5 A I don't remember the question.

6 MR. CHERRY: Mr. Reporter, would you read it?

7 Whereupon, the Reporter read from the record as
8 follows:

9 "Q But you conclude, do you, that construction
10 will have an adverse economic effect?"

11 BY MR. CHERRY:

12 Q Do you so conclude, Mr. Crocker?

13 A I don't believe I understand the question.

14 Q All right. I'll try it another way:

15 You told me you made no economic analysis about
16 the delay, and you say in your conclusion -- and I quote the
17 first sentence:

18 "A nine month suspension period would result in
19 a project delay of at least 12 months and the
20 delay could reasonably be expected to extend to
21 15 months, depending upon the state of the economy."

22 Now, what I want to know is:

23 In your conclusions have you analyzed the effects
24 of what you posit to be a delay? In other words, you indicate
25 that it will be adverse. From an economic sense of this

1 delay, or beneficial? Or do you make absolutely no represen-
 2 tation about the economic impact of delay?

3 A I don't believe I addressed the economic impact.
 4 I was thinking strictly in terms of construction of the plant.

5 Q Just to be absolutely clear, then, none of your
 6 testimony deals with whether or not this delay would be
 7 costly or uncostly or financially advantageous or financially
 8 disadvantageous to anyone?

9 A I did not approach it from the financial standpoint.

10 Q And I take it that none of your testimony involves
 11 comparing the delays or makeup in schedules in any other
 12 alternative, even in the limited sense that you're dealing
 13 with the Midland alternative; is that correct?

14 A I think that is correct, yes, as I understand it.

15 Q So you haven't done an economic analysis of the
 16 delay you assert in Midland, and you haven't compared your
 17 conclusion in Midland to any other alternative, is that
 18 correct?

19 A That is correct.

20 Q Including abandonment?

21 A Yes.

22 MR. CHERRY: Mr. Chairman, I will now make a
 23 motion that this witness is positing information and dealing
 24 with conclusions which can have only prejudicial impact upon
 25 this record.

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1 Mr. Crocker has not made any kind of an analysis
2 whatsoever to determine what the impact will be. He refers
3 to economics of the economy throughout, but he is a self-
4 proclaimed non-expert in all of the areas that we require
5 for that kind of judgment. And I think he's simply not the
6 witness to make this kind of a showing.

7 Therefore, I would ask that the information not
8 be put in the record.

9 MR. HOEFLING: I think that the problem we have
10 here is that some people haven't read Mr. Crocker's testimony.

11 Mr. Crocker is clearly testifying as to the
12 schedule associated with the Midland facility if there's
13 a suspension. It's as simple as that. That's what he's
14 saying.

15 If Mr. Cherry would like to address the relevance
16 of that point and somehow tell us how that information is
17 prejudicial to this record, I'd like to hear it.

18 CHAIRMAN COUFAL: Dr. Leeds has a question.

19 DR. LEEDS: Mr. Crocker, let me get something
20 clear in my mind:

21 Your professional qualifications indicate that
22 you have retained responsibility for the Midland plant
23 temporarily.

24 THE WITNESS: Yes, sir.

25 DR. LEEDS: And on page 3 it says you're responsible

1 for the safety evaluation of Kewaunee -- if I pronounced
2 that correctly -- Vogtle and the Koshkonong plant. But I
3 don't find Midland in that list.

4 THE WITNESS: I had indicated Midland at the
5 opening of the qualifications statement, Dr. Leeds, and I
6 didn't feel it was necessary to put it in again at the end.

7 DR. LEEDS: Okay. When were you on Midland?

8 THE WITNESS: I indicated a very short time, sir.
9 Really I inherited responsibility for Midland last spring,
10 about January or February, and retained responsibility for
11 the application for the plant from there through August, at
12 which time I was reassigned from Project Management to
13 Technical Assistant.

14 DR. LEEDS: So you're not an old time Midland
15 type person, then?

16 THE WITNESS: No, sir.

17 DR. LEEDS: Tell me about your experiences in the
18 Army there, with respect to construction, as to effects of
19 strikes or whatever else, shutdowns, and so forth and so on,
20 which a large amount of your testimony deals with.

21 THE WITNESS: As you might expect, we had no
22 experience with strikes in the Army, at least not in the
23 military construction end.

24 DR. LEEDS: Well, it might have been civilian
25 contractors.

1 THE WITNESS: My actual construction experience,
2 sir, was I spent one year in Korea as a platoon leader
3 company commander and an engineer in a combat battalion
4 engaged primarily in road construction projects, but also
5 some airfield construction.

6 Two years as an aide to the Engineering General
7 in the Far East where we were -- I was involved with the
8 supervision of construction activities throughout the Far
9 East, and several months experience as a battalion commander
10 for an engineering construction battalion involved with the
11 planning and the execution of construction projects for
12 the military personnel.

13 I spent two years in the Eastern Ocean Engineering
14 District as the Officer in Charge of Construction on the
15 Island of Terceira in the Azores supervising contract
16 construction efforts. Civilian contractors were doing the
17 work, but the military was inspecting it.

18 That is the extent of the actual construction
19 experience.

20 DR. LEEDS: So you have no experience directly
21 related to problems of shutdowns, restarts, and that kind of
22 activity that you discuss in your testimony?

23 THE WITNESS: Yes, I have had experience with that
24 on the various projects that I've been involved in. At one
25 time or another the work would stop for some higher priority

1 effort or something, and then restart at a later date. I
2 am familiar with this, with the problems of stopping a project
3 and then starting it up again later on.

4 DR. LEEDS: Thank you.

5 MR. CHERRY: MR. Chairman, I'd like to just ask
6 one question as an afterthought on the basis of what Dr.
7 Leeds said.

8 BY MR. CHERRY:

9 Q Mr. Crocker, have you ever been responsible
10 directly for hiring and firing of construction forces in the
11 neighborhood of 900 to 1300 people on a construction project
12 other than roads?

13 A No, I haven't.

14 Q Have you ever been directly responsible for
15 hiring and firing of large amounts of people on a road
16 building matter, upwards of 5, 6, 7 hundred people?

17 A No, I have not.

18 Q What experience do you have in actual buying and
19 procuring of major components for a large commercial venture,
20 whether a building or a nuclear plant, or whatever? You
21 know, actually being the one that does the inquiring, the
22 buying, checking the market places, and so on.

23 A None.

24 Q None whatsoever?

25 A No.

1 Q What experience do you have in analyzing into
2 the future the availability of procurements based on whatever
3 trends or factors one would look at?

4 A As far as procurement, none.

5 Q What experience do you have in projecting future
6 availability of a labor force in a particular area?

7 A None.

8 Q You said you were involved with Midland from
9 January through August -- from April through August of last
10 year?

11 A It was about February I believe.

12 Q And since August you've not been involved in
13 Midland?

14 A Yes, I have been involved with it, but there's
15 another project manager assigned to the Midland plant now.

16 Q What's been the extent of your involvement since
17 August?

18 A I've been involved with the preparations for this
19 hearing, as far as preparation of this testimony, to go to
20 the hearing. How far it continues, I'm not sure.

21 Q Well, who is the person who is at your level that
22 is doing the work on the actual Midland project since August?

23 A It really has been split between myself and the
24 new project manager.

25 Q And who is that?

1 A A gentleman named Ray Powell, P-o-w-e-l-l.

2 Q Is Mr. Powell more knowledgeable about the Midland
3 project than you are?

4 A I would judge not, as of right now, no.

5 Q Well, can you enlighten me at all about why, if
6 you've essentially stopped responsibility for Midland you
7 were asked to continue as a witness through the hearing
8 since August?

9 A As of the time we were preparing testimony, I
10 was the project manager, at the time this thing started.
11 I did in fact prepare the testimony, and we have continued
12 on that basis.

13 Like I said, Mr. Powell is picking up the project.
14 At the present time there's very little going on by way of
15 licensing activities, other than this hearing.

16 Q Mr. Crocker, what experience have you had in
17 supervising the shutdown of major construction projects?

18 A Supervising the shutdown?

19 Q Yes. Let's take, you know, the Midland project
20 as it is now, and using that as an example list for me all
21 the experience you've had in supervising and having direct
22 responsibility for going ahead and shutting down, doing
23 whatever has to be done.

24 A I was directly involved with a shutdown of a
25 civilian contractor effort in the Azores while I was there.

1 Q Describe that for us, what it involved.

2 A This was a contractor (default on the contract,
3 as a matter of fact. The work that the contractor was
4 putting in was not in accordance with the plans and specifi-
5 cations.

6 After a warning by the resident engineer on the
7 job, action was finally taken to default the contractor and
8 shut down his construction activity on the site and move him
9 off the island.

10 Q What was he doing? What was he constructing?

11 A He was constructing an ammunition bunker for the
12 Navy at that time.

13 Q What's an ammunition bunker look like?

14 A What's it look like? This was a very fancy
15 building, as a matter of fact, for underwater demolitions.
16 It involved very heavy, massive construction. As a matter
17 of fact, quite similar to the kind of construction we find
18 around a nuclear plant.

19 Q Was it a big empty building for storing ammunition?

20 A It was not an empty building. It was compart-
21 mented into various rooms with considerable electronics
22 involved to monitor conditions in the rooms.

23 Q Any other projects?

24 A That was the only civilian project I have any
25 contact with in shutting down. On the military side, any

1 number of projects that I was involved with there that we
 2 shut down upon completion of the work.

3 Q No, no, I'm talking about in the midst of the work.
 4 It's only the ammunition bunker?

5 A Yes.

6 Q And did you have experience in connection with
 7 that ammunition bunker concerning vandalism? You say you get
 8 a lot of vandalism, et cetera, because of a shutdown. Now,
 9 you were on an Army base where I assume security was provided
 10 by the Army. Would you agree with me that those are different
 11 situations than a civilian shutdown?

12 A This was on a Portuguese island, as a matter of
 13 fact, under the control of the Portuguese, not the U. S.
 14 military, and there was a considerable amount of vandalism
 15 both on that job and every other job on the island.

16 Q Because of animosity against the Army?

17 MR. HOEFLING: Objection.

18 BY MR. CHERRY:

19 Q Well, are you suggesting that the situation that --

20 MR. HOEFLING: Mr. Chairman, I have an objection.

21 MR. CHERRY: I'll withdraw the question.

22 BY MR. CHERRY:

23 Q Are you suggesting that the situation with respect
 24 to what you say about the vandalism on this Azores island is
 25 the same as might be found in Midland?

1 A I would judge quite similar, yes., any construction
2 site.

3 Q But you're saying that the temperament of the
4 people -- you've made the analysis that the level of violence
5 or vandalism in the Azores by Portuguese is equivalent to
6 whatever would happen in any city in the United States,
7 including Midland?

8 A I'm not sure I've made that judgment. But I am
9 reasonably certain that if you shut down the Midland site
10 and walked off, it would not take very long before you'd
11 see materials start to disappear from the site.

12 Q If you shut down and walked off?

13 A That's right.

14 Q You'd expect that --

15 CHAIRMAN COWELL: You're getting into cross-examina-
16 tion now, Mr. Cherry.

17 MR. CHERRY: Mr. Chairman, I would renew my
18 notice now that the gentleman's qualifications with respect
19 to his testimony on the construction activities, shutdown,
20 labor strikes, vandalism -- I mean it's totally unsupported.
21 He has no experience whatsoever that's relevant to this
22 proceeding in connection with this portion.

23 MR. HOEPLING: I think Mr. Cherry's objection is
24 frivolous. His voir-dire examination fully indicates Mr.
25 Crocker is qualified to make the judgments he reaches in

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1 his testimony.

2 (The Board conferring.)

3 CHAIRMAN COUFAL: Your objection to the receipt
4 of the testimony is overruled, Mr. Cherry.

5 MR. CHERRY: On the basis that this Board believes
6 that he's qualified to make the judgments?

7 CHAIRMAN COUFAL: The testimony is received.

8 MR. HOEFLING: Could I go forward, Mr. Chairman?

9 MR. CHERRY: I have something on the ACRS.

10 MR. HOEFLING: Voir dire?

11 MR. CHERRY: Yes. I mean, I'm doing okay, right?
12 It wasn't my witness that the Board said they had --

13 CHAIRMAN COUFAL: Gentlemen, we don't need that
14 kind of stuff.

15 BY MR. CHERRY:

16 Q Mr. Crocker, you have analyzed the impact and
17 have resolved the Advisory Committee on Reactor Safeguards
18 matters in Part 3 of your testimony that was labeled as a
19 draft that you've now removed, of November 18, 1976?

20 A I'm not sure I understand the question. I did
21 prepare this, yes.

22 Q I was just asking you if you are asserting that
23 you have analyzed all the outstanding ACRS problems that you
24 addressed and have come to some conclusion about what the
25 ACRS problem is in terms of resolution or non resolution and

1 impact upon the construction project. That's the purpose of
 2 the testimony?

3 A Yes, that's correct.

4 Q Now, if you have no economic experience and don't
 5 consider yourself an economics expert, how have you made an
 6 analysis of the impact on the Midland project with respect
 7 to matters which are resolved or unresolved?

8 MR. HOEFLING: Mr. Chairman, I object to that. I
 9 don't believe the testimony discusses the economic impact of
 10 resolution of those matters.

11 Again, I think if someone had read the testimony
 12 they'd be in a lot better shape to go forward with this
 13 witness. This is just delay.

14 CHAIRMAN COUFAL: It looks -- correct me if I'm
 15 wrong, but is this kind of a compendium of what appears in
 16 the file?

17 MR. HOEFLING: Mr. Crocker has taken the 11 ACRS
 18 items and he has examined the Midland facility in light of
 19 those ACRS items, and he's reporting in his testimony where
 20 this facility stands with regard to each one of those 11
 21 items.

22 He goes further, and for those items which are
 23 not totally resolved he examines whether what is going to
 24 take place at the site within I believe it's the next nine

1 viewpoint.

2 CHAIRMAN COUFAL: Give me an example of one of
3 those that you just referred to.

4 MR. HOEFLING: I believe item number 10.

5 CHAIRMAN COUFAL: Give me just a second. Are you
6 sure it's item number 10?

7 MR. HOEFLING: No. It's not item number 10. It's
8 item number 9. Item number 9, which is 7 pages in from the
9 back.

10 CHAIRMAN COUFAL: All right. I've got it.

11 (Pause.)

12 CHAIRMAN COUFAL: All right. Now, you had asked
13 a question, Mr. Cherry. It would save time if you would
14 repeat it.

15 MR. CHERRY: I'll withdraw it. I just have two
16 other questions to ask.

17 BY MR. CHERRY:

18 Q Do you have an intimate familiarity, Mr. Crocker,
19 with the workings of the Advisory Committee on Reactor Safe-
20 guards?

21 A I'm not sure I would say an intimate familiarity.
22 I believe I'm as familiar with their operation as other Staff
23 members.

24 Q And I take it it is that familiarity which enables
25 you to make an analysis of where items stand vis-a-vis ACRS

1 review, et cetera?

2 A Yes.

3 Q And you understand, I take it, Advisory Committee
4 on Reactor Safeguards letters and what they mean when they
5 say certain things?

6 A I'm not sure I could agree with you in the
7 absolute, but as far as the general meaning of the letters,
8 I would say yes, I believe I understand them.

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1 Q And part of that is what you base this testimony
2 on, that understanding of ACRS communications which you have
3 read and analyzed over many years? Is that correct?

4 A Yes.

5 Q That would include letters for a lot of plants?

6 MR. HOEFLING: Objection. That's a broad
7 question. What's a "lot of plants"?

8 MR. CHERRY: Well, more than six, seven, eight,
9 nine.

10 MR. HOEFLING: What letters are we talking about?

11 MR. CHERRY: ACRS letters of suitability of a
12 particular application. That's the letters I'm talking about.

13 BY MR. CHERRY:

14 Q Are you talking about some others?

15 A I'm generally familiar with the ACRS letters
16 that come out on the plants, yes.

17 MR. CHERRY: Okay.

18 Mr. Chairman, on the basis of the witness' testi-
19 mony that he understands the Advisory Committee on Reactor
20 Safeguards, I will not make a motion as to his qualifications;
21 but I want it clearly understood that I intend to get into
22 on cross-examination his understanding of the ACRS letters
23 for him to form the judgments that he has made.

24 It's on that basis that I'm not now making the
25 motion of qualifications, because I'll be able to demonstrate

lt 2 1 certain things on cross-examination. I just want my position
2 clearly understood, which is why I asked him these questions
3 on voir dire. He is the witness who can give me that infor-
4 mation, and I want it.

5 I have no objection to the qualifications.

6 CHAIRMAN COUFAL: We're not buying a pig in a
7 poke, Mr. Cherry.

8 MR. CHERRY: I'm making no motion that requires
9 your ruling. I'm only stating for the record what my
10 judgment is.

11 There's also one other thing. I want to object
12 on the basis of relevancy, because in my judgment the only
13 purpose -- the only matter that has to be inquired into
14 on the matter of the ACRS questions for purposes of a
15 suspension hearing is to whether there are unresolved ques-
16 tions that should be analyzed in a deeper hearing.

17 I believe the Staff has taken that position,
18 that there are unresolved questions. Their conclusion that
19 it won't impact or not is a question that involves safety.

20 I have stated at other times that I intend, when
21 we get to the remanded hearing, to move to reopen the
22 entire safety question on a lot of significant matters as
23 soon as I get some finalization of discovery; therefore, I
24 believe that it is improper to go into that situation at this
25 point. That's my relevancy requirement.

blt 3

1 MR. HOEFLING: The Staff objects to the limita-
2 tions that Mr. Cherry puts on Mr. Crocker's qualifications
3 and the introduction of his testimony.

4 Mr. Crocker is looking at the November 18, 1976,
5 ACRS letter. He is examining it, and he's making an evalu-
6 ation of it. I don't know what Mr. Cherry's other letters
7 are referring to, but the only letter at issue is the
8 November 18, 1976, letter. That's the substance of Mr.
9 Crocker's testimony.

10 MR. CHERRY: I would further make an objection
11 on relevancy in light of what Mr. Hoefling said, that the
12 ACRS has not yet issued a letter that's in compliance with
13 the Aschliman decision. They haven't even answered the
14 Board's most recent inquiry, so this witness is testifying,
15 really, with respect to a letter which the Board has sug-
16 gested needs some further "beefing up" to do and accordingly
17 is irrelevant.

18 We're now in the exact same position as having
19 Heine testify about negotiations about a contract that
20 isn't drafted. That's the same place we're in now with the
21 Crocker testimony.

22 CHAIRMAN COUFAL: It's true that we may have
23 further response from the ACRS, but at least we can address
24 the response we have so far.

25 We're going to overrule the objection, Mr. Cherry.

1 MR. CHERRY: On that basis, I have no objection
2 to the testimony being inserted in the record as if read.

3 CHAIRMAN COUFAL: All right.

4 Identify for the record the documents that you've
5 moved on, Mr. Hoefling, so we can be sure that the record
6 will be properly made on that.

7 MR. HOEFLING: The Staff has moved and the Board
8 has admitted into evidence the following documents --

9 CHAIRMAN COUFAL: We haven't admitted anything.
10 You've just moved it.

11 MR. HOEFLING: Okay.

12 The Staff has moved that the following four
13 documents be admitted into evidence:

14 A 3-page document entitled "Lawrence P. Crocker,
15 Professional Qualifications."

16 A 7-page document entitled "NRC Staff Testimony
17 of Lawrence P. Crocker Relating to Delay of Construction
18 and Make-up of Lost Time."

19 A 3-page document entitled "NRC Staff Testimony
20 of Lawrence P. Crocker Relating to the Possibility of
21 Constructing a Smaller Nuclear Plant at Midland."

22 And a 20-page document entitled "Draft Analysis
23 of ACRS Report of 11/18/76."

24 CHAIRMAN COUFAL: The documents identified by
25 counsel will be received and will be bound into the record

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as though read.

(Documents follow.)

LAWRENCE P. CROCKER
PROFESSIONAL QUALIFICATIONS

I am the Technical Assistant to the Director of Project Management. Until August of 1976, I was a project manager in the Division of Project Management, and it was my duty to coordinate the safety evaluation of those central station nuclear power plants for which I had primary responsibility. Since assuming my present position, I have temporarily retained responsibility for certain projects, including the responsibility for the Midland plant.

I graduated from the U.S. Military academy at West Point, New York in 1951 with a Bachelor of Science degree in military engineering. I was commissioned a Second Lieutenant in the Corps of Engineers, U.S. Army. I served on active duty in the Corps of Engineers from then through August of 1970, at which time I retired in the grade of Lieutenant Colonel. My military experience included assignments as platoon leader, company commander, and battalion commander of various engineer units; overseas duty in Korea, Japan, the Azores, and Thailand; and service on the Army General Staff. During my military service, I attended various Army schools including the Army Command and General Staff College.

In 1955, I entered Iowa State College, from which I graduated in 1956 with a Master of Science degree in Nuclear Engineering. The following

year was spent attending the Oak Ridge School of Reactor Technology (ORSORT) at the Oak Ridge National Laboratory (ORNL). Upon graduation from ORSORT, I remained at ORNL for an additional year as Technical Liaison Officer for the Army Nuclear Power Program with the responsibility of representing the Army's interests at ORNL. From 1958 to 1960, I was a Project Officer in the Army Reactor Branch of the Atomic Energy Commission with responsibility for managing, coordinating and technically supervising contractor activity on a research and development project leading to design of a pressurized water nuclear power plant.

After a 3-year break for an overseas tour and attendance at an Army school, I was assigned in 1963 to the Office of the Inspector General, Department of the Army, where I was responsible for inspecting the operations and safety of the Army's nuclear power plants and research reactor facilities. From 1964 to 1967, I was assigned to the Office of the Chief of Research and Development where I served as the point of contact within the Army General Staff on all matters pertaining to research and development on the Army's nuclear power plants and research reactor facilities. From 1968 until retirement from the Army in 1970, I was the Deputy Director of the U.S. Army Engineer Reactors Group, with responsibilities including operator training, nuclear power plant operation, engineering support to the operating plants, and limited research and development activity.

Upon retiring from the Army, I accepted employment with the U.S. Nuclear Regulatory Commission, (then the U.S. Atomic Energy Commission) as a Project Manager in what is now the Division of Project Management. In this capacity I was responsible for the safety evaluation of the Kewaunee Nuclear Power Plant which was licensed for operation in December 1973 and for the Alvin W. Vogtle Nuclear Plant which was licensed for construction in June of 1974. I have had primary responsibility for the safety review of the Koshkonong Nuclear Plant. I am a Registered Professional Engineer in the District of Columbia.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF TESTIMONY OF LAWRENCE P. CROCKER
RELATING TO THE POSSIBILITY OF CONSTRUCTING
A SMALLER NUCLEAR PLANT AT MIDLAND

Introduction:

In this testimony, I discuss the feasibility of constructing a smaller nuclear plant at the Midland site as a substitute for the nuclear plant now under construction.

Discussion:

The Midland Plant is to consist of two pressurized water reactors of Babcock & Wilcox design, each with a rated heat output of 2452 Megawatts, thermal. Unit 1 is to have an electrical output of about 460 Megawatts, electric, and, in addition, is to supply approximately 4,000,000 pounds per hour of process steam to the Dow Chemical Company plant. Unit 2 is to have an electrical output of 811 Megawatts, electric.

The design of the nuclear steam supply systems (NSSS) for plants of the Midland type was offered by the reactor vendor during the late-1960's. More recent NSSS designs offered by Babcock & Wilcox have been on the

order of 3600-3800 Megawatts, thermal. In recent years, the other reactor vendors in the United States also have been offering nuclear steam supply systems in the range of 3000-3800 Megawatts, thermal. This no doubt is due in part to the emphasis of recent years on standardization of nuclear plant designs at or close to the maximum authorized power level of 3800 Meagwatts, thermal.

Nuclear plants smaller than the Midland design have been constructed in the United States and I would judge that if a utility really wanted to order a smaller size unit today, any of the reactor vendors would be capable of supplying a NSSS of whatever size desired. I doubt, however, that purchase of a smaller unit is a realistic alternative. Since recent utility and vendor efforts have concentrated on larger units, both a time and a cost penalty would be incurred if a utility ordered a smaller plant. The entire cost of developing the design probably would have to be charged to the single smaller unit or the pair of smaller units since there apparently is no market for additional smaller units. Further, since units in a smaller size range have not been ordered for a number of years, extra time probably would be required for design, and it is likely that additional licensing effort would be required since the NRC staff would not be familiar with the design.

The Midland plant now is about 15% complete. We have been informed by the licensee that the bulk of the NSSS components are now on-site awaiting installation. Similarly, many of the balance-of-plant components

are either on-site or on order. Work on the reactor containment structures, the auxiliary building and the turbine hall is well underway. Under these circumstances, even though a smaller plant might be available for purchase, such action does not represent a viable alternative. The engineering and construction have thus far proceeded on the basis of the particular design for Midland. A change to a smaller unit would require essentially a complete new design with a consequent loss of the bulk of the engineering and construction efforts expended to date and a probable loss of a great portion of the component procurement to date.

If for some reason it should be determined that less power is needed from the Midland units, the present construction could be continued and the units ultimately could be operated at whatever power levels are desired up to the rated capacity. This continued construction of the current design would provide for ultimate expansion to meet increasing power needs. In my view, completion of construction of the present design, even though the forecasted power needs might be less than the plant rated capacity, would be far preferable to any attempt to redesign the station to accept smaller units.

Conclusion:

Continued construction of the Midland plant to the current design does tend to further preclude a subsequent change to a plant with a smaller output. However, for the reasons stated above, I consider such a change to be an infeasible course of action at the present time, so continued construction would not affect my conclusion.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF TESTIMONY OF LAWRENCE P. CROCKER
RELATING TO DELAY OF CONSTRUCTION AND MAKE-
UP OF LOST TIME

Introduction:

This testimony provides my estimate of the time required to shut down and subsequently to re-start the construction of the Midland Plant in the event of a nine-month suspension of construction. I also discuss the question of whether Consumers Power Company could make-up for time lost during a suspension of construction.

Discussion:

Construction activity at the Midland Plant now is in full progress, with about 1200 workmen on site. Construction of both reactor containment buildings is underway and work is in progress on the auxiliary building, turbine building and associated plant structures. At the present time, the principal activities consist of placement of reinforcing steel and structural steel, and pouring of concrete.

Should an order be issued to suspend further construction, some period of time would be required to close down the project. In addition to personnel related matters such as laying off members of the construction force and termination of subcontractor effort, specific efforts would be required to bring the construction activity to an orderly close such that construction materials could be protected from the elements and so that work now in place could be protected. Further, it should be recognized that continued effort would be required to maintain the integrity of the various protective covers and to assure that the construction site is not subject to vandalism. Thus, the shut-down of construction should not be viewed as an instantaneous occurrence. Rather, it is a gradual process which would require a minimum of several weeks to accomplish, and which ultimately would result in some residual, continuing effort to provide necessary maintenance and site protection services.

For a suspension period on the order of nine months, I would estimate that about three to four weeks would be required to close down the present construction activity in a condition that would allow reasonable protective measures to be taken. The bulk of the work force probably could be disbanded about two weeks following notification of the suspension, with a slower personnel reduction following that period, ultimately resulting about two months after issuance of the suspension order in a residual force of perhaps twenty persons to handle continuing maintenance and protective services. These persons also would have to receive and store those materials and supplies that are now on order for

which delivery could not be cancelled. It should be noted that this shut-down of the construction activity really could be carried on during the initial period of suspension and could be provided for in the suspension orders. It does not have to be provided for as a separate period of time.

The time required to re-start the construction following a nine month suspension would be largely dependent upon the state of the nation's economy at the time the suspension order is lifted. While re-mobilization of common laborers should be relatively easy to accomplish, it is likely that a period of several months would be required to obtain the services of skilled workmen such as welders, pipe-fitters, and riggers. I would not expect skilled workmen to remain in the vicinity of the plant waiting for the construction to resume. Rather, it would be more likely that they would scatter across the country to other jobs. Thus, at the time the suspension was lifted, I would judge that a period of perhaps four to six months would be required to locate the requisite skills in the proper numbers to resume construction efforts.

In addition, subcontractors more than likely would be committed on other projects and would not be immediately available to start work at the Midland site. Both equipment and personnel probably would be committed elsewhere. In addition, a finite time obviously is involved to advertise for the necessary subcontract work, select the subcontractors, negotiate terms for the subcontract efforts, and assure that the subcontractors meet the quality assurance requirements for the work.

In view of the above, I thus would judge that a period of four months is an optimistic estimate of the time required to get the construction effort underway again following a nine month suspension. The re-mobilization time easily could be more than four months if the economy is booming at that time and could extend to six months or more.

I turn now to the question of whether time lost during a suspension could subsequently be made up. Under certain circumstances, it is possible to speed up construction work by taking such measures as adding additional personnel to the work force, using extended work hours beyond the normal work shift, or going to double-or multiple shift operation. Within limits, by employing such methods, it would be possible to make up for construction time lost. My experience has shown, however, that for a variety of reasons the additional work accomplished during a given period of time does not normally bear a one-to-one relationship to the additional effort applied. Thus, two weeks worth of construction progress by a given size work force usually cannot be accomplished in a one week period simply by doubling the number of workers or by going to a two-shift operation. Problems such as materials scheduling and handling, equipment breakdowns, and personnel utilization generally manage to make the total effort less efficient than for a smaller work force over a longer period of time.

Certain construction activities are critical to the overall project scheduling in that they must be accomplished prior to other work. For example, reinforcing steel and embedded items must be placed and must be

checked for adequacy and accuracy of placement prior to concrete pours around these materials. For the concrete pours themselves, the maximum rate of pouring is limited by the curing time required for that concrete previously placed. Welding and general erection of structural steel is largely a sequential operation wherein certain activities must be accomplished before others can be initiated.

Working conditions and the project status also have a considerable influence on the rate of construction placement. Where working space is limited, where the working conditions or the work sequencing must be closely controlled, or where special skills are necessary, attempts to speed up construction by employing more workmen, or by going to overtime or multiple-shift operation could actually be counter-productive. This becomes extremely crucial toward the end of a project when control of workmen becomes difficult at best, where the workmen are operating in relatively limited space due to previously installed work, where the services of the most skilled workmen are required, and where many of the activities, of necessity, must be accomplished sequentially.

The present schedule for the Midland Plant calls for a Unit 2 fuel loading date in November of 1980 and a corresponding date for Unit 1 in November of 1981. Thus, the utility currently plans about 47 months (from December 1976) for completion of construction of Unit 2 and an additional 12 months for Unit 1. To accomplish this, work at the site currently is proceeding on the basis of one full shift plus a partial shift. Thus, Consumers Power Company already is employing a portion

of the possible alternatives to speed up construction.

As I stated earlier, following a construction suspension of nine months, I estimate that a period of four to six months would be required for remobilization of the construction effort. Thus, a construction suspension of nine months entails a total delay on the order of 13 to 15 months. This represents nearly one-third of the presently scheduled time remaining for completion of Unit 2. In my judgment, it would be impossible for the utility to make up for a construction delay of this magnitude, particularly when they already are attempting to accelerate the rate of construction placement by employing more than a single shift.

Considering the present stage of construction, the utility could, in my judgment, accelerate the rate of placement of construction by going to multiple-shift operation or by employing additional workers on each shift. Following a construction suspension and subsequent remobilization, this option would still be available. Such efforts probably would enable the utility to complete the construction in a shorter period of time than if they continued with essentially a single-shift operation. However, it should be noted that in accordance with the present schedule, Unit 2 of the Midland Plant is to have fuel loaded in November of 1980 and is to be ready for commercial operation in March of 1981. Any significant delay in the construction schedule thus would cause the unit to be unavailable to help meet the 1981 summer peak load for the utility. While the possibility exists for reducing the impact of a 13 - 15 month delay on the commercial

DRAFT

Draft Analysis of ACRS Report of 11/18/76

L.P.C.
11/26/76

On November 18, 1976, the Advisory Committee on Reactor Safeguards, by letter to the Chairman of the Nuclear Regulatory Commission, issued a "Supplemental Report on Midland Plant Units 1 and 2". The supplemental report was issued in response to a request from Chairman D.M. Head of the Midland Atomic Safety and Licensing Board for a clarification of the Committee's reference to "other problems related to large water reactors" used in its report on the Midland Plant dated June 18, 1970. In the November 18, 1976, report, the Advisory Committee listed eleven items which had been identified in Committee reports on other similar commercial nuclear power plants which had been reviewed during the months prior to the Committee's review of the Midland Plant. These eleven items are those items referred to by the Committee as "other problems" in its report of June 18, 1970. My testimony that follows addresses the current status of resolution of each of these eleven items as they pertain to the Midland Plant. The numbering is the same as that in the Advisory Committee's report of November 18, 1976.

I should note in passing that the Advisory Committee on Reactor Safeguards is a statutory committee charged with performing an independent review of applications for licenses to construct and operate commercial nuclear power plants. Beginning in early 1967, Committee reports began noting that certain matters of concern to the Committee really were applicable to other large water-cooled reactors as well as to the specific plant then under review. For some time, these so-called "generic concerns" were denoted by asterisks in Committee reports, and then, starting in early 1968, language similar to that used in the Midland Plant report began to appear. On December 18, 1972, the Committee issued a report on

the "Status of Generic Items Relating to Light-Water Reactors". A second such report was issued on February 13, 1974, a third report on March 12, 1975, and a fourth report on April 16, 1976. These reports have provided a bookkeeping accounting of the status of resolution of the various matters that the Committee has identified over the years as being of generic concern. The April 16, 1976, report is the most recent such accounting and includes those items identified in the earlier reports.

1 - Separation of Protection and Control Instrumentation

The applicant proposed using signals from protection instruments for control purposes. The Committee believed that control and protection instrumentation should be separated to the fullest extent practicable, and recommended that the Applicant explore the possibility of making safety instrumentation more nearly independent of control functions.

This matter is not identified specifically in the ACRS report of April 16, 1976 "Status of Generic Items Relating to Light-Water Reactors: Report No. 4". However, General Design Criterion 24, "Separation of Protection and Control Systems", requires that "the protection system shall be separated from control systems to the extent that failure of any single control system component or channel, or failure or removal from service of any single protection system component or channel which is common to the control and protection systems leaves intact a system satisfying all reliability, redundancy and independence requirements of the protection system". GDC 24 further requires, that, "Interconnection of the protection and control systems shall be limited so as to assure that safety is not significantly impaired". General Design Criterion 22, "Protection System Independence", requires that, "the protection system shall be designed to assure that the effects of natural phenomena, and of normal operating, maintenance, testing and postulated accident conditions on redundant channels do not result in loss of the protection function - - - - -".

The Midland Plant is required to be in compliance with these General Design Criteria. In addition, Section 50.55a(h) of 10 CFR Part 50 requires that for construction permits issued after January 1, 1971,

protection systems shall meet the requirements set forth in editions or revisions of the Institute of Electrical and Electronics Engineers Standard: Criteria for Protection Systems for Nuclear Power Generating Stations (IEEE 279) in effect 12 months prior to the date of issuance of the construction permit. For the purposes of this regulation, the "in effect" date for the current edition of IEEE 279 was June 3, 1971. The construction permits for the Midland Plant (CPR-81 and CPR-82) were issued on December 15, 1972. Thus, the design of the Midland Plant is required to be in conformance with the requirements of IEEE 279 - 1971.

This concern of the ACRS therefore is resolved for the Midland Plant, which must comply with the requirements of General Design Criteria 22 and 24 and IEEE 279 - 1971.

2 - Vibration and Loose Parts Monitoring

The Committee recommended that the Applicant study possible means of in-service monitoring for vibration or the presence of loose parts in the reactor pressure vessel as well as in other portions of the primary system, and implement such means as found practical and appropriate.

In its April 16, 1976, report entitled "Status of Generic Items Relating to Light-Water Reactors: Report No. 4", this matter is listed as item II.5. The Committee notes that "State-of-the-Art results appear promising. More work may be required prior to decision as to installation of equipment." This matter still is carried by the ACRS in the category of "Resolution Pending" indicating that final decisions have not been made either as to the necessity for such equipment or the particular type or application of such equipment if installation ultimately is deemed to be necessary.

The staff Safety Evaluation Report on the Midland Plant, issued on November 12, 1970, and the Supplemental Safety Evaluation issued on January 14, 1972, make no mention of a requirement for a loose parts and vibration monitor. Such equipment as might ultimately be required can be in the nature of add-on equipment which could be added to a plant at any time. Thus, there is no need for a decision at this point in time and further construction of the Midland Plant will not preclude addition of such equipment as might later be deemed necessary.

3 - Potential for Axial Xenon Oscillations

The applicant was continuing studies on the possible use of part-length rods for stabilizing potential xenon oscillations. Solid poison shims were to be added to the fuel elements if necessary to make the moderator coefficient more negative at the beginning of core life.

The portion of this concern relating to possible xenon oscillation is not identifiable as one of the generic items in the ACRS report of April 16, 1976. However, this subject is addressed in the staff's Safety Evaluation Report on the Midland Plant issued on November 12, 1970. The staff noted that analyses at that time indicated that the core would be stable to potential radial or azimuthal power oscillations due to xenon, and that potential axial oscillations could be controlled by use of part-length control rods.

Tests of core stability were performed during start-up tests for the Oconee Unit 1 reactor, a sister unit to the Midland Plant reactors. A diagonal (combination of axial and azimuthal) oscillation was induced at 75 percent full power and the reactor response was monitored for 72 hours. The azimuthal component of the oscillation was damped, but the axial component was divergent. At 70 hours into the transient, the part-length rods were used to suppress the axial imbalance which was reduced to near zero where it was maintained.

On the basis of this demonstration of azimuthal stability of the Oconee Unit 1 reactor (essentially identical to the Midland Plant reactors) and the ability of the control system to suppress axial oscillations, we conclude that this concern is resolved for the Midland Plant. It would

not be affected by a continuation of construction of the plant.

That portion of the ACRS concern relating to the possible use of poison shims in the fuel elements to make the moderator coefficient more negative at the beginning of core life is identified as item IB.1 in the ACRS report of April 16, 1976.

This matter is considered to be resolved by the ACRS, which notes in its April 16, 1976 report that, "PWRs presently have or expect to have zero or negative coefficients. Where some Technical Specifications allow a slightly positive coefficient, the accident and stability analyses take this into account. Burnable poison provisions have been designed into PWRs to reduce otherwise excessive positive coefficients to allowable values" This matter, therefore, is satisfactorily resolved for the Midland Plant and would not be affected by continued plant construction.

4 - The Behavior of Core-Barrel Check Valves in Normal Operation

The Applicant had proposed core-barrel check valves between the hot leg and the cold leg to insure proper operation of the ECCS under all circumstances. Analytical studies had indicated that vibrations would not unseat these valves during normal operation. The Committee desired that this point be verified experimentally.

This matter is of generic concern to nuclear steam supply systems designed by Babcock and Wilcox. Other reactor vendors do not use core-barrel vent valves. The concern of the Committee was that there was a potential for the core-barrel check valves to open during normal operation allowing by-pass flow.

For the Oconee units, which are of B&W design and sister units to the Midland design, the staff initially imposed a 4.6% reactor coolant flow penalty in the thermal-hydraulic design analysis to provide conservatism for the possibility of leakage through the vent valves during normal operation. By letter to the licensee of the Oconee Nuclear Station (Duke Power Company) dated January 30, 1976, the staff advised the licensee that it had concluded that sufficient evidence had been provided by Babcock and Wilcox to assure that the core-barrel vent valves would remain closed during normal operation. Accordingly, we advised the licensee that the vent valve flow penalty could be eliminated provided the licensee established appropriate surveillance requirements to demonstrate, at each refueling outage, that the vent valves are not stuck open and that they operate freely.

The resolution of this matter is directly applicable to the Midland Plant design and would not be affected by continued construction of the Midland Plant.

5 - The Potential Consequences of Fuel Handling Accidents

The Committee believed that further study was required with regard to potential releases of radioactivity in the unlikely event of gross damage to an irradiated subassembly during fuel handling and the possible need for a charcoal filtration system in the fuel handling building. The Committee recommended that this matter be resolved in a manner satisfactory to the Regulatory Staff.

This concern is identified as item I.6 in the ACRS report of April 16, 1976. The concern now is covered by General Design Criterion 61 of Appendix A to 10 CFR Part 50 which requires that fuel storage and handling systems be designed to assure adequate safety under normal and postulated accident conditions. Regulatory Guide 1.13 "Spent Fuel Storage Facility Design Basis" describes a method acceptable to the NRC staff for implementing General Design Criterion 61.

By letter to the applicant dated September 29, 1976, the staff noted that the initial design of the Midland Plant did not include charcoal filters in the exhaust system for the spent fuel storage facility. However, the staff also noted that during discussions with the applicant, the applicant had agreed to install charcoal filters in conformance with Regulatory Guide 1.13. On the basis of this commitment by the applicant, the staff concluded that the design of the Midland Plant is in conformance with Regulatory Guide 1.13 and is acceptable.

This concern, therefore, is resolved for the Midland Plant and it would not be affected by continued construction.

6 - The Effects of Blowdown Forces on Core Internals

The Committee recommended that the Regulatory Staff review the effects of blowdown forces on core internals and the development of appropriate load combinations and deformation limits.

This matter is not identified specifically in the ACRS report of April 16, 1976. It is covered partially, however, by Regulatory Guide 1.20 "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing". By letter dated September 29, 1976, the staff informed the applicant of our conclusion that the Midland design was in full conformance to Regulatory Guide 1.20.

There have been recent concerns raised about the loads on reactor internals. The

staff now is working with the reactor vendors on this matter. The vendors, including Babcock and Wilcox, are developing thermal-hydraulic codes that properly handle the loadings on the core internals during sub-cooled blowdown. We expect that versions of these codes acceptable to the staff will be available within about one year. To date, the indications are that the internals design of the Babcock and Wilcox reactors is acceptable. In the event analyses indicate that the internals design is not acceptable, resolution is not affected by continued plant construction.

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2 If we cannot understand the ACRS standard of due
3 consideration, then it is impossible to cross-examine
4 Mr. Crocker on the meaning of his statement that this matter
5 will be resolved in accordance with the ACRS standards.

6 In other words, he has testified that Reg Guides
7 are based upon ACRS meetings and standards, and that he
8 has read all of these letters and understands what the ACRS
9 means, et cetera. And then he is giving you his judgment
10 that there isn't any problem here, presumably because they are
11 going to be resolved.

12 If we don't know what the standard of the ACRS
13 is, then we cannot inquire into that matter.

14 DR. LEEDS: Isn't it also the Staff understanding
15 of what they are to do, because those matters are usually
16 left for the Staff to resolve?

17 MR. CHERRY: Exactly, because Mr. Crocker is now
18 going to testify and has before, that the ACRS is going to
19 rely -- they sent a letter and said we are going to watch this
20 more carefully.

21 CHAIRMAN COUFAL: Wait a minute.

22 DR. LUEBKE: Mr. Cherry, in your pursuit of this
23 general idea, have you accumulated cases that have gone into
24 operation, say with five items unresolved?

25 MR. CHERRY: Oh, sure.

As a matter of fact I will tell you where this began

mm14

1 This began at the Emergency Core Cooling System
2 hearings when Milton Shaw was on the stand and I had gotten
3 a list of all of the ACRS letters, and I plotted a chart.
4 And I found out that if you continue to add up the problems
5 that they say have got to be resolved during construction,
6 and then you go to the operating stage letter of that, you find
7 those problems haven't been resolved, and the ACRS gives some
8 lip service to a reasonable dispatch.

9 That is the beginning of unresolved letters and
10 generic problems.

11 You see, then the game became that because they
12 couldn't very well issue a letter with unresolved problems of
13 the construction case, they developed in late 1973, this
14 "generic list" and said it applies to the industry.
15 Then told the Regulatory Staff, you go work on that list,
16 and then kind of tried to pretend it didn't apply to the
17 operating stage.

18 CHAIRMAN COUFAL: Okay.

19 MR. CHERNY: But wait a minute. There is one other
20 point.

21 When Mr. Shaw was asked if he knew this very same
22 question, if he was asked -- and this is the head of, at that
23 time the AEC, and as I want to tell you how this circle goes --
24 if he was asked whether or not the ACRS meant that if due
25 consideration weren't given to these problems construction was

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1 during construction period, the plant shouldn't be operated,
2 he said to me, you ask the ACRS because they have signed off
3 on this plant. And if they think there is a problem, then
4 they ought to say so. I have relied on their not saying
5 anything, in effect.

6 So what has been happening all of these years, is
7 that the ACRS makes these judgments, right? I try to get
8 at them, I can't.

9 The Regulatory Staff says it understands it. And
10 now, if you sustain this objection, I will not be able to get
11 into that inquiry. And everybody thinks that this analysis
12 has been done.

13 And I think I can demonstrate, Mr. Chairman,
14 if you will let me with Mr. Crocker, that there is no realistic
15 basis on which you can conclude that the Regulatory Staff and
16 the ACRS really understands some of those more pressing problems
17 with respect to the Midland facility.

18 MR. HOEFLING: Mr. Chairman, I think we just had a
19 rather far and wide-ranging development of concerns that
20 Mr. Cherry has for the ACRS in general, the way they do
21 business.

22 I think what we have got in front of us, is a
23 Court of Appeals decision that said, let's clarify a particular
24 letter. And that the ACRS has issued what in their view, was
25 a further clarification of the items that concerned them.

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We have eleven items in front of us at this point.

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I think that the proper line of inquiry for

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Mr. Cherry to follow is to take those eleven items and to

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question the Staff as to what their view is on these eleven

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items, as to what their view is of the ACRS view on the eleven

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items, and as to whether or not we have an ACRS position and

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resolution.

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And if we do, that is the end of the inquiry.

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We don't have to explore the words, due consideration

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if we have an ACRS position. ACRS has said this Reg Guide is

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it. We know what the standard is. And Mr. Crocker can tell us

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whether or not the facility meets the standard.

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Let's get into some substantive testimony here

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instead of playing semantic games with words that were written

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six and seven years ago.

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1 DR. LUEBKE: Mr. Hoefling, the part that was read
2 by the witness from the ACRS letter is different from this
3 paragraph that you have just finished speaking to.

4 MR. HOEFLING: Well, what I'm speaking to is that
5 we have an identification of 11 items --

6 DR. LUEBKE: That's one paragraph in the ACRS
7 letter. I'm saying that the thing Mr. Cherry had the witness
8 read is another paragraph, a different paragraph.

9 MR. HOEFLING: Well, that paragraph goes back to
10 the 1970 ACRS letter, which is the general language that the
11 Court of Appeals found to be inadequate.

12 What I'm saying is that we've come a long way from
13 that language. We now have a very precise identification of
14 what the ACRS mandated.

15 It would appear to me that the inquiry should be --

16 DR. LUEBKE: Oh, I see. You're making a case for
17 old styles and new styles.

18 MR. HOEFLING: I'm trying to make the case that
19 we now have identified what those items are, and the correct
20 line of inquiry, I feel, is to probe those items from the
21 Staff's position and the ACRS position. It may be that each
22 one of these 11 items has been written off by the ACRS with
23 a very explicit standard that this facility meets. And it
24 could be, if that's the case, -- I don't see what . . .

25 DR. LEEDS: Well, they ought to be able to tell

1 us that, if that's the case.

2 MR. HOEFLING: Yes.

3 CHAIRMAN COUFAL: Well, I need to talk to my experts.

4 MR. RENFROW: Let me speak to it before you do
5 that, so I don't have to do it when you come back.

6 Dr. Luebke is correct on the two paragraphs.
7 But you've got to listen to all of it, because what we just
8 got is an education in why Mr. Cherry doesn't understand the
9 way the ACRS works, you see, because he doesn't read all the
10 words.

11 It says:

12 "The Committee believes that the above items
13 can be resolved during construction and that, if
14 due consideration is given to these items, the
15 nuclear units proposed for the Midland Plant can
16 be constructed with reasonable assurance that
17 they can be operated without undue risk to the
18 health and safety of the public."

19 Now, it made a finding, or was supposed to, that
20 construction can continue with consideration given to these
21 items.

22 The next point in time it comes back to the ACRS
23 is at the operating license review, when they review the
24 entire project in its totality. Wouldn't they also review --
25 they also review all the items they've identified may need

1 some more work during the past five or six years. And,
 2 indeed, after the plant is licensed ACRS also identifies
 3 other items that they require the Staff to go back to plants
 4 that are operating.

5 It is a continual process -- continual. It never
 6 stops. That's the ACRS's job. And what the Court of
 7 Appeals has said is, "Look, what you've got is a bunch of
 8 people here who are supposed to think up problems that may
 9 occur, and send the Regulatory Staff out to solve them."

10 And if you get down to the basis of how they go
 11 about doing this, if they really believe it's a problem --
 12 you're going to ruin one of the best functions you have for
 13 them, which is like a think tank. They're going to think
 14 up problems for the Staff to work on and industry to solve,
 15 so they can continue to make reactors safer and safer and
 16 safer.

17 And just because they are problems does not mean
 18 that the ACRS does not consider them safe.

19 Now, to get into this we're going into what the
 20 court in Aeschliman said, we want to stay out of it. A
 21 clear rule. What they said was get a clarified letter from
 22 the ACRS, Board; that's your responsibility. I assume
 23 you're carrying that out the way you believe you ought to do.

24 The only way those clarified items come up is
 25 whether or not they may be foreclosed during the suspension

1 period. The only thing before you right now is not this
2 whole hullabaloo about how this works, or how that works, the
3 language.

4 The question is whether or not the items are going
5 to be foreclosed. That's the only matter before you.

6 DR. LUEBKE: And the witness is presented to speak
7 to that second to last paragraph, as I understand it?

8 MR. RENFROW: He's prepared to speak the way I
9 understand it, to what the ACRS responded to was what other
10 problems were they referring to in that next to last para-
11 graph. As I understand it, that's what the Court of Appeals
12 required this Board to ask ACRS. And, indeed, they didn't
13 say any more hearings on ACRS, they didn't require you to
14 do anything. They just said clarify. Now, the Commission
15 decision in Vogtle you may have to look at whether something
16 would be foreclosed.

17 CHAIRMAN COUFAL: All right. We're going to take
18 a couple of minutes.

19 (Recess.)

20 CHAIRMAN COUFAL: Mr. Cherry, we're going to permit
21 you to ask a question similar to the one you asked. I think
22 the one you asked is technically objectionable.

23 If you will ask him what the Staff's understanding
24 is if the "if" doesn't happen --

25 MR. CHERRY: Okay, that's what I wanted to ask

1 anyway.

2 So the objection is overruled to the qualifications

3 CHAIRMAN COUPAL: Yes. Go slow, because we're
4 just liable to butt into this.

5 BY MR. CHERRY:

6 Q Mr. Crocker, is it the Staff's understanding of
7 the paragraph we were discussing that if due consideration
8 of those matters are not properly attended during the
9 construction of the plant, then the ACRS conclusion about
10 the operation of the plant as to safety -- public health and
11 safety, has been eroded or qualified or changed in some manner

12 MR. RENFROW: I'm going to object to that. I'm
13 going to object to it just on the grounds that because of
14 what we're in, the discussion that went on as to the
15 paragraphs and items that Mr. Cherry specifically identify
16 exactly, on the record so it's clear, exactly what he's
17 referring to, and exactly what he's asking Mr. Crocker, and
18 the record will be totally clear and we won't have any
19 more misunderstanding about what this exact question is and
20 what the exact items are that he's referring to.

21 MR. CHERRY: He read the paragraph. It's in the
22 record.

23 CHAIRMAN COUPAL: Go ahead, Mr. Crocker. Can
24 you answer?

25 THE WITNESS: My understanding of the question is:

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If these items that were addressed by the ACRS are not resolved during the construction phase, that their letter in effect becomes -- that they would withdraw their endorsement of the plant? Is that the effect of the question?

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1 Q That's the effect of it. It's your understanding
2 of what those words mean that I'm after.

3 To state it another way, do you understand that
4 the "if" clause in that paragraph, i.e., if due consideration
5 is not given these constructions, is a critical precondition
6 to the conclusion of the ACRS? Is that your understanding?

7 A No, I don't think it is. I don't believe it is
8 a critical factor.

9 These items on all plants are in effect left open
10 for later resolution at the time the construction permit is
11 issued. Some are taken care of during construction. They
12 also are subject to a later review at the operating license
13 stage, at which time a final determination would be made as
14 to whether or not the construction has been adequate and
15 these matters have been resolved adequately.

16 Q I'm not talking about that. I'm just talking,
17 Mr. Crocker, about the words that say, "If due consideration
18 is given to these items, the nuclear units proposed can be
19 constructed with reasonable assurance."

20 I want you to tell me if by your answer I am to
21 assume that your understanding of that is that if due con-
22 struction is not given --

23 CHAIRMAN COUFAL: Wait a minute, Mr. Cherry. That's
24 "due consideration."

25 MR. CHERRY: Excuse me.

lt 2

1 If due consideration is not given to these matters
2 during construction, the plant nonetheless will operate
3 pursuant to, et cetera.

4 I mean, is that your understanding of the impli-
5 cation of that ACRS paragraph?

6 THE WITNESS: Again, I'd have to qualify my
7 response.

8 The ACRS in the letter identifies areas pertaining
9 to a particular plant or a series of plants where they feel
10 that either the Staff and/or the Applicant should give some
11 additional design considerations.

12 The ultimate resolution of these matters in some
13 cases is taken care of by the time the plant is constructed.
14 Others are continuing concerns that may or may not be re-
15 solved at the time the plant finally is constructed, but
16 during the final review for the operating license we, the
17 Staff, and the ACRS must come to an agreement that the
18 facility as constructed is going to be adequate to assure
19 public health and safety.

20 BY MR. CHERRY:

21 Q. What I'm trying to get at is your understanding
22 of the term "due consideration," Mr. Crocker. Let me see
23 if I can go about it in another way.

24 Is it your understanding that due consideration
25 does not mean the problem must be resolved prior to the

blt 3

1 completion of construction by a fix?

2 A Yes, I would guess this is correct. It need not
3 be totally, finally resolved.

4 Q So due consideration means if you have a safety
5 problem, or, put it another way, you will agree with me that
6 the items to which the ACRS refers are related to safety,
7 correct?

8 A Correct.

9 Q So the ACRS is saying that as to the problems, to
10 your understanding, that are related to safety, if you give
11 due consideration of those problems the plant can operate,
12 correct?

13 A The plant can operate; that is correct.

14 Q But "due consideration" may just mean a good-faith
15 effort and continually trying to find the answer?

16 A In many areas this is precisely the state that
17 we're in, yes.

18 Q But "due consideration" does not mean resolution
19 of the outstanding safety problems.

20 A In some cases it is resolution. In others it need
21 not be a final resolution.

22 Q Do you know what the standard that the ACRS applies
23 as to what is good-faith working on the answer to a problem?
24 I mean, how do you figure out whether someone is doing the
25 best job they can to try to solve a safety problem?

blt 4

1 A I do not know the standards that the ACRS applies
2 to it, no.

3 Q What is your understanding of what standards the
4 ACRS applies, since on many of these the ACRS delegates to
5 the Regulatory Staff the job of enforcing that? Isn't that
6 correct?

7 A That is correct.

8 Q Well, if you don't know what the ACRS means, how
9 do you enforce that standard?

10 A I'm not sure "enforce" is the right term to use
11 on that, either. In many cases this is what amounts to
12 a best efforts basis right now.

13 May I amplify that?

14 Q Sure.

15 A For example, there are efforts underway on abnormal
16 behavior of fuel. This applies not only to the fuel for the
17 Midland Plant but to nuclear fuel in general.

18 There are studies underway at various laboratories,
19 studies underway by the reactor vendors, and this is a con-
20 tinuing program. It's not something that's going to be
21 absolutely resolved by the time the Midland Plant is ready
22 to go in operation, or any other plant, in all probability.

23 As the industry goes along and matures, we will
24 learn more and more about it as we go.

25 Q Okay.

5
1 Does this good-faith attempt, which -- I guess
2 you've now told me that "due consideration" as to safety
3 problems which are not resolved during construction really
4 means a good-faith effort by the applicant and the industry
5 to resolve them. That's your understanding of what the ACRS
6 means, correct?

7 A I believe this is essentially correct, yes.

8 Q Does it have a time limit on it, Mr. Crocker, or
9 could they continually give good-faith efforts for an un-
10 limited length of time as long as they were looking for an
11 answer?

12 A I know of no absolute cut-off date for it.

13 Q So as you understand the problem these outstanding
14 safety problems that the ACRS says due consideration should
15 be given to, it's your understanding that the plant can be
16 constructed, operated, decommissioned, dismantled and buried,
17 and so long as the applicant was trying to work to solve
18 the problem the ACRS standard would be met?

19 A I think the plant in fact could go through its
20 entire lifetime with some of these items still being held
21 in a resolution pending category by the ACRS, yes.

22 Q And that's what you understand to mean "due
23 consideration," that the problem in effect never has to be
24 resolved during the life of the operating reactor?

25 A I think the problems are coming closer to solution

blt6

1 all the time. There are some that may not be resolved as
2 of the time the plant goes into operation.

3 Q I'm talking about the standard of the ACRS,
4 what you understand is its enforceability?

5 You're telling me that as to the safety-related
6 problems it is within the judgment of the Regulatory Staff
7 that the ACRS and the Staff is satisfied with a good-faith
8 effort to try to find an answer to the problem, and so long
9 as that effort is being made the plant can be operated, go
10 for 35 or 40 years, and then be shut down and dismantled
11 and go through its whole life without ever having solved
12 those problems, is that correct?

13 A With the proviso that the Staff and the ACRS also
14 feel that there is an adequate level of safety at the plant
15 even with this particular problem. I don't know which one
16 you have in mind. Even though that is not absolutely re-
17 solved, if we feel that the level of safety is adequate to
18 allow the plant to operate, then yes, under those conditions
19 the plant could go into operation and ultimately be de-
20 commissioned with something still outstanding.

21 Q What is the standard by which you judge that some
22 problems must be resolved, other problems don't have to be
23 resolved on any time basis, and others really don't have to
24 be resolved at all so long as there is a good-faith effort
25 at trying to find an answer?

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1 A The standard has to do with our view of the
2 impact on the safety of the plant.

3 Q And that's a judgmental factor?

4 A That's a judgmental factor; that's correct.

5 Q So what you're telling me is if I wanted to look
6 into the system, Mr. Crocker, there is really no objective
7 standard that I can look at to find out whether or not your
8 judgment on these outstanding safety problems that don't
9 have to be resolved during operation is correct or not? Is
10 that what you're telling me?

11 A I think it would take a pretty thorough knowledge
12 of reactor safety in order to look at these and determine
13 what the impact on any particular plant is.

14 Q So in a sense what you're saying, Mr. Crocker,
15 is that the inquiry that is made at these public hearings
16 on ACRS matters and these judgmental factors is a fairly
17 useless exercise unless the parties making the inquiry are
18 as sophisticated as the Regulatory Staff at a minimum?

19 A I'm not sure it's what I would characterize --
20 well, I'm sure it's not what I would characterize as a
21 useless exercise. I think it's very valuable.

22 The ACRS is made up of -- what?--sixteen, I
23 believe, very knowledgeable members in various aspects, not
24 only of nuclear safety but mechanical engineering, electrical
25 engineering and this sort of thing; and as a group they

olt 8

1 provide, I think, a great deal of comfort to the Regulatory
2 Staff in their independent review of the application if
3 they can also look at it and say, "Yes, we agree with the
4 Staff; we don't really see any big problems here."

5 Q They kind of take you off the hook, huh?

6 A No, they don't take us off the hook at all.

7 Q What did you mean by "a great deal of comfort"?

8 A To know that a group of very knowledgeable indi-
9 viduals arrives at the same general conclusion that we, the
10 Staff, have arrived at.

11 Q In other words, if three experts will share the
12 responsibility there isn't one you can point at for being
13 wrong?

14 A I don't think it's a question of sharing the
15 responsibility. It's a question of conformation.

16 Q Mr. Crocker, would you agree with me generally
17 that by stating that you have made a good-faith and are
18 making a good-faith effort to resolve a problem does not
19 mean that you will resolve it?

20 A In the abstract, I guess yes, I'd have to agree
21 with you that a good-faith effort in itself does not neces-
22 sarily imply a resolution.

23 Q Then you will agree with me that in accordance
24 with the Regulatory Staff's understanding a more clear
25 wording of the last sentence of the letter we've been

blt 9

1 discussing of June 18, 1970, would be as follows:

2 "The committee believes that the above items
3 can be resolved during construction and that if
4 due consideration is given to these items the
5 nuclear units proposed for the Midland Plant can
6 be constructed with reasonable assurance that they
7 can be operated without undue risk to the health
8 and safety of the public; however, whether or not
9 these items are resolved during construction, so
10 long as a good-faith effort is made to resolve them
11 during the course of construction or thereafter at
12 any time during the life of the plant, the Midland
13 Plant can be constructed with reasonable assurance
14 that it can be operated without undue risk to the
15 health and safety of the public."

16 Would you agree with that?

17 A Well, I got lost on the way through.

18 MR. CHERRY: Would you read that back, please?

19 CHAIRMAN COUFAL: Can she just start with the
20 "however"? He obviously knows what's in the paragraph.

21 THE WITNESS: I know what's in the paragraph.
22 I'm not sure what the "however" part was.

23 MR. CHERRY: Let me shorten it by saying that
24 I would insert, in order to get this understanding, to
25 read as follows:

10

1 "The Committee believes that the above items
2 can be resolved during construction." INSERT "But
3 whether they are resolved or not, that if due con-
4 sideration is given to these items, which means a
5 good-faith effort at trying to solve the problem,
6 the nuclear units proposed for the Midland Plant can
7 be constructed with reasonable assurance that they
8 can be operated without undue risk to the health and
9 safety of the public."

10 THE WITNESS: No, I do not agree with that. I
11 don't think you can read it that way.

12 BY MR. CHERRY:

13 Q Okay.

14 But you do agree with me that the ACRS is not
15 saying that the items must be resolved during construction,
16 correct?

17 A It has got to be resolved to the satisfaction of
18 the Staff and the ACRS that there is an adequate level of
19 safety.

20 Q But I'm not talking about the safety of the plant.
21 I'm talking about the item. That's what the ACRS has re-
22 ferred to.

23 A I don't think you can deal with the item without
24 dealing with the safety of the plant.

25 Q So then the letter should read:

blt 11

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"The Committee believes that the above items can be resolved during construction, and that if due consideration is given to these items the nuclear units proposed can be constructed with reasonable assurance that they can be operated. But if these items are not resolved and if due consideration is not given, so long as a good-faith effort is being made and we make a judgmental factor about the operation of the plant without resolution of these items, then the plant can be operated."

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MR. RENFROW: Can I have that question repeated, please? I got lost.

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CHAIRMAN COUFAL: Did you get lost?

14

THE WITNESS: Yes, I keep getting lost in here.

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I have tried to indicate that this is a judgmental factor between the Staff and the ACRS that when we have reached the stage that we agree there is a reasonable assurance that the plant as designed and constructed can be operated safely, then we'll let it go.

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22

There may very well be some items which have not been finally resolved to the satisfaction of the Staff or the ACRS at that point in time.

23

BY MR. CHERRY:

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Q So "due consideration" as you understand it includes the failure of having resolved some of those items

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1 to the satisfaction of the ACRS and the Staff?

2 A No, I don't think so, not the failure to resolve
3 it.

4 Q You said there may very well be some items that
5 are not resolved to the satisfaction.

6 A Not ultimately resolved. I said there is progress
7 being made on these items.

8 Q Progress being made.

9 A There are some that in the view of the Staff and
10 the ACRS are not that critical to plant safety.

11 MR. CHERRY: Mr. Chairman, it's 10 after 12:00.
12 I don't want to intrude any further on the Board. I'm not
13 finished with Mr. Crocker.

14 I do, however, want to suggest that there may be
15 a problem with my reappearing on Tuesday. I'll let the
16 Board know on Monday before everybody travels out here in
17 the morning.

18 By, say, noon Washington time I'll undertake to
19 call everyone.

20 I take it it wouldn't matter, because you've got
21 other Staff testimony to go in in any event.

22 CHAIRMAN COUTAL: You're saying in effect that if
23 you're not here on Tuesday you have no objection if we go
24 ahead with the other Staff witnesses except for Mr. Crocker?

25 MR. CHERRY: That is correct, but my no objection

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1 is based on the fact that I have continually asked for
2 financial assistance and have been turned down.

3 CHAIRMAN COUFAL: I understand.

4 MR. CHERRY: One other thing that I would like
5 to point out to the Board is I would ask the Board to reflect
6 on Mr. Crocker's testimony, as I'm sure it will, about the
7 whole quality of what this Board can now rely upon.

8 I finally after all these years, and I'm very
9 grateful to the Board --

10 CHAIRMAN COUFAL: Please don't be grateful.
11 We're not giving Christmas presents around here.

12 MR. CHERRY: No, I am grateful. This is the
13 first board that has ever had the guts to permit that
14 question to be asked.

15 CHAIRMAN COUFAL: Mr. Cherry, I wish you wouldn't
16 even talk like that. Thank you.

17 DR. LEEDS: Let me ask a clarifying question on
18 another topic.

19 If you do not choose to be here on Tuesday, does
20 that mean you are finished with Mr. Crocker and we're
21 finished with Mr. Crocker?

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1 MR. CHERRY: Well, if I cannot show up Tuesday,
2 it is because of one or two items.

3 DR. LEEDS: I understand there is a problem. I
4 don't want to go into that.

5 My question is, does he have to come back if you
6 make your call Monday, this man?

7 MR. CHERRY: Not for me.

8 DR. LEEDS: I need to ask him a couple of
9 questions real quick myself, then.

10 I have two questions.

11 MR. RENNLOW: I may have to have him back for
12 redirect, anyway.

13 CHAIRMAN COUFAL: Well, Mr. Crocker, it looks
14 like --

15 MR. CHERRY: You don't have any redirect.

16 MR. RENNLOW: I am corrected, Mr. Chairman, I might
17 have him back for recross.

18 MR. CHERRY: It is some ingrained symbiotic
19 relationship, but it comes out clear.

20 MR. RENNLOW: I wouldn't go that far, Mr. Cherry.

21 CHAIRMAN COUFAL: Now he has got to come back.
22 I am still unclear. You are not going to be here Tuesday,
23 perhaps.

24 MR. CHERRY: That is correct.

25 CHAIRMAN COUFAL: If Mr. Crocker is here and

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1 everyone else is through with him --

2 MR. CHERRY: I will have questions.

3 CHAIRMAN COUFAL: -- you still will have
4 questions.

5 MR. CHERRY: Yes. I am not finished with him,
6 if I can find a way to get back here.

7 DR. LEEDS: You will let us know when you will be
8 back, is that what you are saying?

9 CHAIRMAN COUFAL: And you are suggesting we schedule
10 Mr. Crocker for the day you can be here?

11 MR. CHERRY: No, no. If I come back I will come
12 back for the remainder of the Staff testimony.

13 In other words, I have told you I made a motion
14 now for a directed verdict. I have told you my problems. I
15 said I was withdrawing. I couldn't discuss these matters
16 with my clients, I would be able to do it over the weekend.

17 And I may very well call you -- I'm saying that
18 is a realistic option -- at 10:00 o'clock on Monday morning
19 and say, please give me a prompt ruling, I am through with the
20 case.

21 DR. LEEDS: I want to get my questions in, because
22 I don't know what the travel plans are and I don't want to take
23 a chance.

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EXAMINATION BY THE BOARD

BY DR. LEEDS:

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3 Q I understand you to say in your testimony that
4 Midland could be operated at lower power levels as an alterna-
5 tive?

6 A Yes.

7 Q Is Midland a base plant -- baseload plant?

8 A I believe Midland is designed as a baseload plant,
9 yes.

10 Q Is the energy cost on Midland cheaper than other
11 plants in the Consumers system?

12 A I really am not expert on that, Dr. Leeds.
13 My judgment would be yes, that it is cheaper.

14 Q Do power companies then operate baseload plants at
15 less than rating, if they are cheaper than other plants in
16 their system?

17 A No. At least I wouldn't.

18 Q Then how are you going to have a realistic
19 alternative of Midland operating at reduced power level?

20 A All I was indicating, I believe, is that if at this
21 point in time, the plant is constructed, and without knowledge
22 on my part as to what the ultimate demand on the grid is,
23 that the plant could, in fact, be operating at a lesser power
24 level than its rated capacity.

25 Q But isn't it true that if it is a baseload plant, it

mm4 1 doesn't matter what the demand on the grid is, because that
2 plant would run?

3 A That would be my view on it. I certainly would
4 run, run it for all it was worth, and then shut down one of
5 the other plants if I have to.

6 Q Then I come back to my original question, how are
7 you going to -- is it a realistic alternative to say the
8 power plant is less -- you could run that plant at less
9 than rated output?

10 A It would not be realistic to me, no. I would
11 not operate it at less than rated output.

12 DR. LEEDS: Okay.

13 MR. RENFROW: May I ask one question, Dr. Leeds?

14 Mr. Crocker, if I had a 1400 megawatt rated
15 on baseload plant and NRC license is for 1100 megawatts,
16 what are you going to run that baseload plant at?

17 MR. CHERRY: Objection.

18 This witness has self proclaimed himself as not
19 an expert in those kinds of matters, and I don't care what
20 he says, it would be improper testimony.

21 CHAIRMAN COUFAL: Overruled.

22 THE WITNESS: Well the plant could not be operated
23 at greater than the licensed rating. If it is licensed for
24 1100, that is what it would have to be run at as the maximum
25 capacity.

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MR. RENFROW: Thank you.

CHAIRMAN COUFAL: Ms. Bartelman has a question, and she better be a fast talker.

MS. BARTELMAN: Mr. Cherry represented yesterday that he was going to get the documents to us by yesterday afternoon, and we haven't gotten them, and we need them.

When will we get the documents that we requested from From Dr. Timm.

MR. CHERRY: They didn't arrive yesterday. I haven't been in my office this morning. As soon as I get them I will turn them over.

There appears to be less of a rush now than there was.

MR. RENFROW: Still, Mr. Chairman, we cannot prepare --

MS. BARTELMAN: We wanted to get them to our witnesses before they left and we represented to them that we could do that.

CHAIRMAN COUFAL: Mr. Cherry, are you going to your office this afternoon?

MR. CHERRY: Yes. Later. I am not going there directly.

CHAIRMAN COUFAL: Call Mr. Renfrow this afternoon, tell him if they are there. If they are not there, call Dr. Timm and see where they are.

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MR. RENFROW: Call Ms. Bartelman.

CHAIRMAN COUFAL: I'm sorry, Ms. Bartelman, which is much more pleasant anyway.

(Laughter.)

MR. BRENNER: With respect to that, also we wanted to have it today. Obviously we didn't. We are leaving to catch a plane, and it is unfortunate because my witnesses who I flew in here to help me with it, are now going to scatter.

But one of the items, my item 8 on transcript page 3590, was an undated Consumers Power memo, which obviously is difficult to track down by that reference. Mr. Cherry told me it was part of item 8, and it is not part of item 8.

I would appreciate it if Mr. Cherry could check on that.

MR. CHERRY: Would you take care of that? Please find out whatever item that is and get it to Mr. Brenner, or get him a reference to a place where he could find it.

MR. BRENNER: We will be back Tuesday, and it is fine for us if Mr. Cherry could make it available either Monday night or Tuesday morning. He doesn't have to ship it to us.

MR. CHERRY: Okay. I will do that.

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1 (Whereupon, at 12:15 p. m. the hearing in the
2 adjourned to resume at 9:30 a.m. on Tuesday, 15 February
3 1977, in this same room.)

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5 (The following was dictated by Mr. Cherry, after
6 the hearing was officially adjourned.)

7 MR. CHERRY: Since the requests made of me by
8 Mr. Brenner of the Regulatory Staff and Mr. Kenfrow and
9 Ms. Bartelman of the Consumers Power Company, and none of
10 Dow Chemical Company, I have set in motion a procedure whereby
11 those requests, including the one Mr. Brenner made today,
12 will be implemented within a short time.

13 No other requests have been made to me by any
14 of those parties for any additional information, and it has
15 now been some time since the testimony was served, and I am
16 assuming there are no other requests.

17 (End of dictation.)

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7 - Assurance That LOCA-Related Fuel Rod Failures Will Not Interfere
With ECCS Function

The Committee desired to emphasize the importance of work to assure that fuel rod failures in loss-of-coolant accidents will not affect significantly the ability of the ECCS to prevent clad melting.

This matter is included within item IA.5 of the ACRS report of April 16, 1976. It was addressed on a generic basis during the rulemaking hearing on Acceptance Criteria for Emergency Core Cooling Systems for Light-Water-Cooled Nuclear Power Reactors, RMS-50-1.

The staff Supplemental Safety Evaluation on the Midland Plant, issued on January 14, 1972, concluded that the predicted functional performance of the Midland ECCS was in conformance with the Interim Policy Statement and Acceptance Criteria and was acceptable. Since that time, the Commission has issued Appendix K to 10 CFR Part 50, which establishes the final acceptance criteria for emergency core cooling systems. The Midland Plant will be required to conform to the requirements of Appendix K, which will assure that fuel rod failure will not interfere with the ECCS function. Operating Plants of the Midland type are now meeting the requirements of Appendix K.

This matter, therefore, is resolved and will not be affected by further construction of the Midland Plant.

8 - The Effect On Pressure Vessel Integrity of ECCS Induced Thermal Shock

The Committee recommended that the Regulatory Staff review analyses of possible effects upon pressure-vessel integrity arising from thermal shock induced by ECCS operation.

This concern is listed as item II.3 in the ACRS report of April 16, 1976. The Committee notes that Regulatory Guide 1.2 covers current information on this subject and that the ultimate position as to the significance of thermal shock requires input of fracture mechanics data on irradiated steels from the Heavy Section Steel Technology (HSST) program.

In a letter to the applicant dated September 24, 1976, the staff concluded that the Midland design conforms to Regulatory Guide 1.2. Pending results from the HSST program, which is designed to confirm the validity of the analytic design model for irradiated pressure vessels, conformance to Regulatory Guide 1.2 and design of vessels in accordance with the ASME code and subsequent adherence to guidelines for surveillance of radiation damage and nil-ductility transition temperature changes resulting therefrom are acceptable to the staff as proper assurance against pressure vessel failure.

Should the surveillance program for the Midland Plant indicate that greater than anticipated irradiation damage is occurring to a Midland reactor pressure vessel, the staff will require that the vessel be annealed to restore the toughness properties to acceptable values.

9 - Environmental Qualification of Vital Equipment in Containment

The Committee recommended that attention be given to the long-term ability of vital components, such as electrical equipment and cables, to withstand the environment of the containment in the unlikely event of a loss-of-coolant accident.

This matter is identified as item IB.3 in the ACRS report of April 16, 1976. The Committee notes that qualification requirements of critical components are now covered by Regulatory Guides 1.40, 1.63, 1.73 and 1.89 and by IEEE Standards 382-1972, 383-1974, 317-1972, and 323-1974.

Regulatory Guide 1.40 "Qualification Tests of Continuous-Duty Motors Installed Inside the Containment of Water-Cooled Nuclear Power Plants" was reviewed by the staff and the applicant. By letter dated September 29, 1976, we informed the applicant that the staff had concluded that the Midland design was in full conformance to this Regulatory Guide.

Regulatory Guide 1.63 "Electric Penetration Assemblies in Containment Structures for Water-Cooled Nuclear Power Plants" endorses IEEE Standard 317-1972. By letter to the applicant dated September 29, 1976, the staff informed the applicant that additional information would be required regarding the ability of penetrations to withstand, without loss of mechanical integrity, the maximum possible fault current vs time conditions (position C.1 of the Guide).

Regulatory Guide 1.73 "Qualification Tests of Electric Valve Operators Installed Inside the Containment of Nuclear Power Plants" endorses IEEE Standard 382-1972. By letter to the applicant dated September 29,

1976, the staff informed the applicant that implementation of this Guide is acceptable.

Regulatory Guide 1.89 "Qualification of Class IE Equipment for Nuclear Power Plants" endorses IEEE Standard 323-1974. This Guide was issued in November of 1974 and it notes that the staff may reevaluate the plant design on a case-by-case basis to assure that acceptable methods for qualification of Class IE equipment have been specified in purchase orders executed after November 15, 1974. The degree of conformance of the Midland design to the guidelines of this Regulatory Guide has not yet been evaluated by the staff. Such evaluation will occur during the staff review of the operating license application.

IEEE Standard 383-1974 pertains to the type testing of cables, splices and connections for nuclear power plants. It is a sub-element of IEEE Standard 323-1974, which is endorsed by Regulatory Guide 1.89.

It thus is apparent that the staff review of the Midland Plant regarding qualification of vital equipment in containment is not complete. Completion most likely will not occur until the staff review of the operating license application for the plant. However, since this matter deals exclusively with components, rather than structures, continued construction of the plant would not preclude possible upgrading of components to meet the staff's acceptance criteria.

10 - Instrumentation to Follow the Course of an Accident

This item related to the development of systems to control the buildup of hydrogen in the containment, and of instrumentation to monitor the course of events in the unlikely event of a loss-of-coolant accident.

The part of this concern relating to possible buildup of hydrogen in containment is identified as item I.3 in the ACRS report of April 16, 1976. That part of the concern relating to instrumentation to monitor the course of an accident is identified as item II.11 in the April 16, 1976 report.

General Design Criterion 41 requires that systems to control hydrogen, oxygen and other substances which may be released into the reactor containment be provided as necessary to control their concentrations following postulated accidents to assure that containment integrity is maintained. Regulatory Guide 1.7 (Safety Guide 7) "Control of Combustible Gas Concentrations in Containment Following a Loss of Coolant Accident", describes a method acceptable to the NRC staff for implementing General Design Criterion 41.

In a letter to the applicant dated September 29, 1976, the staff noted that the applicant has committed to comply with the design guidance and assumptions for analysis contained in Regulatory Guide 1.7 as supplemented by Standard Review Plan Section 6.2.5 and Branch Technical Position CSB 6-2, "Control of Combustible Gas Concentrations for Containment Following a LOCA". The staff found this design approach to be acceptable, but noted that we will review the combustible gas control system design and supporting analyses in conjunction with the application for an operating

license.

This aspect of the problem, therefore, is resolved and would not be affected by further construction of the Midland Plant.

The matter of instrumentation to follow the course of an accident still is carried by the ACRS in the "Resolution Pending" category of concerns. Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident" was distributed for comment in December 1975. Comments now have been received, the guide is being revised as deemed appropriate by the staff and by the ACRS, and the present schedule calls for publication in February of 1977.

Since the instrumentation finally installed for Midland need not be selected until late in the construction phase, there is no necessity that final selection be made now. Assuming continuation of plant construction and submittal of a Final Safety Analysis Report for operating license review in the summer of 1977, the adequacy of instrumentation could still be determined in ample time for its selection, procurement and installation. Thus, continued plant construction does not affect the ultimate resolution of this matter.

11 - Improved Quality Assurance and In-Service Inspection of Primary System

The Committee continued to emphasize the importance of quality assurance in fabrication of the primary system as well as inspection during service life, and recommended that the applicant implement those improvements in quality practical with current technology.

This quality assurance portion of this item is identified as item I.11 in the ACRS report of April 16, 1976. This concern now is covered by Appendix B to 10 CFR Part 50 which specifies the requirements for a quality assurance program for design, construction and operation of a plant. Regulatory Guides 1.28, 1.30, 1.37, 1.38, 1.39, 1.58, 1.64, 1.74, 1.88 and 1.94 describe procedures acceptable to the staff for implementing the requirements of Appendix B.

During a recent review by the staff to determine the extent of conformance of the Midland Plant to these various Regulatory Guides, the applicant elected to upgrade the quality assurance program to incorporate approved topical reports describing the quality assurance programs of the applicant, the vendor, and the architect-engineer. In a letter to the applicant dated September 24, 1976, the staff reported that it had reviewed the revised quality assurance program description submitted by the applicant in March of 1976, which incorporates Consumers Power Company Topical Report CPC-1, Bechtel Topical Report BQ-TOP-1, Revision 1A dated May 1, 1975, and Babcock and Wilcox Topical Report BAW-10096A, Revision 1, dated March 1975. These reports describe the quality assurance programs of Consumers Power Company, the Bechtel Corporation, and the Babcock and

Wilcox Company. They are designed to replace the quality assurance program described in the Preliminary Safety Analysis Report for the Midland Plant. The staff concluded that several items in these topical reports needed to be resolved before we could conclude as to the acceptability of the overall quality assurance program for the Midland Plant.

By letter dated November 9, 1976, the applicant submitted revised information regarding these reports. A further change was made by letter from the applicant dated November 10, 1976. The staff now has reviewed this revised information and has concluded that it resolves the matters noted in our letter of September 24, 1976, to the applicant. We therefore consider the quality assurance program for the Midland Plant to be acceptable.

The in-service inspection portion of this concern is identified as item I.10 in the ACRS report of April 16, 1976, wherein the Committee notes that this matter is covered by ASME Boiler and Pressure Vessel Code, Section XI, and Regulatory Guide 1.65.

The Safety Evaluation Report for the Midland Plant, dated November 12, 1970, states on page 25 that in-service inspection will comply with the draft ASME Code for the In-Service Inspection of Nuclear Reactor Coolant Systems (N-45) which is equivalent to Section XI of the ASME Boiler and Pressure Vessel Code. By letter to the applicant dated September 24, 1976, the staff concluded that the degree of conformance to Regulatory Guide 1.65 is acceptable.

The matter of in-service inspection, therefore, is adequately resolved

for the Midland Plant and, since the quality assurance program is acceptable as noted above, continued construction of the Midland Plant will not be affected by these matters.

DIRECT EXAMINATION (Continued)

BY MR. HOEFLING:

Q Mr. Crocker, I show you Staff Exhibits 1, 2 and 3.

(Documents handed to the witness.)

Can you describe each exhibit, beginning with Staff Exhibit 1?

A Staff Exhibit 1 is a letter dated November 18, 1976, from the Advisory Committee on Reactor Safeguards to the Honorable Marcus A. Rowden, Chairman of the Nuclear Regulatory Commission.

Staff Exhibit 2 is a letter dated December 1st, 1976, from the Advisory Committee on Reactor Safeguards to D. M. Head, Chairman of the Atomic Safety and Licensing Board.

Staff Exhibit 3 is a letter dated November 23rd, 1976, from R. F. Fraley, Executive Director of the Advisory Committee on Reactor Safeguards, to the Honorable Marcus A. Rowden, Chairman, U. S. NRC.

Q Can you describe for me how those exhibits relate to each other?

A I believe I can.

The November 18 letter, which is Staff Exhibit 1, was the NRC -- I mean the Advisory Committee on Reactor Safeguards, the ACRS, response to a request from this Board

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2 for clarification of the earlier ACRS letter on the Midland
3 Plant of June 18, 1970. That's Staff Exhibit 1, the
4 November 18th letter, and what is general practice for the
5 Advisory Committee on Reactor Safeguards -- the issuance of
6 that letter came through the NRC Staff as far as distribution
7 to members on the service list.

8 At the time, we looked at the letter before we
9 did in fact distribute it. We discovered that bound into
10 the enclosures with the November 18 letter was a page marked
11 "For Official Use Only," which did not appear to properly
12 part of the packet.

13 We advised the ACRS of this, Mr. Fraley. The
14 initial reaction was just delete that one page and let the
15 memorandum go. He then apparently looked at it again and
16 decided that it really should be reissued by the ACRS, so
17 he requested that we send back the November 18th letter and
18 he would reissue it.

19 The reissuing -- the reissued version is what is
20 now identified as Staff Exhibit No. 3, this letter from Mr.
21 Fraley dated November 23rd, 1976. That in effect, with
22 four exceptions, is identical to the November 18 letter that
23 was initially sent out.

24 Those changes that were made: first, that one
25 page marked "For Official Use Only," which is page 2 from
the minutes of the 106th ACRS meeting, that was deleted from

1 the November 23rd package.

2 On page 4 of one of the enclosures, which was
3 the ACRS letter on the Hutchinson Island Plant, there was a
4 deleterion on page 4 of a number of items -- fourteen, to
5 be exact -- that were listed and identified as "ACRS Office
6 Copies Only." In the November 23rd version, this particular
7 information was blanked out from the Xeroxed copies.

8 CHAIRMAN COUFAL: You mean the thing that was
9 blanked out are the words "For Office Use Only," or whatever
10 it was?

11 THE WITNESS: No. What was blanked out was a
12 listing entitled "ACRS Office Copies Only," and then there
13 was a listing of fourteen letters or reports that had been
14 indicated on the ACRS office copy, but they apparently did
15 not feel that it should be part of the public record so they
16 had deleted that.

17 DR. LEEDS: You say "they." Tell me who "they"
18 are.

19 THE WITNESS: "They" being the ACRS -- Mr. Fraley,
20 I assume, or some of his people.

21 DR. LEEDS: Not the ACRS committee itself, but
22 Mr. Fraley?

23 THE WITNESS: Not the committee, but the staff
24 of the committee, I think.

25 There was a similar deletion made from page 4

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1 of the enclosed letter on the Palisades Plant. Again, it
2 was a listing entitled "ACRS Office Copies," with a listing
3 of thirteen matters. These were deleted from the November
4 23rd version.

5 And, finally, from the enclosed letter on the
6 Three Mile Island Nuclear Station, Unit 1, there was a page
7 4 on that. The only information on the page being this
8 "ACRS Office Copies Only," with a listing of eleven items.
9 In the November 23rd version, this entire page was deleted
10 from the package.

11 To my knowledge, those are the four changes that
12 were made in between the November 13th version, which is
13 Staff Exhibit 1, and the November 23rd version, which is
14 Staff Exhibit 3.

15 The December 1st letter, Staff Exhibit 2, as I
16 understand it, is the ACRS response to a request from the
17 Board to explain what the differences were between the
18 November 18th and November 23rd letters.

19 MR. HOEFLING: The Staff would move that Staff
20 Exhibits 1, 2 and 3 be admitted in evidence.

21 CHAIRMAN COUFAL: Is there an objection?

22 MR. CHERRY: Yes, I object that there's no
23 foundation, that I am not permitted to cross-examine on
24 those letters to find out what the meaning is.

25 I further object on the grounds that the ACRS

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1 letters are incomplete.

2 I further object on the grounds that the Regulatory
3 Staff has a direct input and availability to the ACRS which
4 is barred by me.

5 CHAIRMAN COUFAL: Which is barred from you?

6 MR. CHERRY: Yes.

7 CHAIRMAN COUFAL: You said "barred by me."

8 MR. CHERRY: You are right. Thank you.

9 It is barred from me, and I have not equal access
10 to that information.

11 This Board has not determined whether or not the
12 ACRS is the kind of information that on balance with the
13 need for the public interest, et cetera, and the inquiry
14 that that assertion made by the ACRS, which essentially is a
15 proprietary assertion only worse, because not only do they
16 say it's secret but they don't even limit it to this hearing
17 so I can make any inquiry of it. So it's an absolute bar.

18 What happens is the ACRS information now comes
19 into the record. There is no one who is really privy to
20 the development of that information who can be inquired
21 into, either the Executive Director or a member of the staff,
22 or anybody else; yet this Board then relies upon the ACRS
23 conclusions as having some "magical" import. I am really at
24 my pencil.

25 The ACRS in my judgment are a bunch of bandits.

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1 If I can't make that inquiry to prove what I believe and
2 what I've said publicly, that they ought to be in jail, that
3 they are dishonest, that they are the worst group of people
4 in the world in terms of their responsibility to the public
5 interest by hiding problems, et cetera, if that cannot come
6 out and I'm not able to do it, then clearly this information
7 cannot go into the record.

8 CHAIRMAN COUFAL: Overruled.

9 (The documents previously
10 marked for identification as
11 Staff Exhibits 1, 2, and 3
12 were received in evidence.)

13 (The Board conferring.)

14 MR. CHERRY: The actions of the ACRS would make
15 Hitler and Nazi Germany look like child's play.

16 CHAIRMAN COUFAL: Just a minute, Mr. Cherry.

17 MR. BASTON: I'm going to move to strike that, Mr.
18 Chairman. That remark was uncalled for, unrepresentative, and
19 it was at most -- strike that.

20 I move to strike his remark, Mr. Chairman.

21 CHAIRMAN COUFAL: I didn't hear the remark.

22 MR. KENFROW: If you didn't hear it, perhaps you
23 ought to have it read back to you. It's what has been going
24 on during this whole proceeding.

25 MR. CHERRY: I'll restate it.

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I said that the collective deals of the ACRS make
Nazi Germany look like child's play in terms of the impact
on this country's energy policy.

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CHAIRMAN COUFAL: Strike that.

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Dr. Leeds tells me that we properly should say

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1 that we're receiving this as a record of what has gone on,
2 with the ACRS in this proceeding and to show that an ACRS
3 letter was issued.

4 MR. CHERRY: And for no more.

5 CHAIRMAN COUFAL: I don't know. There may be
6 more than that. But the receipt is for those purposes.

7 DR. LEEDS: The Board has already sent another
8 letter to the ACRS, as everybody is well aware of. I presume
9 you've got copies by now.

10 CHAIRMAN COUFAL: We're not saying that this is
11 all the ACRS record is. It's the record to date of what the
12 ACRS situation is as expressed by them.

13 MR. HOEFLING: Mr. Chairman, I think Mr. Crocker
14 attempted, and I think successfully, to explain where we are
15 with the ACRS letter, the relationship of that letter. I
16 think a foundation has been laid for his testimony.

17 He uses that letter to discuss the impact of
18 those items on the Midland facility. I think we all realize
19 that there may be more to come from the ACRS, in which event
20 a fuller record may be had.

21 DR. LEEDS: Well, Mr. Hoefling, I don't want to
22 quibble with words, but I think you said there might be
23 more to come from the ACRS.

24 My point is that I think these letters -- all I
25 think they're in for right now is they are the responses.

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1 That's different than saying there's more to come, because
2 that would presumably imply that we might be accepting in
3 toto what's stated in those letters.

4 MR. HOEFLING: Yes, I understand that. My meaning
5 is that we have before us the response of the ACRS, and
6 Mr. Crocker has used that response to prepare his response.
7 And that's where we are, and that's all.

8 MR. RENFROW: I take it the only thing that will
9 be relied upon them for is for the Board to say this was the
10 response of the ACRS, is that correct?

11 DR. LEEDS: These, yes.

12 MR. HOEFLING: Mr. Crocker is available for cross-
13 examination.

14 CHAIRMAN COUFAL: Mr. Cherry?

15 MR. CHERRY: I come after Consumers Power Company.

16 CHAIRMAN COUFAL: Is that the order that has been
17 used for Staff witnesses? Is that the established order?

18 MR. CHERRY: That would be the sense of the
19 same order in reverse. The original ruling of the Board was
20 that I go last in an effort -- because both the Staff and
21 Consumers are supporting the application. The Staff's
22 direct examination is really in support of the license;
23 therefore, Consumers Power Company ought to finish their
24 cross-examination.

25 CHAIRMAN COUFAL: That ruling having been made,

blt 14 1 we'll follow it.

2 All right, Mr. Renfrow.

3 CROSS-EXAMINATION

4 BY MR. RENFROW:

5 Q Mr. Crocker, I'd like for you to turn to page
6 5 of your testimony on the ACRS items. That would be
7 entitled "2 - Vibration and Loose Parts Monitoring." I
8 direct your attention to the third paragraph thereof.

9 A Yes, I have it.

10 Q Your testimony with regard to this item, did you
11 review the questions submitted by the Staff to the then
12 Applicant concerning vibration and loose parts monitoring?

13 A Did I review the initial questions? No, I did
14 not.

15 Q You did not then review Question 4.5 submitted
16 by the Staff to Consumers and Consumers' answer to that
17 question?

18 A No, I have not.

19 Q Do you have the questions and answers that were
20 submitted by the Staff to Consumers Power Company with you
21 in Chicago?

22 A I don't believe I have any of the questions with
23 me.

24 MR. RENFROW: Excuse me just a moment.

25 (Pause.)

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1 The problem is, Mr. Chairman, I'd like for him to
2 review that. I don't want to make him come all the way back
3 to Chicago if we can finish this today. I'm trying to work
4 out a procedure.

5 CHAIRMAN COUFAL: If you figure we're going to
6 finish today when we're going to quit at noon, that's pretty
7 optimistic, I think.

8 You have cross-examination, don't you, Mr. Cherry?

9 MR. CHERRY: Yes. But in light of the Board's
10 remarks about the potential lack of weight to this witness'
11 testimony, I'm going to ask the Board whether it really wants
12 me to develop that cross-examination.

13 CHAIRMAN COUFAL: We just talked about one of the
14 items with respect to the weight.

15 MR. CHERRY: Right.

16 If I can get any kind of a statement from the Board
17 on that, I can limit my cross-examination a lot. If he
18 finishes now, I think I could finish by noon; and I might
19 even be able to finish in half an hour.

20 MR. RENFROW: I have a couple more questions,
21 Mr. Chairman.

22 DR. LEEDS: What you mean is you're hung up be-
23 cause he doesn't have the document, he hasn't reviewed it,
24 and he doesn't know what's going on.

25 MR. RENFROW: That's correct. I don't want him to

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1 have to come out here only to answer one or two questions,
2 so I'm looking for a procedure by which we can resolve that
3 situation.

4 DR. LEEDS: May I suggest that you go on and
5 we come back to that at the end? That will give you a
6 little time to even think about that, perhaps.

7 If he's got to come back, he's got to come back.

8 MR. RENFROW: Sure. I will come back to it.

9 BY MR. RENFROW:

10 Q Mr. Crocker, let me direct your attention to your
11 testimony related to delay of construction and make-up of
12 lost time. I direct your attention to page 4 of that
13 testimony.

14 CHAIRMAN COUFAL: You're moving too fast for me.
15 What part of the testimony is that?

16 MR. RENFROW: Page 4, top of the page.

17 CHAIRMAN COUFAL: Okay.

18 THE WITNESS: I have the page.

19 BY MR. RENFROW:

20 Q Can you explain to me what you mean by the words
21 ". . . get the construction effort underway again . . .?"

22 A Yes.

23 What I had in mind, if the job were suspended
24 and then reinitiated at some point in time, those words in
25 my mind referred to the time at which the suspension is

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1 listed until that point at which construction was again in
2 full progress on the job.

3 Q Does full progress mean to you that, for example,
4 if there were 1200 workers at the time the suspension order
5 was entered, it would take four weeks to get 1200 workers
6 back on the site again?

7 A I don't think you could possibly get back in four
8 weeks -- four months, perhaps. I think that's what I
9 testified to.

10 Q Four months?

11 A As a minimum.

12 I think that would be a very optimistic time to
13 get the entire job back and moving again.

14 Q Okay.

15 Mr. Crocker, have you looked at how long, once
16 you got those 1200 men back on the site, it would take you to
17 regain the same level that you were at with the 1200 workers
18 when you suspended?

19 A I did not look. From my experience on other jobs,
20 I would say an equivalent amount of time to get the efficiency
21 of the job going again.

22 MR. CHERRY: Mr. Chairman, I move to strike the
23 witness' reference to "my experience on other jobs."

24 He has testified on voir dire that he has no
25 experience on other jobs.

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1 CHAIRMAN COUFAL: That's not quite accurate, Mr.
2 Cherry.

3 MR. RENEROW: That's not accurate at all. If
4 Mr. Cherry wants to pursue it, he can.

5 CHAIRMAN COUFAL: Overruled.

6 MR. CHERRY: He used the plural. On voir dire he
7 told us about the Navy bunker. That's one job.

8 CHAIRMAN COUFAL: Overruled, Mr. Cherry. You can
9 go into that on cross. You've already gone into it on voir
10 dire.

11 BY MR. RENEROW:

12 Q So, Mr. Crocker, it would be sometime between,
13 in your opinion, between four months at a minimum and eight
14 months at a minimum before you could regain the same level
15 of activity that you had at the time the suspension order
16 was entered, is that correct?

17 A I believe my testimony was four to six months to
18 get the numbers of people back on the job. I really did
19 not address as far as the effectiveness of these individuals
20 on the job. That was not really part of the testimony.

21 But I do feel that some additional time, probably
22 on the order of another several months at least, would be
23 required to regain the efficiency on the job.

24 Q So, for the first few months after you get your
25 total work force back, you're not going to be operating at

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1 the same efficiency levels as you were when you were
2 suspended?

3 A I would judge that to be so, yes.

4 Q All right.

5 Let me refer you back to the ACRS testimony. I
6 would like, Mr. Crocker, if you could, to review Question
7 4.5 as submitted by the Staff and the answer supplied by
8 Consumers Power Company.

9 MR. RENFROW: I think, Mr. Chairman, with the
10 Board's and the parties' permission, if Mr. Crocker finishes,
11 what I would do is then submit a request to admit to the
12 Staff based on the question and answer of that particular
13 section of the Staff's review. Therefore, I would not require
14 Mr. Crocker to come back to Chicago, and I could use that
15 admission for purposes of getting in what I want in, if none
16 of the other parties have an objection to that.

17 MR. CHERNY: Mr. Chairman, that would eliminate
18 any inquiry by me. If Mr. Crocker is finished today and I
19 see that response, I may very well agree with Mr. Renfrow
20 and not require Mr. Crocker to come back; but I won't agree
21 to it in the absence of seeing it.

22 MR. NOEFLING: The Staff doesn't have any objection
23 to the procedure that Mr. Renfrow has outlined, although
24 Staff counsel is confused as to exactly what the ultimate
25 goal is here.

p. 20

1 CHAIRMAN COUFAL: So with that remark are you
2 through, Mr. Renfrow, with your examination, or what?

3 MR. RENFROW: Yes, sir, I'm through, provided I
4 have the Board's permission, with Mr. Cherry's qualification,
5 to submit a request to admit. Since we're already into the
6 hearing and those usually take place prior to the time we
7 come into a hearing. I would like permission from the Board
8 to submit that one request.

9 CHAIRMAN COUFAL: We, of course, can't agree for
10 Mr. Cherry. If he won't agree, he won't agree. But you do
11 whatever you've got to do.

12 MR. RENFROW: I'm not asking you to limit that.
13 I'm asking you for an order that I would be allowed to submit
14 that request to admit since we're in the middle of a proceeding.

15 CHAIRMAN COUFAL: All right, you can do that.

16 MR. RENFROW: Thank you.

17 THE WITNESS: May I ask, sir, for a little more
18 identification of this question? I'm not sure which question
19 we're talking about.

20 MR. CHERRY: Mr. Chairman, can that be handled
21 after the hearing?

22 MR. RENFROW: It will all be in the request to
23 admit, exactly what I want. All I need is permission to do
24 that, and I have no other questions.

25 CHAIRMAN COUFAL: Mr. Nute?

plt21

1 MR. NUTE: I have no questions.

2 CHAIRMAN COUFAL: Mr. Cherry?

3 MR. CHERRY: Does the Staff have any redirect on
4 Mr. Renfrow's searching cross-examination?

5 CHAIRMAN COUFAL: The redirect comes after all
6 the cross, Mr. Cherry.

7 BY MR. CHERRY:

8 Q Mr. Crocker, you said in your earlier examination
9 by me that you were familiar with the Advisory Committee on
10 Reactor Safeguards' letters that were submitted from time
11 to time on various plants, including the Midland Plant.

12 Do you recall that question and answer?

13 A I recall the question. I don't recall saying
14 I was limiting it to the Midland Plant and specifying the
15 Midland Plant.

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End 5

#6 mm1

1 Q Well, have you read the ACRS letters on the
2 Midland plant prior to November 1976?

3 A Yes, I have.

4 Q And that is the one originally issued in '70 and
5 '71?

6 A Yes. I am not sure of the dates, but there were two
7 letters.

8 Q You know the ones where they say other problems
9 in lightwater construction, but if everything goes okay,
10 then everything will be okay?

11 A Yes.

12 Q I take it, Mr. Crocker, that you have also read
13 similar letters like that for many other nuclear power plants?

14 A I would have to qualify the many. I have read
15 letters like that on other plants, yes.

16 Q How many would you say you have read?

17 A Oh, perhaps several dozen letters.

18 Q Several dozen.

19 Can I use the figure of 75 or more?

20 A I think that is high.

21 Q 50 or more?

22 A I think that also is high.

23 Q 36 or more?

24 A That would be about right, I would guess.

25 Q Okay.

mm2

1 So that an addition or including the letters that
2 were specifically written for Midland, you have read the
3 kinds of letter that I have just described for at least 36
4 other nuclear reactors, either at the construction or
5 operating stage?

6 A Numbers of about that magnitude, yes.

7 Q When you read these letters, is this part of your
8 official duties, or do you read them for casual reading?

9 A It is part of my official duties.

10 Q So you have to understand what they say?

11 A Yes.

12 Q And you do understand what they say?

13 A In most instances I think yes, we understand what
14 the ACRS refers to. There --

15 Q Now in the Midland

16 CHAIRMAN COUFAL: Wait a minute, Mr. Cherry.

17 THE WITNESS: I was going to say there are
18 some times when we are not clear as to precisely what the
19 ACRS means, and clarification is asked for.

20 BY MR. CHERRY:

21 Q And then you get it?

22 A And then we generally get it, yes.

23 Q The ACRS doesn't tell the Regulatory Staff that
24 they won't reveal the basis of their statement. They promptly
25 give you a clarification, correct?

mm3 1 A So far as I know, we get it in each case. Yes.

2 Q Now -- and then I take it that the Regulatory
3 Staff then uses that information that it gets from the ACRS
4 in the context of evaluating its regulatory plants -- its
5 regulatory duties in nuclear power plants?

6 A We use the ACRS comments on a specific plant in our
7 evaluation of the plant, yes.

8 If the ACRS has some specific concerns that they
9 feel warrant attention over and above the evaluation the
10 Staff has made up to that point in time, we generally will go
11 ahead and consider that matter further until we have reached
12 a point where we and the ACRS are in agreement that enough has
13 been done in that particular area.

14 Q Now the Regulatory Staff thus receives information
15 from the ACRS which isn't ordinarily available to the
16 general public?

17 A I don't think that is correct. No.

18 The ACRS letters are public, so far as I know.

19 Q Well how about all these clarifications that you
20 get from the ACRS?

21 A These also are made as a public record.

22 Q You have no -- are you telling me that the Regulatory
23 Staff members are always prohibited from going to ACRS meetings
24 that are barred by the public -- barred to the public?

25 A No, I am not telling you that anyone is prohibited

mm4

1 from going. The meetings are public meetings. There is a
2 transcript kept of the activities.

3 Q Well, but does -- do Regulatory Staff members ever
4 appear in ACRS executive session meetings which are closed
5 to the public?

6 A They have in the past, yes.

7 Q Now those minutes are not released to the public,
8 are they?

9 A Yes, they are, now.

10 Q Unexpurgated?

11 A I believe they all have some deletions as far as
12 names of individuals.

13 Q Anything else?

14 A I don't know what else.

15 I am not sure what the ACRS uses as its criteria
16 for deletions.

17 Q Is it your testimony, Mr. Crocker, that no information
18 that the Regulatory Staff learned from the ACRS which may have
19 been learned by the Regulatory Staff from soliciting the
20 ACRS viewpoints, that none of that information, whether
21 gained at a meeting or in a letter and subsequently used in
22 evaluation has been kept from the public?

23 A To my knowledge there is none of that information.

24 Q So that all the information that the ACRS suggests
25 needs to be kept from the public is in reality brought out

mm5 1 to the public through this procedure of giving it to the
2 Regulatory Staff as an example or explanation, and then
3 ultimately used by the Staff in its evaluation and released
4 to the public.

5 Is that true?

6 MR. RENFROW: Objection.

7 Can I hear the first -- excuse me.

8 CHAIRMAN COUFAL: Just a minute.

9 MR. RENFROW: Can I hear the first part of that
10 question again, Mr. Chairman?

11 BY MR. CHERRY:

12 Q I will rephrase it.

13 Isn't it a fact, Mr. Crocker, that it is your
14 testimony that all that the Regulatory Staff has whatever access
15 it wants to enter the underlying reasons of the ACRS?

16 Isn't that true if he wanted to get it.

17 A We have the capability of discussing items with the
18 committee, yes.

19 Q And if you ask them what do you mean by this, they
20 will tell you?

21 A I think that is a fair assessment, yes.

22 Q Okay.

23 Is it also correct that all of the information you
24 get from the ACRS eventually is released to the public
25 through the process of a Regulatory Staff review in these

mm6 1 hearings?

2 A I think that is correct, yes.

3 Q Why won't the ACRS, then, talk to me, tell me the
4 basis, do you know?

5 A I don't know that they won't talk to you.

6 MR. CHERRY: Mr. Chairman, part of the rationale
7 of the Aeschliman decision was that the ACRS was acting sort
8 of in a quasi judicial situation and could not be subjected
9 to cross-examination or inquiry because, like a hearing board,
10 their underlying basis was kept to themselves.

11 However, it is now clear, as it has been -- and
12 this was not made really clear to the Court of Appeals, that
13 the ACRS does not regard their underlying basis as part of
14 sort of judgmental matters under the United States v Morgan
15 rule that was argued by the Applicant for the Court of
16 Appeals. It was adopted by the Court of Appeals at least in
17 part, because it was not before the Court of Appeals when
18 we argued that case. The testimony of Mr. Crocker right now is
19 that the ACRS does not withhold their information completely,
20 but only from some parties.

21 Therefore, I would ask the Board at some point, and
22 I will file a motion in the interim, for me to permit now
23 discovery of the ACRS in light of these changed circumstances.
24 And I am only calling attention of the Board to this, that
25 I intend to move further on this because I think this

1 information was not clear to the Court of Appeals and I am
2 going to try to get at the ACRS again through this
3 procedure.

4 And I will file that motion.

5 MR. RENFROW: I would like to make a comment to that.
6 It is one that is not contestable.

7 True we have been around this, especially
8 Mr. Cherry's remarks about them going to jail. The point of
9 the matter is that the information is available in the Public
10 Document Room. It has been raised before. I told Mr. Cherry
11 that I walked over there myself and got the documents, and
12 he can do the same. Portions of the meetings where he can
13 bring items up -- indeed there are instances where there
14 have been. So, as far as I am concerned this motion and
15 this whole time we spent on here is a bunch of poppycock.

16 If he is going to file the motion we have been
17 hearing about since December, let's file it, address the issue
18 and get finished, instead of going on to half truths of what
19 he suspects of changing around people's testimony.

20 CHAIRMAN COUFAL: Do you have any more questions,
21 Mr. Cherry?

22 BY MR. CHERRY:

23 Q Now let's go back to the construction stage letter
24 of the ACRS, representative example of one would you bring
25 to your mind so we can discuss it?

mm8

1 I am pretty familiar with them, so you can pick
2 almost any one and I will deal with it.

3 A I would assume the Midland letter of June 18, 1970.

4 Q Would you turn to the last paragraph of that letter
5 and read it out loud?

6 A The last paragraph says:

7 "The Committee believes that the above items
8 can be resolved during construction, and that if
9 due consideration is given to these items, nuclear
10 units proposed for the Midland plant can be
11 constructed with reasonable assurance that they can
12 be operated without undue risk to the health and
13 safety of the public."

14 Q Do you know what that means, Mr. Crocker?

15 A I believe in general terms, yes. That based on
16 the Committee's review, their feeling is that the matters that
17 had been identified as possible problem areas were capable
18 of resolution. And that if they were so resolved during
19 the time the plant was under construction, the plant could be
20 operated with the assurance of the health and safety of the
21 public.

22 Q What if they weren't so resolved?

23 What is the implication?

24 A I don't believe the ACRS addresses that.

25 Q Well, do you have an understanding of what the

mm9 1 the ACRS means when they say if you resolve it we will be safe?

2 A Yes.

3 Q What do they mean if you don't resolve it?

4 Does it follow that if you don't resolve these
5 matters, or you don't give due consideration to them, or you
6 don't finish between the stage of construction, that the
7 underlying basis of the ACRS conclusion has now been eroded?

8 Is that your understanding?

9 MR. HOEFLING: Objection, Mr. Chairman.

10 Mr. Crocker is here to address the November 18, '76
11 letter, to inform the Board and the parties as to where
12 Midland stands with those eleven items as the Staff reads that
13 letter.

14 I don't see what we are going to gain by wandering
15 through these ancient ACRS letters.

16 The Court of Appeals has said, let's clarify that
17 letter. We have got a clarifying letter, that is what we ought
18 to be talking about here.

19 MR. CHERRY: I would like to be heard, unless you
20 are going to overrule the objection.

21 CHAIRMAN COUFAL: All right, speak up.

22 MR. CHERRY: Mr. Crocker is testifying about a
23 resolution by the ACRS, and he is making some judgment based
24 upon an understanding of the ACRS letter.

25 The Court of Appeals never said that I could not

mm10

1 inquire into a Regulatory Staff understanding of that ACRS
2 letter. And indeed, since on voir dire Mr. Crocker has
3 admitted that his understanding, or his testimony here is
4 based upon a review and understanding of everything, and the
5 November 26 -- November 1976 letter refers to that earlier
6 letter, my problem is simply this:

7 As a matter of fact, I think I would like Mr. Crocker
8 to step outside, since this does relate to his testimony.

9 CHAIRMAN COUFAL: All right, Mr. Crocker.

10 Can you walk out the back door for a minute.

11 THE WITNESS: Allright. I will be glad to.

12 MR. CHERRY: My problem is this, Mr. Chairman.

13 If the ACRS says that if due consideration is
14 given to this problem during construction, it can operate
15 safely, right?

16 But we find out that what the ACRS means is that
17 whether or not due consideration is given to this construction
18 problem, the plant can operate safely. If I can prove to you
19 though that is really what the ACRS meant, then the fundamental
20 basis for Mr. Crocker's judgment that these matters will be
21 resolved has eroded.

22 Let me be even more specific. If you take the ACRS
23 letters for any plant, including Midland, and you begin in
24 1970, okay, and then you take the matters that are in an ACRS
25 letter that has been identified -- not these other problems,

mmll 1 language, but a specific matter that has been identified, the
2 last paragraph which says, "due consideration to these matters
3 during construction," refers to those specified items as
4 well as other problems. Okay?

5 Now, if you compare the problems outstanding
6 either on a generic list or on a specified letter list, you
7 will see that the ACRS then writes a letter at the operating
8 stage of that particular reactor, without having resolved all
9 of the problems they note in the construction stage. Okay?

10 It therefore becomes relevant to know what the
11 ACRS means when they say due consideration if they are willing
12 to sign off at the operating stage level without those problems
13 having been resolved.

14 And the reason that I am really teed off at the
15 ACRS, why I think they are a bunch of criminals, is if you
16 add up all of the letters -- I am talking about intellectual
17 criminals -- you add up all the items in the letters they
18 say ought to be resolved, you will find that the ACRS has got
19 another trick language when the operating stage comes. They
20 now say, well, we didn't resolve it in the construction stage,
21 but if reasonable efforts are made upon the beginning of
22 operation, and due regard is had for some dispatch, we think
23 it can operate, et cetera.

24 Now there is no way that I as a lawyer, or anyone
25 rational can deal with that kind of dishonesty.

mm12

1 If they really mean that an ACRS problem has got
2 to be resolved before construction, if they really mean that,
3 then why should they continue to permit plants to operate
4 when those -- or sign off on plants that are permitted to
5 operate, when those plants have not resolved those matters.

6 It is directly related to Mr. Crocker's testimony
7 because he says he understands what they mean about this
8 consideration.

9 And the question I am now asking is, what do you
10 understand the ACRS to mean if due consideration is not given?
11 Because if Mr. Crocker is pressed and is permitted to answer,
12 I assume he will have to say either, I don't know -- and that
13 will make him look pretty foolish -- or he is going to have to,
14 if I am permitted to cross-examine, say, well I assume then
15 the ACRS would not say that this plant could be operated
16 safely.

17 Therefore, we then have to get into whether or
18 not due consideration will be given during this nine-month
19 period, or two-month period, or twelve-month period, or two-
20 year period, whatever it is, we can't do that unless we know
21 what it is.

22 CHAIRMAN COUFAL: You are losing me.

23 I think I was with you up to about the beginning of
24 the last sentence.

25 MR. CHERRY: Okay.