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FOR NRC STAFF:

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P R O C E E D I N G S

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9:37 a.m.

3 JUDGE CARTER: This special pre-hearing conference is  
4 called to order. This is Docket Number 50-170, the Armed  
5 Forces Radiobiology Research Institute proceeding.

6 Pursuant to delegation by the Nuclear Regulatory  
7 Commission dated December 29, 1972, and published in the  
8 Federal Register an Atomic Safety Licensing Board was  
9 established to rule on petitions for leave to intervene  
10 and/or requests for hearing and to preside over the  
11 proceeding in the event that a hearing is ordered.

12 My name is Louis J. Carter. I am an attorney and  
13 chairman of the Board.

14 To my right is David R. Schink of the Department  
15 of Oceanography of Texas A&M University. Dr. Schink is a  
16 graduate of Pomona College, California, and has his Master's  
17 degree in oceanography and chemistry and a Ph.D. in  
18 oceanography from the University of California. He has been  
19 Associate Professor of Chemical Oceanography at Texas A&M  
20 and since 1974 has been a member of the Atomic Safety and  
21 Licensing Board Panel. And he is a member of the National  
22 Science Foundation Advisory Panel on Physical Chemical  
23 Oceanography and Marine Geology and Geophysics.

24 To my left is Ernest E. Hill of the  
25 Lawrence-Livermore Laboratories. Mr. Hill has his Master's

1 degree in nuclear engineering from the University of  
2 California-Berkeley, formerly was chief of the Reactor  
3 Safety Branch of the U.S. Atomic Energy Commission, and,  
4 until 1974 was the group leader of the System Analysis  
5 Group, Reactor Safety and Quality Assurance, and since then  
6 has been a member of the Atomic Safety and Licensing Board  
7 panel.

8           An order was issued by us on April 15 setting this  
9 conference. No limited appearances will be accepted at the  
10 conference. We will concern ourselves here today with a  
11 consideration of the Contentions that have been made. There  
12 will be no dicisions made from the bench. We will issue an  
13 opinion subsequently.

14           I will ask the attorneys to enter their  
15 appearances, starting first with the staff.

16           MR. BACHMANN: My name is Richard G. Bachmann. I  
17 am the staff attorney for the NRC staff. To my right is  
18 Stuart A. Treby, Assistant Chief Hearing Counsel, the NRC  
19 staff, and to my left is Harold Bernard, who is the Project  
20 Manager for the AFRI facility.

21           MS. ENTWISLE: My name is Elizabeth B. Entwisle.  
22 I am general counsel for the Citizens for Nuclear Reactor  
23 Safety Incorporated. To my right is Dr. Irving Stillman,  
24 who is our expert.

25           JUDGE CARTER: I am sorry. Would you repeat his

1 name?

2 MS. ENTWISLE: Dr. Irving Stillman, who is our  
3 expert consultant in this proceeding.

4 JUDGE CARTER: Thank you.

5 MR. RICKORD: Good morning. My name is David  
6 Rickord. I am Deputy General Counsel for the Defense  
7 Nuclear Agency, which is the Armed Forces Radiobiology  
8 Institute's parent.

9 To my left is Major Ronald Smoker. To my right is  
10 Lieutenant Commander Paul Durphy. These two gentlemen are  
11 here to translate physics for me if the need should arise.

12 JUDGE CARTER: Thank you.

13 I will ask now that the parties make any opening  
14 statements that they may desire to make in a preliminary  
15 fashion.

16 If there are no opening statements, we will then  
17 proceed to a consideration of the Contentions. Does any  
18 counsel want to make any preliminary statement?

19 MS. ENTWISLE: I would just like to say on thing  
20 and that is that my understanding of the purpose of the  
21 proceeding here today it to consider solely the  
22 admissibility of the Contentions here before us, and I would  
23 urge the panel or the Board not to let any of the parties  
24 get into the merits of any of the arguments.

25 JUDGE CARTER: That is our goal. That is our

1 mission, and that is the rule that we expect to apply.

2 MR. BACHMANN: Judge Carter, if I might?

3 JUDGE CARTER: Mr. Bachmann.

4 MR. BACHMANN: I would like to briefly run down  
5 the actions that have already occurred prior to  
6 consideration of the Contentions in that the Petitioner has  
7 filed a petition for leave to intervene, an amended  
8 petition, and responses have been filed by the Licensee and  
9 the staff.

10 At this point, we, on the 26th of January, insofar  
11 as the standing aspect was concerned, the staff felt at that  
12 point, based on their amended petition that the Petitioner  
13 had satisfied the standing and aspect requirements of a  
14 petition.

15 Subsequent to that, on March 30, 1981, we had met  
16 previously the Licensee, the Petitioner, and the staff, and  
17 had stipulated to six contentions. I realize you said you  
18 would not rule from the bench. However, we feel at this  
19 point that since at least there are six stipulated  
20 contentions, that the Petitioner could be considered at this  
21 point an intervenor and accorded to the proceeding.

22 JUDGE CARTER: Does the Applicant have any  
23 statement on that question with regard to standing?

24 MR. RICKORD: Insofar as the standing issue is  
25 concerned, we concur with the NRC staff. We had previously

1 indicated our agreement that the Petitioners have stated at  
2 least six contentions with sufficient specificity and detail  
3 so as to make it clear that they are appropriately a party  
4 to the proceeding.

5 I would hope, and I think this might be what Mr.  
6 Bachmann was aiming at, that we could perhaps move on and  
7 look at simply the contentions in dispute, should that be  
8 the pleasure of the Board.

9 JUDGE CARTER: Yes. We believe that the precise  
10 issues to be considered today are the unstipulated  
11 contentions which are Attachment B to the Stipulation, and I  
12 suggest that we follow this procedure to have Miss Entwisle  
13 speak in support of her Contention and then we will have a  
14 response from the staff and then by the Applicant.

15 We will take each of the Contentions  
16 individually. I realize, and we are appreciative of the  
17 extensive work that the staff and the Applicant have done in  
18 responding to the Contentions and explaining their  
19 positions. However, there may be questions from the Board  
20 with regard to these issues, and we propose to have that  
21 opportunity by following this procedure.

22 So I think, Miss Entwisle, the first matter would  
23 be, and you need not read it entirely, but give us your oral  
24 statement in support of unstipulated Contention I, which is  
25 entitled "Accidents I."

1 MS. ENTWISLE: This Contention deals with a loss  
2 of coolant accident that the AFRRI applicant has put forth  
3 as part of his license application. We maintain that,  
4 contrary to AFRRI's position --

5 JUDGE CARTER: Excuse me, Miss Entwisle. Could  
6 you hold the microphone a little closer to your mouth so it  
7 will be a little louder?

8 MS. ENTWISLE: We maintain that in the event of a  
9 loss of coolant accident, such as that described in the  
10 Applicant's loss of coolant accident scenario, air  
11 convection alone will not be sufficient to cool the reactor  
12 down to a low criticality.

13 We maintain that in the event of a rapid loss of  
14 coolant in the reactor, in an actively operating core there  
15 could be a sudden temperature elevation to 900 degrees  
16 centigrade or higher and this could result in significant  
17 cladding failure and fission particle releases in excess of  
18 the NRC's 10 CFR Part 20 limits.

19 I would like to further point out that the  
20 arguments that both the Applicant and the staff get into in  
21 their position papers get into questions of evidence and the  
22 sole question before us today is the admissibility of this  
23 Contention.

24 I would like to cite for the Board the recent  
25 ruling in the Regents of the University of California

1 reactor on March 20, 1981, in support of our position that  
2 due to the proximity of this reactor to the public, the  
3 Board is compelled to consider such a possible accident  
4 scenario.

5 JUDGE CARTER: Mr. Bachmann?

6 MR. BACHMANN: Yes, sir.

7 I would like to just briefly mention the  
8 requirements for the admissibility of the Contention. That  
9 is, the basis must be reasonably specific. And, as we noted  
10 in our statement of position, there are certain guidelines  
11 and one of them, of course, is that the parties must be put  
12 on notice as to what they must defend against or oppose.  
13 Others, of course, are the challenge to the regulations.

14 On that basis, looking at the wording of the  
15 Contention as it is set out, the Petitioner has stated that  
16 rapid loss of coolant while the reactor is in a pulse mode,  
17 this is the wording of the Contention that we are  
18 addressing, it is the staff's position that this does lack  
19 basis and really fails to alert the parties as to what they  
20 must -- what matters are sought to be litigated.

21 The reactor cannot be pulsed unless it is  
22 critical. The reactor cannot be critical without the water  
23 moderator. Therefore, where there was no water, it could  
24 not be pulsed.

25 While the Petitioner has indicated this may go to

1 the evidence, it is the staff's position that basis must  
2 have some foundation in fact and to say that a reactor could  
3 be pulsed, lacking water, is a physical impossibility. For  
4 that reason, we feel that they have not given us sufficient  
5 basis.

6           Staff's second position is that in stipulated  
7 Contention II, Section 4, we have stipulated the potential  
8 for the results of a multi-cladding failure due to a loss of  
9 cooling accident, so this not only -- the staff's position  
10 is not only is this Contention physically impossible the way  
11 it is now worded, were it reworded it would be duplicative  
12 of stipulated Contention II.

13           JUDGE CARTER: Mr. Bachmann, would you help me  
14 find that portion in the stipulated attachment? What page  
15 is that?

16           MR. BACHMANN: That is on page 3 of Attachment A  
17 in the stipulation.

18           JUDGE CARTER: And what language do you say covers  
19 the situation?

20           MR. BACHMANN: Depending on what the Petitioner  
21 indeed wishes to litigate, if they intend to litigate what  
22 would be the results of a loss of coolant accident, we have  
23 accepted a stipulation to a contention that postulates a  
24 multiple fuel cladding failure, in Section 4, and Section  
25 4(c) indicates a loss of coolant accident.

1           Now that appears to be the worst case accident  
2 that could happen to loss of coolant accidents, and so --

3           JUDGE CARTER: Excuse me, Mr. Bachmann. At page  
4 2, what line do you say covers this?

5           MR. BACHMANN: This is page 3 of Attachment A of  
6 the Stipulation, the last item, item number 4 at the bottom  
7 of the page. There is refers to multiple fuel cladding  
8 failure accidents have no been considered in the hazard  
9 summary reports. Such accidents could result from, and if  
10 you go to the next page -- Part C on page 4 -- a LOCA, or  
11 loss of coolant accident.

12           JUDGE CARTER: How do you say that differs from  
13 the Contention? Aren't you admitting that the LOCA problem  
14 is to be covered in the testimony?

15           MR. BACHMANN: What I am saying, sir, is that we  
16 have -- to the extent that the Applicant is concerned about  
17 the results of a loss of coolant accident, if that is the  
18 thrust of their Contention, that we already have a  
19 stipulated Contention before the Board to the extent that  
20 they are saying that we could have a loss of coolant  
21 accident followed by the reactor going to a pulse mode.

22           It is the staff's position this is physically  
23 impossible. From what Petitioners said, they did not  
24 explain the pulse mode with loss of water, and therefore  
25 staff is now assuming that they are merely looking for the

1 results of a loss of coolant accident, which has already  
2 been stipulated.

3           MR. RICKORD: Sir, this first contention that we  
4 are dealing with is somewhat similar to several others in  
5 kind of a generic sense. Our reaction on this Contention is  
6 that we have difficulty stipulating to something that we  
7 believe to be a physical impossibility and suspect on our  
8 part that maybe we don't understand what the Contention  
9 means and have difficulty, for that reason, stipulating to a  
10 contention that we don't understand.

11           And if we haven't got the specificity there to  
12 counter the inexplicable physical impossibility scenario,  
13 then we are at a loss to know what we are to defend against,  
14 if you will.

15           JUDGE CARTER: Miss Entwisle, is it your position  
16 that you will present testimony that indicates that it can  
17 be critical in a pulse mode without the presence of the  
18 water?

19           MS. ENTWISLE: Yes, sir. It is our intention and  
20 we are prepared to do that.

21           JUDGE CARTER: I can't hear you.

22           MS. ENTWISLE: That is our position and we are  
23 prepared to defend that at the hearing on the merits.

24           JUDGE CARTER: You are prepared to present  
25 testimony?

1 MS. ENTWISLE: We are prepared to present  
2 testimony showing that -- excuse me one second.

3 (Pause.)

4 MS. ENTWISLE: Showing that the reactor can go  
5 into pulse mode in the absense of the water.

6 JUDGE CARTER: Is there anything further on this  
7 point?

8 MS. ENTWISLE: I am a little bit at a loss to know  
9 how much evidence to offer at this point.

10 JUDGE CARTER: I am not asking you to offer any  
11 evidence. I am merely asking you whether you have evidence  
12 on this subject that you wish to present at an evidentiary  
13 hearing to support the fact which is contrary to what your  
14 friends have said, that it cannot be critical without the  
15 coolant.

16 MS. ENTWISLE: Yes, we have evidence to support  
17 this.

18 JUDGE CARTER: If there's nothing further on  
19 this. Mr. Hill has a question.

20 Judge Hill?

21 JUDGE HILL: We addressed the Part I of the  
22 Contention. I would like to hear a little bit about Part  
23 II, which has to do with the erroneous radiation doses to  
24 humans resulting from the submersion exposure. Can we hear  
25 your comments on that?

1 MS. ENTWISLE: Insofar as this amounts to a  
2 challenge to the regulations, we feel that the special  
3 circumstances of this case warrant the Board to consider not  
4 only the submersion doses that would be received from the  
5 gases but the doses that would be received as a result of  
6 internal emissions.

7 MR. BACHMANN: As we stated in our statement  
8 position, we oppose the admission of this Contention on the  
9 grounds it lacks adequate basis and constitutes an indirect  
10 challenge to the Commission's regulations as it is written.

11 The Petitioner when they filed their statement of  
12 position included an affidavit that we had not seen prior to  
13 this, at the time we were filing our statement of our  
14 position. However, it is still the staff's position that  
15 the affidavit filed, apparently pursuant to 10 CFR 2.758  
16 outlining special circumstances, does not provide special  
17 circumstances to allow the Board to disregard 10 CFR, Part  
18 20, which is essentially what is happening here.

19 As we stated in our statement of position, the  
20 noble gases and the concentrations permitted in unrestricted  
21 areas in 10 CFR, Part 20, those concentrations are based  
22 upon submersion and, as the Petitioner has admitted, this is  
23 not only an indirect but a direct challenge to the  
24 Commission's regulation.

25 For the Board to accept this, according to the

1 provisions of 2.758, the Board must find that the Petitioner  
2 has made a prima facie case showing special circumstances,  
3 and then immediately certify the question directly to the  
4 Commission.

5           The Petition that has been filed in support of  
6 this and also in support of another Contention merely states  
7 population and population density, so there is nothing in  
8 that petition that indicates in any scientific way why the  
9 submersion basis used for the concentrations in Part 20  
10 should be ignored in this proceeding.

11           Therefore, the staff does oppose the admission of  
12 this Contention.

13           JUDGE CARTER: Where is that affidavit? I don't  
14 believe the Board has it.

15           MS. ENTWISLE: Yes. It is attached to our  
16 statement of position that was filed several weeks ago. It  
17 is the last two pages.

18           JUDGE CARTER: What is the date of that?

19           MS. ENTWISLE: 14th of April, 1981. It is the very  
20 last page of Petitioner's statement of positions.

21           JUDGE CARTER: What is the title of the document?

22           MS. ENTWISLE: The title is "Position of  
23 Petitioner on Unstipulated Contentions."

24           JUDGE CARTER: We have never received that. Do  
25 you have additional copies?

1 MS. ENTWISLE: Yes, we do have an additional  
2 copy. I served a copy on staff, on NRC staff counsel. It  
3 was my understanding that was sufficient.

4 JUDGE CARTER: Suppose we take a short recess  
5 now. I have three minutes after ten. We will take a recess  
6 until 10:15.

7 (A brief recess was taken.)

8 JUDGE CARTER: We are back in order again,  
9 please. We have received copies of the position of  
10 Petitioner on unstipulated contentions. The copy we have,  
11 Miss Entwisle, is dated in Washington the 14th of April,  
12 1981, and are we to understand that the affidavit which you  
13 signed at the back of that position paper is also to be  
14 dated the 14th of April?

15 MS. ENTWISLE: That is correct.

16 JUDGE CARTER: And would you please see that  
17 copies of this are filed with the Secretary?

18 MS. ENTWISLE: Yes, sir.

19 JUDGE CARTER: So it may be part of the file  
20 itself.

21 MS. ENTWISLE: I apologize for any inconvenience  
22 it has caused the Board. It was a misunderstanding of  
23 counsel and my own lack of familiarity with the NRC  
24 procedures.

25 JUDGE CARTER: We understand.

1 MS. ENTWISLE: There is a signed affidavit which I  
2 believe Mr. Bachmann has. Is that correct?

3 JUDGE CARTER: If you will provide the signed  
4 affidavit for the Secretary, perhaps you can exchange the  
5 documents.

6 MS. ENTWISLE: Thank you.

7 JUDGE CARTER: We are back again. We are still on  
8 the unstipulated Contention and we will return just for a  
9 moment. I think Judge Hill has a question with regard to  
10 Part I of Accidents I, with regard to the criticality issue.

11 JUDGE HILL: Again, without getting into the  
12 merits of the case, I would like to hear more about the  
13 nature of the testimony that you have that would prove that  
14 the reactor -- that this reactor -- could be pulsed in the  
15 absence of water.

16 MS. ENTWISLE: We are prepared to offer evidence  
17 that a pulse could take place inadvertently in a situation  
18 where the water is already gone and not known to the  
19 operator. We contend that this is possible in that such  
20 malfunctions of the water level sensing mechanisms have  
21 occurred in AFRI as recently as 1979 and you thus have a  
22 situation of no water without the knowledge of the operator,  
23 and the reactor could then go into pulse mode without the  
24 cooling water.

25 JUDGE HILL: Again, the difficulty is that the

1 water is necessary, required, as a moderator to pulse the  
2 reactor, and so you are contending a situation which is  
3 physically impossible.

4 MS. ENTWISLE: But the water being used as a  
5 moderator is competing also with its use as a coolant, and  
6 so what we have here are two competing physical processes.

7 We are contending that under certain conditions  
8 the heating process would happen more quickly than the  
9 non-thermalizing process of the water. And again I am not  
10 familiar with procedure here. I would defer the scientific  
11 questions to my scientific advisor here, Dr. Stillman, so  
12 there is not the risk that I misstate a very technical issue.

13 JUDGE HILL: Could I hear --

14 JUDGE CARTER: Well, in fact we are asking for an  
15 offer of proof rather than the proof itself. Do you have a  
16 study, one treatise, to which reference is made and then  
17 there is some evidence that you expect from general atomics  
18 experimental data? Those are two types of evidences that  
19 you would propose to present, is that right?

20 MS. ENTWISLE: We have data from general atomics  
21 experiments and we have testimony from a nuclear physicist  
22 that we are prepared to offer.

23 JUDGE SCHINK: And it is your plan to show, then,  
24 that this reactor will work in the absence of a water  
25 moderator?

1 MS. ENTWISLE: It is our intent to show that it  
2 can go into critical pulse mode in the absence of the water  
3 and reach the critical temperature where the harm and the  
4 cladding failure is done before the water cooling effect can  
5 take over.

6 Would it be appropriate for Dr. Stillman to say  
7 something at this point?

8 JUDGE HILL: Yes, please. Because I am still not  
9 satisfied that what you are claiming you are going to do you  
10 are going to be able to do.

11 MR. STILLMAN: You know, it is difficult. Liz is  
12 a very fine attorney, but she's not a scientist and  
13 sometimes maybe gets the wording maybe a little bit not  
14 particularly correct.

15 What we are really trying to demonstrate is that,  
16 first of all, a loss of water coolant is a finite process.  
17 It is not instantaneous, although, theoretically that is what  
18 they are saying. We maintain that it is a finite process  
19 and in the loss of that water, while that process is going  
20 on, that there are competing reactions between the  
21 thermalization of the fast neutrons occurring in that water  
22 and also the heating up of the fuel element moderator and  
23 the cladding. And that we can demonstrate that the rates at  
24 which those occur will intersect at such a point that a  
25 power excursion is possible to produce the kinds of effects

1 we are concerned about.

2           In other words, what we are postulating is not  
3 that there is a total absence of water. What we are  
4 postulating is that the rates at which these occur is  
5 critical in permitting a power excursion of the type that we  
6 are concerned about. I don't know if I made that any  
7 clearer.

8           JUDGE CARTER: I am a lawyer, but I think I  
9 understood what you are saying. I am sorry about that.

10          JUDGE HILL: I would like to hear from your  
11 physicist.

12          MR. RICKORD: Your Honor, I think I will  
13 anticipate what counsel is going to say. We are maybe  
14 getting a little further into it than we should. If you  
15 would like a motion for summary judgment as to this one, we  
16 would be prepared to offer you a motion for summary judgment  
17 on it.

18           I still don't understand.

19          JUDGE CARTER: We are dealing with the problem of  
20 where a contention is made which appears prima facie to be  
21 farfetched, unusual, not in accordance with the general  
22 design and general experience of people. Is that a factual  
23 and a specific contention? And sometimes we have to go a  
24 little farther into the nature of the contention, though it  
25 does sound like evidence, in order to fully understand how

1 it would operate.

2           Do you have a response? Do you want to make a  
3 response?

4           MR. RICKORD: Major Smoker would be able to speak  
5 physics a little better than I -- quite a lot better.

6           MAJ. SMOKER: I would just like to bring a couple  
7 of things out and I think they were already answered in our  
8 response back to the Petitioner or our response to that  
9 specific Contention.

10           Even more so than a moderator, a reflector is  
11 required to be there as a reflector, the water is. And it  
12 is physically impossible to go critical. When I say  
13 physically impossible, it is physically impossible to go  
14 critical without the water.

15           DR. STILLMAN: We are not contending that. What  
16 we are saying is that the rate at which the water is lost  
17 represents a competing phenomenon and that it is a matter of  
18 comparing the rates of the two processes and we claim that  
19 there is sufficient time during the loss of that water so  
20 that you reach a point where you reach elevated temperatures  
21 and a very high power excursion, which is what we claim is  
22 the basis for the accident.

23           JUDGE CARTER: I think we have received sufficient  
24 on that. It won't go any further.

25           We would like next, however, to go into the second

1 part relating to the issue raised as to the radiation doses  
2 to humans that would result from submersion exposure to the  
3 noble gases released. There I have read the Contention  
4 verbatim and in your petition, Miss Entwisle, you have  
5 attempted to get the benefit of 10 CFR Section 2.758 by  
6 presenting special circumstances by which you would be  
7 permitted to question the wisdom of the regulation.

8           Now I am personally having some difficulty in  
9 seeing how that affidavit presents special circumstances in  
10 the way special circumstances are defined in the rules. The  
11 special circumstance to which that affidavit should apply  
12 would indicate that the "application of the rule...would not  
13 serve the purposes for which the rule or regulation was  
14 adopted." And my reading of your affidavit is that you are  
15 saying that the rule is a good rule, but it is more so when  
16 there are more so in the area.

17           MS. ENTWISLE: My reading of the rule is that it  
18 was drafted to protect the public health and safety. We  
19 traced it back to the Atomic Energy Act itself. The Act  
20 states that the Commission's procedures and regulations  
21 shall be set up in such a way to protect the public health  
22 and safety.

23           But the essence of what we are saying here on all  
24 of our contentions that we are saying warrant special  
25 consideration is that because the reactor is sited in a

1 highly populated area in close proximity to the public the  
2 standards that are set forth on Part 20 are inadequate to  
3 protect the public health and safety. They are simply  
4 inadequate.

5 JUDGE CARTER: That is what I said. You are  
6 saying that there are more people and therefore there is a  
7 special circumstance.

8 MS. ENTWISLE: That's right.

9 JUDGE CARTER: It seems to me that doesn't follow.

10 MS. ENTWISLE: There is a greater health hazard  
11 presented to the public because of the reactor's location in  
12 the middle of Bethesda, Maryland, and we are saying that it  
13 is in such a densely populated area, in such close proximity  
14 to hospitals and elementary schools or people.

15 JUDGE CARTER: The biologic effect on human tissue  
16 doesn't result from the number of humans, but is a function  
17 of the actual effect on the tissue, isn't it?

18 MS. ENTWISLE: The population nexus is going to be  
19 higher when you have a more dense population.

20 Second, when we are talking more generally about  
21 public health and safety, that the Act speaks itself about  
22 not specific doses, not individual doses, but the more  
23 basic, fundamental issue of protecting the public health and  
24 safety. We are saying that the Commission is required, is  
25 compelled, to impose higher standards on reactors that are

1 sited in close proximity to large numbers of people.

2 JUDGE CARTER: Again, I say that the rule is a  
3 proper rule, but it is only more so when there are more  
4 people.

5 What you are saying is that the table in Part 20  
6 will be different, depending on whether the reactor is near  
7 a heavily populated area or a less populated area, when, in  
8 point of fact, that is not the purpose of the table.

9 MS. ENTWISLE: May I ask what the purpose of the  
10 table is?

11 JUDGE CARTER: I'll take the easy way out and say  
12 that the purpose is that which is stated in the regulations,  
13 but the individual dosages are not related to the number of  
14 people who would be affected, as I read it.

15 Now the floor is open if anyone can say that  
16 Appendix B to Part 20 has another function where there  
17 should be a multiplier depending on the number of people in  
18 the area.

19 MS. ENTWISLE: My second point here is --

20 JUDGE CARTER: Well, I am not trying to argue out  
21 of it. I just wanted to be sure that if there is a special  
22 circumstance. At first I thought it was because you were  
23 saying that it affected people who were ill in hospitals,  
24 but that is not what you said.

25 MS. ENTWISLE: But it is. If you look at our

1 affidavit, I talk specifically about the proximity of the  
2 reactor to elementary schools where you have children who  
3 are particularly sensitive to radioactivity. I fail to also  
4 state there --

5 JUDGE CARTER: But, with all due respect, that is  
6 not what you said, Miss Entwisle. You merely said there are  
7 more people in the area. You did not say that there are  
8 special circumstances which, by the nature of their physical  
9 condition had different reactions. You merely said that  
10 there were more people.

11 MS. ENTWISLE: I admit the affidavit is inartfully  
12 phrased. What I was attempting to say is exactly what you  
13 are saying here, that you have individuals who are  
14 particularly sensitive to radiation, and I believe I tried  
15 to state that in the case of elementary school children. I  
16 failed to also explicitly state that when I stated that the  
17 reactor, because it is near two hospitals -- the Naval  
18 Hospital and the National Institutes of Health -- warrants  
19 special circumstance consideration.

20 But the same reasoning follows in that. Sick  
21 people are also particularly susceptible to the hazards of  
22 radiation.

23 MR. BACHMANN: Judge Carter, may I interject  
24 something?

25 JUDGE CARTER: Judge Bachmann -- or, excuse me,

1 Dr. Schink had something.

2 JUDGE SCHINK: Afterwards.

3 MR. BACHMANN: The actual contention itself refers  
4 to noble gases and inhalation rather than submersion. There  
5 is a Contention further on that just refers to Part 20  
6 limits and I feel that we might be getting a little bit  
7 afield in discussing that at this point.

8 Our position, or, I should say, the Contention  
9 essentially states that the basis for determining the  
10 allowable concentrations of noble gas effluents at the  
11 boundary of the restricted area is based on submersion and  
12 they are contending that they should take inhalation into  
13 account. And I see nothing in this petition that addresses  
14 that point.

15 JUDGE CARTER: Are you referring to V and VI?  
16 They don't mention gases specifically, but is that your  
17 point?

18 MR. BACHMANN: The actual Contention says that  
19 Petitioner contends that if such accidents were to occur  
20 individuals would receive additional exposure due to  
21 internal emissions of the noble gas, sustaining injuries far  
22 greater than is predicted in the Hazards Summary Report.

23 That is the Contention. The footnote to it --  
24 excuse me, to Table 2 of Appendix B of Part 20 indicates  
25 that noble gases concentrations are based in emersion as

1 semi-infinite hemispheric clad. Later on, there is a  
2 Contention that merely states Part 20 limits are too high --  
3 Contention VI.

4           In this case, though, we are merely addressing  
5 whether internal or ingested or inhaled reactions to noble  
6 gases should be considered rather than the basis for that  
7 particular table, and I see nothing in this affidavit that  
8 addresses that particular point.

9           JUDGE CARTER: Well, I think Miss Entwisle was  
10 trying to say that if a sick person ingests the quantity  
11 that the average person ingests under Appendix B that the  
12 result is different. Therefore, that is a special  
13 circumstance which doesn't have application and, therefore,  
14 she should be allowed to use that issue.

15           Dr. Schink?

16           JUDGE SCHINK: I was wondering if you have any  
17 evidence to present directly treating the issue of whether  
18 sick people would be more susceptible to internal emissions.

19           MS. ENTWISLE: I will defer to Dr. Stillman.

20           DR. STILLMAN: Yes. What we are saying here is  
21 that there have been several reports which show that  
22 patients who are ill have a much lower tolerance to the  
23 effects of radiation and we are prepared to submit studies  
24 that were done by reputable scientists that claim just that.

25           JUDGE CARTER: Is there anything further on this

1 issue?

2 MS. ENTWISLE: One further thing. If you will  
3 note the phrasing of the Contention, I merely state insofar  
4 as it amounts to a challenge to the regulations we are  
5 stating that it falls within the special circumstances. We  
6 are not conceding that it is a matter of challenge of the  
7 regulations, because we are not saying that this or that  
8 limit is necessarily too high.

9 We are simply saying that there is a void here.  
10 There is a regulatory void where you don't have doses set  
11 forth from emissions. It is based merely on submersion. I  
12 misstated that. There is a void in that Part 20 does not  
13 address doses received from internal emissions. It only  
14 addresses the submersion doses.

15 And so in that sense we are not asking that the  
16 Commission waive application of part 20 in these  
17 proceedings. We are saying that in the absence of any  
18 standards the Board must consider the specific facts of this  
19 case and we contend that the specific facts in this case  
20 warrant that you consider the doses from internal emissions  
21 due to the proximity of the sick and the young people.

22 JUDGE CARTER: Would college people be considered  
23 a young person?

24 MS. ENTWISLE: No. I am speaking specifically of  
25 the elementary school, pre-school especially.

1 MR. BACHMANN: Judge Carter?

2 JUDGE CARTER: Yes.

3 MR. BACHMANN: This may getting toward the  
4 evidence, but the basis for Part 20, as far as the noble  
5 gases are concerned, is that every study that any of us have  
6 ever seen has always indicated that the submersion effects  
7 of radiation as far as noble gases are concerned are many,  
8 many times greater than that from inhalation or ingestion.  
9 And that was the reason and the basis for using that in Part  
10 20.

11 Everyone -- all the thing that we have ever been  
12 able to find out say that the inhalation or ingestion  
13 dosages is negligible compared to the submersion doseage,  
14 and for that reason that is used in Part 20.

15 JUDGE CARTER: I think we've heard enough on that.

16 Let us move on now to the second Contention,  
17 Arabic number 2, Accidents II. Miss Entwisle, would you  
18 like to speak in support of that Contention? First give a  
19 general summary of it so that the public will know the  
20 nature.

21 MS. ENTWISLE: Yes, sir. The gist of Contention  
22 II is that we, the Petitioner, are alleging that accidents  
23 can occur which the Applicant has not considered, that such  
24 accidents, being of a greater severity and of a different  
25 kind that those considered in the Applicant's application

1 for license renewal.

2 JUDGE CARTER: And you have identified one type?

3 MS. ENTWISLE: Pardon? Yes, we have identified  
4 several scenarios. Addressing our first scenario, the  
5 failure of the N-16 fuser system. At the time the  
6 Contention was drafted we did not have at our disposal some  
7 critical information which the NRC counsel has since  
8 supplied to us. In light of that information we are  
9 withdrawing that Contention on the N-16 diffuser.

10 JUDGE CARTER: All right, then. For the record,  
11 that would be subparagraph (1), is withdrawn.

12 MS. ENTWISLE: That is correct.

13 Our second contention is that there are two  
14 maximum credible accidents which are beyond design safety  
15 features of the AFRRRI reactor that could occur and result in  
16 significant releases of radiation in excess of regulatory  
17 limits.

18 These are included: power excursion accident,  
19 resulting in a multiple cladding failure; and a loss of  
20 coolant accident, also resulting in a multiple cladding  
21 failure. And we are prepared at the time of the hearing on  
22 the merits to offer evidence to show that such accidents can  
23 happen and also to show that significant releases of  
24 radiation could result from such accidents.

25 JUDGE CARTER: Mr. Bachmann?

1           MR. BACHMANN: The staff opposes the admission of  
2 this Contention as was stated, in that it lacks an adequate  
3 basis and raises an issue which is neither concrete nor  
4 political.

5           First of all, we are not certain on what the  
6 thrust of this Contention is. At first it appears that what  
7 they are mainly concerned about is the zirconium steam  
8 interaction, the zirconium air interaction. This was not  
9 mentioned by Miss Entwisle, and I am not really quite sure  
10 if that is what they are looking at in the Contention.

11           If, indeed, the thrust of this Contention and what  
12 they are concerned about is the supposedly explosive  
13 zirconium interaction with steam or air, the staff submits  
14 that it is a scientific fact that the zirconium hydride  
15 contained in this fuel, which is the fuel, excuse me, with  
16 uranium mixed in, is stable and simply does not have an  
17 explosive reaction with either steam or air.

18           Petitioners have supplied me with their references  
19 as to the basis for this, and the references do not in any  
20 way support that there could be a reaction of zirconium  
21 hydride fuel with either steam or air.

22           If they are not pursuing this explosive reaction  
23 and merely looking it a multiple cladding failure accident  
24 produced by either a power excursion or a loss of coolant  
25 accident, then this is exactly identical to stipulated

1 Contention II-4 that we were discussing prior -- Contention  
2 II, Part 4, where we stipulated to litigating a multiple  
3 fuel element cladding failure based on both a LOCA and a  
4 power excursion.

5           So the staff's position is, if they are looking  
6 for the explosive zirconium interactions, it is physically  
7 not possible and they provide no basis to show it. If they  
8 are not looking at that and only multiple cladding failure,  
9 we already have that as a stipulated Contention.

10           MS. ENTWISLE: I --

11           JUDGE CARTER: Excuse me. Let's hear from the  
12 Applicant and then you can reply.

13           MR. RICKORD: Just following Mr. Bachmann's thread  
14 a little bit further, assuming that we are not dealing with  
15 a Contention that postulates an explosive interaction  
16 between uranium zirconium hydride and air or water or steam,  
17 perhaps I don't understand what the Contention is aimed at.  
18 Perhaps it is aimed, as Mr. Bachman suggested, multiple  
19 cladding failure-type scenarios, which I agree we have  
20 already addressed in stipulated contentions.

21           Or perhaps it is aimed at something else and I  
22 simply don't understand.

23           MS. ENTWISLE: We are in fact concerned about  
24 explosive zirconium reactions and we are prepared to offer  
25 evidence to support this -- that such a scenario is

1 credible. We have given to staff counsel, at least,  
2 information of the work of Dr. Earl A. Gulbransen and also  
3 offered to staff were several letters that Gulbransen  
4 exchanged with other people, which the staff did not ask for  
5 at that time, and we are willing and prepared to give them  
6 those letters.

7           In one of these letters Dr. Gulbransen addresses  
8 the zirconium interaction with steam and air in a trigger  
9 reactor specifically, and concludes that such an explosive  
10 interaction is possible. And this is what we are basing our  
11 scenarios on.

12           MR. BACHMANN: Judge Carter, we have informally  
13 been discussing with the Petitioner the basis for this  
14 Contention in an effort to understand it. We did a computer  
15 run of our technical laboratory under Professor Gulbransen,  
16 which is the only basis they give. We discovered nothing as  
17 far as published works.

18           The Petitioner gave me some cites and we were able  
19 to determine two letters to the editor. One was from the  
20 Bulletin of Atomic Scientists, and one was the Chemical and  
21 Engineering News. I have copies of those here, if the Board  
22 would care to look at them.

23           Neither letter addressed a trigger reactor.  
24 Neither letter addressed uranium zirconium hydride. Both  
25 letters refer to the 10-zirconium alloy, zircoloid, which is

1 used as fuel cladding in power reactors. We are dealing  
2 with a reactor here that has the fuel itself is uranium  
3 zirconium hydride, and has aluminum cladding. So we feel  
4 that from what they have given us we still find it -- we  
5 still feel there is absolutely no basis, no scientific  
6 basis, for alleging something that simply cannot happen.

7 All of the work that we are aware of, as far as  
8 tests of the uranium zirconium hydride, indicate this is an  
9 extremely stable and non-reactive substance.

10 JUDGE CARTER: Mr. Bachmann, we need not concern  
11 ourselves today whether they can prove their point. A  
12 Contention merely must be a factual and specific kind of  
13 contention. If you evidence file was their evidence, then  
14 the matter will be easily disposed of later on. If they  
15 cannot submit relevant affidavits or other form of evidence,  
16 then you will win the point.

17 But at this point in our discussion we are merely  
18 concerned with whether or not it is a factual, specific  
19 contention.

20 MR. BACHMANN: Sir, may I say that again we are in  
21 a situation where they are alleging what we consider an  
22 impossibility according to the laws of physics.

23 JUDGE CARTER: I understand.

24 MR. BACHMANN: We have endeavored to discover any  
25 possible basis for saying that this particular chemical

1 combination could react explosively.

2 JUDGE CARTER: The laws of physics are sometimes  
3 amended. I suppose that's the answer.

4 (Laughter.)

5 JUDGE CARTER: I have a physics book from 1906  
6 which contains no reference to nuclear material or nuclear  
7 reactors or neutrons.

8 JUDGE SCHINK: May I interrupt as a chemist to  
9 suggest that what we seem to be arguing over at this point  
10 are the laws of chemistry.

11 (Laughter.)

12 MS. ENTWISLE: I just would concur with the  
13 Board's conclusion that we are getting into evidentiary  
14 matters here. These are properly deferred to the hearing on  
15 the merits.

16 JUDGE CARTER: Miss Entwisle, can you conceive of  
17 a situation where a Contention would be made that might be  
18 so far from reality that there is insufficient weight for  
19 consideration. In determining what is truth and what is  
20 fact we draw on a general knowledge of the universe and our  
21 experience, so sometimes new and unusual Contentions do  
22 bring about this reaction.

23 That places somewhat of a heavier burden on the  
24 Contender to support that in a way that is understood by  
25 those who hear it.

1 MS. ENTWISLE: Yes, I agree that some contentions  
2 may put some question upon the conventional wisdom and my  
3 understanding, from what you stated before, is that it is  
4 sufficient at this time to offer the name of an authority on  
5 which we base our position.

6 But I understand what you are saying. We have to  
7 go a little deeper in these kinds of situations.

8 JUDGE CARTER: In situations where the the  
9 Contention appears to be at first blush far different from  
10 the world, as some of us might know it, the only available  
11 next step is to say is there any serious study which can  
12 support your position and are you prepared to go forward  
13 with that?

14 Of course, we are always open for any suggestion  
15 as to how to find the truth and find out what is in fact  
16 relevant and factual. And when you say that there are  
17 studies in a certain area which indicate a certain result if  
18 certain elements are present, I would say generally that  
19 indicates to me there is some factual base of some  
20 specificity, although I might not later be convinced on the  
21 point.

22 But that is the way I am moving toward getting an  
23 answer to what should be a contention.

24 MS. ENTWISLE: Yes, I understand. I think Dr.  
25 Stillman would like to say something.

1 DR. STILLMAN: Let me just clarify this so it  
2 doesn't sound absurd. We actually have letters which we  
3 offered to Mr. Bachmann which he did not ask for, which are  
4 definite letters dealing specifically with zirconium hydride  
5 fuel in trigger fuel elements by Earl Gulbransen, who is  
6 professor of metalurgy and a known expert quoted in some of  
7 their own documents as an expert in metalurgy, who says that  
8 in fact the zirconium hydride interaction with water or  
9 steam or with air is extremely exothermic and quite  
10 explosive.

11 And we have those documents right here for your  
12 own perusal and we are prepared to bring Dr. Gulbransen to  
13 our hearing to testify in person as to his opinion about the  
14 chemical reactions that we are talking about. So this is  
15 not based on just -- in fact, we did eliminate the N-16  
16 diffuser argument, once I learned the facts in the case.  
17 And I have established to try to get those facts so that we  
18 could argue on grounds that are strictly scientific and not  
19 out of the realm of possibility.

20 JUDGE CARTER: I hope you take no implication from  
21 anything I or any of the other judges have said with regard  
22 to your integrity and honesty and willingness to work toward  
23 a resolution of this problem, but for the record perhaps you  
24 should give Dr. or Mr. Gulbransen's full name and where he  
25 is from, so that we know the individual to whom reference i

1 made.

2 DR. STILLMAN: Yes. It is Professor Earl A.  
3 Gulbransen -- G-u-l-b-r-a-n-s-e-n. He is a Ph.D. and a  
4 mechanical engineer. He is a research professor at the  
5 Department of Metallurgical and Materials Engineering at the  
6 University of Pittsburgh.

7 JUDGE CARTER: Thank you.

8 JUDGE SCHINK: Miss Entwisle, could you clarify  
9 for me the elements of your non-stipulated contention,  
10 Accidents II, that are not contained with the stipulated  
11 contentions? What is missing from the Attachment A that  
12 isn't in Attachment B that you feel you need to add to this  
13 case in order to have your arguments fully treated?

14 MS. ENTWISLE: Well, we feel that the two maximum  
15 credible accidents. I don't know if I am answering your  
16 question, but the power excursion accident resulting in  
17 multiple cladding failure elevated temperature, with a  
18 reduction in the thermalizing effect of hydrogen, followed  
19 by an exothermic reaction between zirconium and steam, and  
20 the same type of scenario -- the loss of coolant accident,  
21 resulting in multiple cladding failures, also elevated  
22 temperatures, followed by an explosive zirconium-air  
23 interaction.

24 These were not considered in this application for  
25 renewal.

1           JUDGE CARTER: We will move on now to the next  
2 unstipulated Contention. Before we do, let me say that we  
3 are hopeful, in terms of our schedule, to conclude this  
4 pre-hearing conference before the luncheon recess, though I  
5 don't want to pressure anyone time-wise.

6           Our plan is thereafter to visit the facility  
7 merely to get some familiarity with the location of the  
8 various parts of the facility. We will not be taking any  
9 testimony or any substantive explanations with regard to the  
10 reactor at that time. And the visit or viewing will be done  
11 by the attorneys. I am sure it would be permissible for Dr.  
12 Stillman to be present. That is our plan for this morning.

13           MS. ENTWISLE: Excuse me just one minute. I just  
14 want to state here that I personally will not be going into  
15 the reactor. I have some misgivings about going inside  
16 because I understand there is an accident ongoing in the  
17 cobalt facility at the AFRRI facility.

18           For that reason, another attorney for us, Mr.  
19 James Dougherty, will be attending in my place and Dr.  
20 Stillman will be there also.

21           JUDGE CARTER: All right.

22           The next unstipulated Contention is number III,  
23 Testing Facility. It is short and I will read it.  
24 "Petitioner contends that the AFRRI facility is a testing  
25 facility within the meaning of Section 31.8(3) and Section

1 (4) of the Atomic Energy Act of 1954, as amended, and  
2 Section 50.21(c) and Section 50.2(r) of 10 CFR Part 50.  
3 Affidavit will be submitted at the time of filing statements  
4 of position."

5 Now are we to have an additional affidavit?

6 MS. ENTWISLE: Your Honor, after typing this I  
7 considered this with staff counsel and at that time we  
8 concluded that this does not amount to a challenge of the  
9 regulations. It was not a credible subject for an  
10 affidavit. I did not feel it was necessary. If I am  
11 mistaken on that I will be glad to file an affidavit.

12 JUDGE CARTER: It appears to me that assuming  
13 there is agreement on the facts, the issue is ultimately a  
14 legal issue as to how it is to be considered under the  
15 regulations.

16 Mr. Bachmann?

17 MR. BACHMANN: Yes, Your Honor. We did discuss  
18 this. We do consider it to be a legal issue. The only NRC  
19 case law that is available is cited in the statement of  
20 position of the Trustees of Columbia University -- very  
21 similar facts, with the exception that the Columbia  
22 University reactor was 250 kilowatts instead of one  
23 megawatt. And in following the NRC precedent, we are  
24 maintaining this is a research reactor and that it is not a  
25 testing facility.

1 JUDGE CARTER: Mr. Rickord?

2 MR. RICKORD: Our brief, I think, fairly well sets  
3 forth our position. It is not big enough to be a testing  
4 facilities. It does not have the internal capability of  
5 normal testing facilities and therefore it is not anything  
6 other than a research reactor.

7 JUDGE CARTER: All right. Do you have anything to  
8 add, Miss Entwisle?

9 MS. ENTWISLE: Yes. We feel it is a testing  
10 facility and we cite the Columbia University case in support  
11 of our position here. And we feel that the Board's reasoning  
12 in that case -- this was the Appeal Board, it went up on a  
13 certified question -- we feel that their reasoning in that  
14 case compel us to conclude that the determining mode of  
15 operation here for deciding whether the reactor is a testing  
16 reactor should be in pulse mode rather than the steady state  
17 mode. If that is the case, pulse mode clearly exceeds the  
18 ten megawatt limit called for in the testing facility  
19 definition of 10 CFR Section 50.2(r).

20 And we are prepared to go into that in greater  
21 detail if you wish.

22 JUDGE CARTER: If nothing further we will move on  
23 to unstipulated Contention IV, Siting.

24 Miss Entwisle, are you going to speak in support  
25 of that Contention?

1 MS. ENTWISLE: Yes. Here, again, we maintain that  
2 because the reactor is a testing facility that 10 CFR, Part  
3 100, when it is applied. If the Board should find that this  
4 is a research reactor rather than a testing facility we  
5 again refer them to our affidavits stating the special  
6 circumstances that warrant the Board to go beyond the scope.

7 Well, let me back up. We have a situation here  
8 where we have another void or non-existence of regulations  
9 pertaining to the siting of research reactors. We are  
10 saying that in such a case the reasonable, the common sense  
11 thing to do is to apply the existing regulations of far  
12 larger reactors with potentially greater radiological  
13 hazards, such as power and testing reactors.

14 These standards are set forth at Part 100 and we  
15 urge the Board to use the Part 100 standards for this  
16 reactor, regardless of whether it determines it to be a  
17 testing or a research facility.

18 JUDGE CARTER: Mr. Bachmann?

19 MR. BACHMANN: As we stated in our statement of  
20 position, we do oppose the admission of this Contention on  
21 grounds that it seeks to raise an issue which does not apply  
22 to the facility and is beyond the scope of this proceeding.

23 Of course, if the Board were to find that this was  
24 a testing facility, then Part 100 would apply. However,  
25 since we have maintained that this is a research reactor,

1 not a test facility, we refer the Board to 10 CFR 100.2(a),  
2 which is the scope of Part 100 -- this applies to  
3 applications filed under Section 50 of this chapter for  
4 stationary power and testing reactors. We simply feel it  
5 does not fall under the criteria in Part 100.

6           The Petitioners has shown no reason why we could  
7 determine why, if indeed this not a testing facility, as  
8 maintain, and a research reactor, why Part 100 should apply.

9           JUDGE CARTER: Mr. Rickord?

10          MR. RICKORD: Sir, obviously our position is not  
11 going to change between one Contention and the other. This  
12 is a research reactor, not a testing facility. Therefore,  
13 the siting requirements don't apply, following on Miss  
14 Entwisle's additional approach, and that is, we borrowed  
15 those criteria from Part 100. We should also borrow siting  
16 criteria from 100, or perhaps we should apply some special  
17 circumstances to bring us within the ambit of 100.

18          Our position is, and frankly it relates back to  
19 Accidents I, part 2, which dealt with the noble gases and  
20 emissions, our position is that as to the special  
21 circumstances they have not really demonstrated that special  
22 circumstances exist in their affidavit.

23          Moreover, a literal reading of the 2.758 -- 10 CFR  
24 1.758 -- speaks to the special circumstances exception as  
25 applying during initial proceedings -- initial licensing

1 proceedings. And I think that point is most critical when  
2 one deals with siting, because in a renewal situation we  
3 really don't have quite the degree of choices as one has in  
4 an initial licensing proceeding in which we are deciding do  
5 we put it in the middle of Bethesda or do we put it in the  
6 middle of nowhere.

7           And while I understand that there has been a  
8 tendency in Atomic Safety and Licensing Board practice in  
9 the past to treat a license renewal as basically, let's say,  
10 begin at the beginning and make sure this is a safe and  
11 secure facility, the public policy that favors that, and I  
12 quite agree with it, is beginning to get a little bit  
13 stretched when one gets to the point of saying that because  
14 the city built up around it there should be no license  
15 renewed to the reactor.

16           MS. ENTWISLE: May I address Mr. Rickord's  
17 statement?

18           JUDGE CARTER: Proceed. The word "initial" is in  
19 the section.

20           MS. ENTWISLE: I am aware of that. It brings up a  
21 point that really concerns me about this whole case. And  
22 that is that there is a very large void of regulations for a  
23 license renewal for a research or a testing reactor.

24           Research, if the Board determines it to be a  
25 research reactor, and I ask the Board that rather than

1 relying on -- rather than making judgments ab initio for  
2 this case that common sense would indicate that one goes  
3 back to regulations that have been carefully, considered in  
4 public hearings, carefully drafted by the staff, reviewed by  
5 the Commission, and adopted for testing and power reactors  
6 and for initial licensing proceedings.

7           We have really an anomolous situation here where  
8 there are not always regulations that apply to the specific  
9 proceeding. And I frankly had a hard time knowing what to  
10 look to because of that. And I am saying that when you have  
11 a void here we are not challenging the Commission's  
12 regulations so much as we are saying there simply are no  
13 regulations here. And for purposes of this licensing,  
14 common sense and prudence would require that you consider  
15 the regulations that have been adopted for other types of  
16 reactors and other types of licensing procedures.

17           JUDGE CARTER: This Board has great knowledge,  
18 experience, and training and we shall pray the good Lord  
19 gives us common sense as well. And I said that with a smile.

20           Anything further on siting?

21           MR. BACHMANN: Yes, sir. I might just -- more or  
22 less to answer the Petitioner's comments, is that as the  
23 Board is well aware, licensing boards are not supposed to  
24 indulge in rulemaking and that we do have the section  
25 starting with 10 CFR 2.800 and following, which sets forth

1 all of the myriad ways that one goes about petitioning for  
2 rulemaking. And this, I believe, is what the Petitioner is  
3 really looking at.

4 MS. ENTWISLE: Nonetheless, we have a licensing  
5 decision before us immediately, and I am simply saying that  
6 rather than applying standards developed ab initio in the  
7 hearing now, it is more prudent to adopt and use the  
8 regulations that were established for reactors that perhaps  
9 present greater radiological hazards, and then you would  
10 know you would be safe.

11 JUDGE CARTER: Only experience can tell as to  
12 whether or not we will get a more favorable verdict by  
13 adopting a special type of approach to research reactors  
14 than to power reactors. The odds might be that research  
15 reactors are safer than power reactors based on some of the  
16 news stories that we read.

17 In any event, again, that is just an off-hand  
18 reaction. I was just philosophizing for a moment. Getting  
19 back down to earth again, we will go into number V, Routine  
20 Emissions I. Miss Entwisle, would you describe that?

21 MS. ENTWISLE: Yes.

22 We maintain that the EPA standards that were  
23 adopted by the NRC for reactors on March 25, 1981 -- this  
24 was in 46 Federal Register 18525, 10 CFR, Sections 20.105,  
25 20.106, 20.405. We are maintaining that these standards

1 apply to the reactor in question here.

2 JUDGE CARTER: I will ask you to repeat that  
3 citation, because I do not see it in the documentation.

4 MR. RICKORD: Your Honor, I believe it is cited at  
5 the bottom of page 11 of AFRRRI's stated position.

6 MS. ENTWISLE: It is also at the bottom of page  
7 four of staff's position.

8 JUDGE CARTER: I did not see it in your filing.

9 MS. ENTWISLE: I don't believe it is in mine.

10 JUDGE CARTER: Anything further you want to add to  
11 that, Miss Entwisle? If not --

12 MS. ENTWISLE: Well, the same logic that has been  
13 applied to our earlier arguments, and that is when the Board  
14 reads the EPA standards that have been adopted by the NRC it  
15 will note that it refers to power reactors.

16 Again, we are saying that the EPA has not  
17 promulgated any standards, nor has the NRC adopted any of  
18 the EPA standards for, research or testing reactors. We are  
19 saying that in a regulatory void such as this it is  
20 incumbent upon the Board to well-considered standards  
21 presented in this March 25 adoption of the rule.

22 JUDGE CARTER: Mr. Bachmann:

23 MR. BACHMANN: Yes, sir. Just for the record I  
24 might point out we are on part one of four parts in  
25 Contention V. The staff does oppose the admission of this

1 simply because it is an attack on regulation.

2           When we adopted the amendments to Part 20, they  
3 adopted it by merely referring to 40 CFR, Part 190. In  
4 other words, we adopted it wholesale. The applicability of  
5 Part 190 states that it applies to radioactive materials  
6 produced as a result of operations which are part of the  
7 nuclear fuel cycle. In 190.02 they define nuclear fuel  
8 cycle. It means the operations defined associated with the  
9 production of electrical power for --

10           JUDGE CARTER: Mr. Bachmann, I think the reporter  
11 may have a little trouble.

12           MR. BACHMANN: I was trying to get through it.

13           In the definitions it applies to operations in the  
14 fuel cycle. 10 CFR 190.02 defines nuclear fuel cycle as the  
15 operations defined to be associated with production of  
16 electrical power for public use. This, as the Petitioner  
17 has indicated, applies to power reactors and it simply would  
18 not apply to a research reactor.

19           JUDGE CARTER: Is the staff preparing any form of  
20 environmental appraisal in connection with this facility?

21           MR. BACHMANN: Yes, sir. As a matter of fact,  
22 once we finish with the unstipulated contentions we would  
23 like to take a brief moment and discuss two of the  
24 stipulated contentions, which have to do with environmental  
25 impacts.

1 JUDGE CARTER: Mr. Rickord?

2 MR. RICKORD: Right. Addressing whether or not to  
3 apply the new standard that EPA has published, our position  
4 is, obviously, that we have a research reactor. This does  
5 not apply to research reactors and, therefore, the  
6 Contention which, if it is based on the theory that the new  
7 standard applies to research reactors, why, then, it is  
8 erroneous, and furthermore that it should not be -- this  
9 proceeding should not become a rulemaking proceeding in  
10 which we decide whether or not to apply it to research  
11 reactors.

12 JUDGE CARTER: Miss Entwisle, anything further on  
13 that?

14 MS. ENTWISLE: I would just reiterate that we are  
15 not asking for a rulemaking. We already know the rules in  
16 existence. We are asking the Board to apply them to this  
17 proceeding.

18 JUDGE CARTER: The second part of Number V,  
19 Routine Emissions, reads as follows: "Applicants must be as  
20 incineration at NNM at 160 boxes of contaminated solid  
21 waste cited in NRC inspection reports for 1975-1976, Docket  
22 Number 50-170, resulted in the release of radioactive gases  
23 and particulates in excess of the limits set forth in 10  
24 CFR, Part 20, Appendix C."

25 MS. ENTWISLE: Yes, sir. I should like to make a

1 couple of corrections. That should read "Appendix B." That  
2 is my own error.

3           Secondly, the inspection report referred to was  
4 from the year 1965 rather than 1975 and 1976.

5           JUDGE CARTER: So it should be reports for 1965 -?

6           MS. ENTWISLE: Just 1965.

7           JUDGE CARTER: Just '65. Is there any objection  
8 to that amendment at this point?

9           Anything further you wish to add?

10          MS. ENTWISLE: Just also the amendment of the very  
11 last words there -- that is should read "Appendix B" rather  
12 than "C".

13          We are asking the Board that if the Applicant's  
14 operating license includes a condition which permits  
15 incineration of solid wastes and this basically amounts to  
16 incinerating radiated animal carcasses we are asking the  
17 Board to eliminate that condition from any license renewal  
18 that it may grant.

19          JUDGE CARTER: Eliminate the condition?

20          MS. ENTWISLE: Yes. We are merely asking that if  
21 there is a permitted condition in the license to incinerate  
22 the carcasses on-site, we want that condition out of any  
23 future licenses that the Board might issue for this reactor.

24          JUDGE CARTER: Mr. Bachmann?

25          MR. BACHMANN: Yes, sir. We have opposed the

1 admission of this Contention because we really don't  
2 understand what we are supposed to be litigating here.

3 I might point out, which is not in our statement  
4 of position, that Section 10 CFR 20.305 clearly states that  
5 no Licensee may dispose of radioactive material by  
6 incineration without specific Commission approval. At this  
7 point there is no condition in the license or any other form  
8 of approval that permits the licensee to incinerate.  
9 Therefore, I do not see what we have here to litigate.  
10 There is no condition that allows them to do it.

11 JUDGE CARTER: Mr. Rickord?

12 MR. RICKORD: AFRRI is not overly troubled by this  
13 Contention. Quite frankly, it essentially, if you interpret  
14 it at least one way, it essentially says thou shalt follow  
15 the regulations when one operates after having had a license  
16 issued to you. And we fully intend to follow the  
17 regulations if a license is issued to us.

18 So far as I have been able to discover, AFRRI does  
19 not now incinerate radioactive contaminated solid waste,  
20 even though the change in years from '75 to '65.  
21 Sensitivities have increased in the meantime, and the EPA  
22 has come into being, and we are not typically in the  
23 business of violating regulations.

24 MS. ENTWISLE: I agree that if the incineration of  
25 solid radioactive wastes is not a condition of the license

1 we have no problem here.

2           JUDGE CARTER: Number 3. "Since Applicant's  
3 environmental impact appraisal submitted in conjunction with  
4 its license renewal application admits that the highest  
5 average unrestricted area exposure rate from airborne  
6 releases (set forth in the EIA) extends to residential  
7 areas, it is highly probably that such expenditures have  
8 resulted and continue to result in doses to the public in  
9 excess of 0.5 rem and, violate the principle that emissions  
10 from Applicant's operation be kept as low as is reasonably  
11 achievable (the ALARA principle)."

12           \*S. ENTWISLE: Yes. We are in a position here  
13 sort of between a rock and a hard place because we are  
14 trying to show that violations have in the past occurred,  
15 yet the data that we have at our disposal and that is  
16 available to the public is inadequate to make a lot of hard  
17 and fast conclusions.

18           This is a case in point. We had a situation where  
19 dose exposure rates were measured one time, if I am correct,  
20 and the complaint that has been registered with me by staff  
21 counsel is that how can you average -- how can you determine  
22 what the average annual exposure rate is when measurements  
23 were not made over a period of time so that there is no  
24 duration factor here?

25           We are asking that if this facility were to be

1 relicensed that one of its conditions would that its  
2 measuring and monitoring practices be very much improved and  
3 this, in fact, is in one of our stipulated Contentions. We  
4 are specifically asking here that such monitoring be done  
5 not just with badges but with modified ionization chambers  
6 and in such a way that release rates can be measured over  
7 time so that dose levels can be determined.

8 JUDGE CARTER: Mr. Bachmann?

9 MR. BACHMANN: I'm not sure we're talking about  
10 the same Contention. This is Contention V, Part 3? I  
11 really -- what Petitioner just stated, I don't see that  
12 bears at all on the Contention that I am reading here.

13 But going back to just the Contention itself, we  
14 did oppose the admission of this Contention because it  
15 failed to alert the parties as to what is to be litigated.  
16 I simply do not understand what they are asking here or what  
17 they want to litigate in this Contention.

18 JUDGE CARTER: Do you understand, Mr. Rickord?

19 MR. RICKORD: No, sir.

20 JUDGE CARTER: Try again.

21 MS. ENTWISLE: I have just been corrected by Dr.  
22 Stillman that I am arguing Contention 4 rather than 3,  
23 because it is 4 that refers to doses over time. So I  
24 apologize for putting it out of order.

25 JUDGE CARTER: Well, now, let's try number 3.

1 MS. ENTWISLE: I think I will let Dr. Stillman  
2 answer this one.

3 DR. STILLMAN: We have incomplete data, that is  
4 true. That is not our fault. We have attempted to get more  
5 complete data, but unsuccessfully. We do have specific data  
6 which demonstrates that the standards of a half a rem per  
7 year, which is the accepted exposure limit in unrestricted  
8 areas, has in fact been exceeded at least two years. We  
9 have hard data for that. And we have the supposition that  
10 it probably has been exceeded other years, but we do not  
11 have -- we'll have to use discovery to get specific years  
12 that we are worried about.

13 MR. BACHMANN: I would like to ask Dr. Stillman,  
14 though, is he talking about data from the Environmental  
15 Impact Appraisal that was submitted, or is this something  
16 else?

17 DR. STILLMAN: I am talking about -- no, this is  
18 data that we obtained from the inspection reports and the  
19 yearly environmental release reports and we have --  
20 specifically in 1962 and 1963 the maximum annual exposure  
21 was greater than 500 millirads and we have the specific  
22 stations at which those occurred, namely the perimeter  
23 station number 2C, and perimeter station 16A.

24 We also have other years where we gather from some  
25 information we have that it probably was exceeded also, but

1 we don't have sufficient data to prove the other years yet.

2 MR. BACHMANN: Judge Carter, I would suggest, if  
3 this Contention is considered to be admitted, that perhaps  
4 it needs rewording because the way it is worded now its  
5 basis is the EIA submitted by the Applicant and I see  
6 nothing in the EIA that indicates there was an excess of the  
7 regulations.

8 You are not referring to the EIA any more? Is  
9 that correct?

10 DR. STILLMAN: That is correct.

11 JUDGE CARTER: That is a generous offer. I think  
12 I would take it.

13 MS. ENTWISLE: Tell me logistically how to do  
14 this. How do you reword a Contention at this point?

15 JUDGE CARTER: You immediately move to strike the  
16 language. You don't have to do it this second, but before  
17 the meeting is over. If you want to take advantage of that  
18 offer right now I think we could do it in time.

19 MS. ENTWISLE: We are prepared do it right now.  
20 We would like to strike the language in line 4 of Contention  
21 V --

22 JUDGE CARTER: We're on Contention III.

23 MS. ENTWISLE: Contention V, Sub-III. The  
24 language that is in the parenthesis "set forth in the EIA",  
25 and put in its place "set forth in the AFBB Environmental

1 Release data and perimeter monitoring reports with the  
2 Docket Number 50-170."

3 JUDGE CARTER: Well, now, will you read the  
4 Contention as you want it to read, from the beginning?

5 MS. ENTWISLE: "Since Applicant's environmental  
6 release data and perimeter monitoring reports" --

7 JUDGE CARTER: Do it slowly, please. "Since  
8 Applicant's environmental" --

9 MS. ENTWISLE: "Environmental release data and  
10 perimeter monitoring reports, Docket Number 50-170, for the  
11 dates including but not limited to 5/27/66" --

12 JUDGE CARTER: I can see that you are going to  
13 have to give this to us in writing.

14 MS. ENTWISLE: Fine.

15 JUDGE CARTER: And you will have to amend in  
16 writing as well number 2 above that. So if you could  
17 provide that to us as soon as the proceeding is over, we  
18 will leave that open. At time of revision it may very well  
19 be that the staff will not stipulate to that. The Licensee  
20 may not. Try to do it as promptly as you can.

21 We may take another short recess. Would this be  
22 convenient time to take another short recess?

23 Are you proposing in connection with any other  
24 Contentions to amend them now, so that you might be able to  
25 do that over the break?

1 MS. ENTWISLE: Just one minute.

2 (Pause.)

3 JUDGE CARTER: Why don't we recess now until 11:45  
4 and any other items you think you can take care of by  
5 stipulation or amendment, please do it right now.

6 (A brief recess was taken.)

7 JUDGE CARTER: The meeting is called to order.

8 Miss Entwisle, have you been able to revise the  
9 language of Contention V-2 and V-3 in a form agreeable to  
10 other counsel?

11 MS. ENTWISLE: Yes, sir, we have. We have amended  
12 the language to Contention V, Part 2, Part 3, and Part 4.

13 JUDGE CARTER: Is there a stipulation as to those,  
14 or is that still contested?

15 MS. ENTWISLE: They are still contested.

16 JUDGE CARTER: Still contested?

17 MR. RICKORD: On our part because we haven't seen  
18 them and for no other reason.

19 MR. BACHMANN: And the same with the staff, sir.

20 JUDGE CARTER: I see. I had given you a little  
21 extra time. I thought it would give you an opportunity.  
22 Let's take a moment now.

23 (Pause.)

24 JUDGE CARTER: May we have a report on your  
25 progress?

1 MS. ENTWISLE: Yes. The counsel have looked at  
2 the amended language and it is my understanding that these  
3 will remain as unstipulated Contentions, as amended.

4 JUDGE CARTER: All right. And will you have them  
5 retyped and refiled so that we have before us the precise  
6 Contentions?

7 MS. ENTWISLE: Yes, sir. And when would you like  
8 that?

9 JUDGE CARTER: As soon as it can be done.

10 Now I believe we were on the fourth subdivision of  
11 Contention V, Routine Emissions.

12 MS. ENTWISLE: Yes.

13 JUDGE CARTER: I will read that for the members of  
14 the public.

15 "(4) Applicant's environmental release report,  
16 issued 12/14/71, indicate that between 1/1/70 and 7/1/71  
17 exposure rates in several unrestricted areas were as high as  
18 1-5mR ad/hr, 1,000 rads per hour" -- millirads per hour,  
19 excuse me -- "at" -- I am trying to help the reporter, and  
20 that's why I am getting into trouble. "At this rate, any  
21 person who lived or worked in these areas 500 hours in a  
22 year, or about ten hours a week would receive an annual  
23 whole body dose in excess of the NRC's limit of 0.5 red per  
24 year. Since 50-60 percent of the area within a one-mile  
25 radius of the AFRRRI stack is residential, it is highly

1 probable that the population dose limit was exceeded during  
2 this period. This is a violation of the ALARA principle."

3 I believe that is the end of the quote of the  
4 Contention. Now what is your statement in support of that?

5 MS. ENTWISLE: Yes. We are amending that  
6 statement by adding the language "because these measurements  
7 are taken only a few times a year, it must be assumed, in  
8 the absence of more complete data, that these dose rates  
9 represent the average dose rates to unrestricted areas,  
10 including residential areas, over long durations of time."

11 JUDGE CARTER: All right. You will also add that  
12 to your revised list of Contentions?

13 MS. ENTWISLE: Yes. The second point on that  
14 Contention is that neither the staff nor Applicant has  
15 provided a basis from which to conclude that the emissions  
16 come from a source not within the purview of license R-84  
17 before us today.

18 Informal discussions with staff counsel have  
19 indicated that the staff believes these emissions came from  
20 the Maxitron X-Ray facility, rather than the R-84 license --  
21 the reactor. And we are saying that because no measurements  
22 were taken after the Maxitron was decommissioned, it is  
23 impossible to conclude that the measurement came from any  
24 source other than the R-84 license, and it was incumbent on  
25 the staff to show that. This is set forth in our written

1 statement of our positions.

2 JUDGE CARTER: Mr. Bachmann?

3 MR. BACHMANN: We oppose this Contention on the  
4 fact that it lacks factual basis and the staff position is  
5 that it ceases to raise a position beyond the scope of this  
6 proceeding.

7 I would also say that I am not quite certain what  
8 they are attempting to litigate, just as I still don't  
9 understand what they are trying to litigate in Part (3).  
10 The environmental release report that they cited as a basis  
11 states very, very clearly that the five mR per hour came  
12 from an x-ray facility located in the building not part of  
13 the AFRRRI complex, unoccupied other than by AFRRRI personnel  
14 using the x-ray machine at this facility. It was  
15 decommissioned as of 1 July 1971.

16 I don't see how the report could be any more clear  
17 that this did not come from the AFRRRI reactor. Now, given  
18 that, I just do not quite understand what is to be litigated  
19 here. They seem to give us a little less in our arithmetic,  
20 saying that if you -- 500 times 1 mR per hour is 500 rems.  
21 And we will accept that, but I just fail to see what is the  
22 Contention.

23 JUDGE CARTER: Mr. Rickord?

24 MR. RICKORD: I'm going to take, on the advice of  
25 my physicist to the left, exception even to the arithmetic.

1 I don't know why I am taking exception to it, but Major  
2 Smoker assures me that there is something wrong with Mr.  
3 Bachmann's arithmetic.

4           At one point in time I thought I didn't understand  
5 this Contention, and that there must be something more  
6 lurking here, because it was clear that the Maxitron -- the  
7 medical-type x-ray unit -- was the source of the radiation  
8 that got away and it was decommissioned ten years ago. The  
9 problem is solved and, you know, I felt that I must be  
10 missing something. But from what I have heard, at least as  
11 to that part I was not missing anything. I wonder about its  
12 relevance.

13           As to the issue that has just recently been raised  
14 about the monitoring aspects, I feel unable to stipulate to  
15 that too, because I know it to be false.

16           JUDGE CARTER: Miss Entwisle, do you have any  
17 reply?

18           MS. ENTWISLE: Yes, we feel this Contention is  
19 material because we are alleging that it pertains to the  
20 AFRRRI reactor, the license here at issue today, and in the  
21 absence of more evidence we cannot conclude that the release  
22 data refers to the Maxitron, and I refer the Board to the  
23 cover letter that accompanied the environmental release  
24 report which sets forth this data, which states in pertinent  
25 part, "In accordance with correspondence received, the

1 attached environmental release data are submitted for the  
2 AFRRRI trigger reactor A facility, License R-084." On its  
3 face, the data would, therefore, seem to refer to the  
4 reactor and not the Maxitron.

5 JUDGE SCHINK: Do we have that report?

6 MR. BACHMANN: Yes, we do.

7 JUDGE SCHINK: When did that come to us? What  
8 date do we have?

9 MR. BACHMANN: I have copies.

10 JUDGE SCHINK: Well, if I already have it, I want  
11 to know where to look in the stack of papers.

12 MS. ENTWISLE: The cover letter is dated the 14th  
13 of December, 1971.

14 JUDGE CARTER: Would you see the Board gets copies  
15 of it?

16 MR. BACHMANN: Would you like to have that marked  
17 as an Exhibit? I can provide you copies.

18 DR. STILLMAN: The cover letter is the important  
19 part that refers specifically to license 084.

20 MR. BACHMANN: We could also have the cover letter  
21 marked as an exhibit. We could have copies made.

22 JUDGE CARTER: I would rather not mark any  
23 exhibits at this time, and merely have it submitted as a  
24 document that in the ordinary course should have been  
25 provided. We can identify it by number at some later time.

1 MR. RICKORD: Your Honor, I am not sure I  
2 understand why it should have been provided at this point.  
3 Certainly if they are entitled to have the cover letter  
4 admitted or considered by the Board we certainly should be  
5 able to have the data itself, which will explain what the  
6 cover letter says admitted. And we are starting to get into  
7 evidentiary proceeding.

8 JUDGE CARTER: I think it would be well if we got  
9 the cover letter and the report. It is not admitted into  
10 evidence, but it is merely submitted as an exhibit to the  
11 Contention. That's the way I would describe it.

12 MR. RICKORD: That is satisfactory to us.

13 JUDGE CARTER: Within the pleading rather than an  
14 evidentiary exhibit. I will ask you to provide that to us  
15 when you provide the revised Contentions.

16 All right. Can we move on now to the fifth? No,  
17 we're through with V. We'll go on to VI, Routine Emission  
18 from 2. I will read that.

19 "10 CFR, Part 20, limited are inadequate to  
20 protect the health and safety of the population in the  
21 vicinity of the AFRRI reactor. This proceeding presents  
22 'special circumstances' within the meaning of 10 CFR,  
23 Section 2.758 that warrant the Board's consideration of  
24 whether the off-site air and waterborne release limits set  
25 forth in 10 CFR Part 20 and appendices B and C thereto are

1 adequate to protect the public health and safety."

2           Now, it then goes on to say that there will be an  
3 affidavit submitted. Now is that the same affidavit that we  
4 were provided with before?

5           MS. ENTWISLE: Yes, it is.

6           JUDGE CARTER: That is, it is attached to the  
7 document entitled "Position of Petitioner on Unstipulated  
8 Contentions"?

9           MS. ENTWISLE: That is correct, sir.

10          JUDGE CARTER: Anything you wish to add to that?

11          MS. ENTWISLE: We had discussed the issues in  
12 detail earlier. The only thing I would like to add is a  
13 quote from Justice Douglas in the case of Morningside  
14 Renewal Council Incorporated and Riverside Democrats  
15 Incorporated vs. the AEC. This was a case on appeal of the  
16 Columbia reactor licensing proceeding.

17                 Justice Douglas dissented from the denial of  
18 certiorari in that case and stated that he would grant  
19 certiorari to consider the issues, "to consider the  
20 propriety of the Agency's practice of licensing trigger  
21 reactors in the absence of rules establishing safety  
22 standards."

23                 I think the language is very material to the  
24 proceeding we are in today.

25          JUDGE CARTER: Would you provide us with a full

1 citation when you give us your Contentions?

2 MS. ENTWISLE: Yes.

3 JUDGE CARTER: Mr. Bachmann?

4 MR. BACHMANN: We have essentially nothing further  
5 to add. Just to say again the fact that we are in a  
6 licensing proceeding, not rulemaking. There are rulemaking  
7 proceedings in 10 CFR 2.8100 and the pages following, and it  
8 is the staff's position that they have not provided special  
9 circumstances in their affidavit within the meaning of 10  
10 CFR 2.758.

11 JUDGE CARTER: Mr. Rickord?

12 MR. RICKORD: I, having reviewed the Petitioner's  
13 affidavit, find no special circumstances that warrant  
14 certification of this issue to the NRC and would ask that  
15 you conclude likewise.

16 JUDGE CARTER: Miss Entwisle, any reply?

17 MS. ENTWISLE: No reply.

18 JUDGE CARTER: All right. Now the last item  
19 before us will be the item involving security. I'll read  
20 this very quickly.

21 "(7) Security. Neither the physical security  
22 plan for the facility nor Applicant's history of security  
23 violations and substandard management and operating  
24 procedures demonstrate that the controlled access areas can  
25 be protected from sabotage or diversion of special nuclear

1 material according to the standards set forth at 10 CFR Part  
2 73.

3 "The draft audit report of the AFRRI facility  
4 prepared by the Defense Audit Service in 1979 cites frequent  
5 instances of security and management violations, including:

6 "(1) Eighteen activations of the facility alarm  
7 system during a 34-day period caused by personnel leaving  
8 work after normal duty hours from unauthorized exits.  
9 Auditors were told by AFRRI security personnel and other  
10 AFRRI officials that investigations were not made of the  
11 activations and that not enough security people were on duty  
12 to investigate each time the alarm went off.

13 "(2) Unauthorized people entering the facility by  
14 following employees in who used their magnetic cards to  
15 unlock the door.

16 "(3) Failure to escort visitors attending weekly  
17 seminars and provide them with dosimeters.

18 "(4) Failure of employees entering and exiting  
19 the building after hours to sign a log showing their time of  
20 arrival and departure.

21 "(5) Violations of Applicant's accounting and  
22 dispensing procedures for controlled substances such as  
23 narcotics."

24 Miss Entwisle, do you have anything to add?

25 MS. ENTWISLE: Yes, Your Honor.

1 I cite to you the ruling of the licensing Board on  
2 March 20, 1981, in the UCLA reactor relicensing proceeding,  
3 in which the Board ruled that the security contentions  
4 should be admitted. The Board was very concerned in that  
5 case with the fact that the reactor was located, as it is  
6 here, in the midst of a highly populated area and thus gave  
7 the utmost consideration to possible hazards and safety  
8 considerations.

9 JUDGE CARTER: Mr. Bachmann?

10 MR. BACHMANN: Excuse me just for a second. If I  
11 might have the citation from that order, please.

12 MS. ENTWISLE: Yes. I'm not sure I can give it to  
13 you right this minute. I have got the docket number and the  
14 date. It was the Regents of the University of California  
15 (UCLA reactor), number 50-142, OL, March 20, 1981. And I  
16 apologize. I do not have a page number.

17 MR. BACHMANN: Judge Carter, the staff opposes the  
18 admission of this Contention because it lacks adequate bases  
19 and also because it appears to raise issues which do not  
20 apply to this facility.

21 As we stated in our statement of position, when  
22 you are dealing with a possessor of special nuclear material  
23 of moderate strategic significance only 10 CFR 73.67  
24 applies, and that is the case here, where they possess 5,000  
25 or less grams of 20 percent enriched uranium.

1           As I stated in the statement of position, 10 CFR  
2 73.67(a)(2) states the requirements of what a physical  
3 security setup must have and just to paraphrase what they  
4 have, they must have early detection of someone getting  
5 access to controlled area, early detection of removal of the  
6 material, proper placement to transfer custody of the  
7 material, and be able to respond to unauthorized removal.  
8 That, in a nutshell, is the total requirements of the  
9 security plan for this type of facility with the amount of  
10 material that they have.

11           The instances that the Petitioner has cited, none  
12 of these, even going back to the original document that they  
13 cited in the draft report seems to indicate, at least to the  
14 staff that -- of inadequacies in the requirements of 10 CFR  
15 73.67.

16           Part 5, as far as dispensing narcotics, is just  
17 not applicable on its face, and the other four do not  
18 indicate that there would be a failure of the facility to  
19 detect unauthorized entry to the controlled area. And I  
20 specify controlled area because that is the part just  
21 directly around the reactor.

22           None of the derilections of duty have any  
23 connection with that controlled area, nor do any of these  
24 indicate that someone would be able to penetrate that  
25 controlled area and remove material and not have that

1 detected. So, while concern on the security plan certainly  
2 could be a concern, none of these instances cited, in the  
3 staff's view, form enough of a bases to be admissible as a  
4 contention.

5 JUDGE CARTER: Mr. Rickord?

6 MR. RICKORD: Yes, sir. Just to provide any  
7 member of the Board who may be unfamiliar with the Defense  
8 Audit Service, that is our internal DOD auditing agency.  
9 They are around making sure we are managing our activities  
10 both from an economic and a practical point of view in a  
11 proper manner. And the DAS folks came through.

12 The shortcomings that they identified here were  
13 brought to management's attention, of course. They did not  
14 relate, as Mr. Bachmann has pointed out, to the reactor.  
15 They related to the fact that perhaps from office areas  
16 typewriters could disappear, not so much nuclear material  
17 could disappear from the reactor itself.

18 All of these instances cited relate to something  
19 that is not co-located, if you will, or identical to the  
20 reactor facility. I find it interesting that NRC and  
21 agencies that are more specifically interested in the safety  
22 and security of the reactor facility are not cited for the  
23 proposition that the security is really an issue.

24 I guess when you boil it all down what I am saying  
25 is that we have a large number of specifics here. It is not

1 difficult to tell what is being litigated, but it is not  
2 relevant. Thank you.

3 JUDGE CARTER: Miss Entwisle?

4 MS. ENTWISLE: Yes. We maintain that the items we  
5 have set forth in the Contention are material to the  
6 question of whether the reactor and special nuclear material  
7 is safe from terrorism, sabotage, and before I go into a  
8 specific quote here, I wanted to just state generally that  
9 any breakdown in security in the AFRRI facility is the first  
10 breakdown of the barrier between the public and the  
11 controlled access area.

12 Secondly, it is incumbent upon staff and  
13 Applicant, and I don't believe they have done so to our  
14 satisfaction at this point, to show that only section 73.67  
15 applies to this proceeding, because it has not been  
16 adequately shown that the material is of only moderate  
17 strategic significance.

18 The third and final point on this, I would like to  
19 read a quote from the former director of the Defense Nuclear  
20 Agency, Admiral Robert Monroe, and former director of the  
21 Armed Forces Radiobiologic Research Institute, Colonel  
22 Darryl MacAdo, and I quote: "If a group of heavily-armed,  
23 desperate men stormed into the building, there would be  
24 nothing out there to stop them."

25 And a quote from Colonel MacAdo, "The reactor is

1 safe except from terrorists. The reactor would not be the  
2 prime target, but a room housing cobalt would be." Okay,  
3 that's sufficient.

4           And we think that it is significant that although  
5 the cobalt facility --

6           JUDGE CARTER: When were those statements made and  
7 what is the source?

8           MS. ENTWISLE: Yes, they are from the Washington  
9 Post.

10          DR. STELLMAN: The Washington Star, Tuesday,  
11 August 14, 1979 and the Montgomery Journal, Sandy Golden,  
12 Wednesday, June 27, 1979.

13          MS. ENTWISLE: I'm sorry. It wasn't the Post.

14          DR. STILLMAN: The Washington Star and the  
15 Montgomery Journal.

16          MR. BACHMANN: Judge Carter, I would like to make  
17 a minor correction, which has already been discussed with  
18 Petitioner's counsel, on our statement of position, where we  
19 refer to the material as special nuclear material of low  
20 strategic significance. It is moderate stragetie  
21 significance.

22          However, 10 CFR 73.67 applies to both low and  
23 moderate strategic significance, but just to straight the  
24 record straight, it is moderate significance. Low strategic  
25 significance is up to 1 kilogram. Moderate material is from

1 1 to 5 kilograms.

2 I might also add that the Licensee is not licensed  
3 to have more than 5 kilograms of this material and,  
4 therefore, by definition, it has to be moderate strategic  
5 significance.

6 And I would like to add one more thing. 73.67, by  
7 its very words, does not require at this particular type of  
8 facility to protect against terrorism or sabotage. It is  
9 simply not part of our requirements. At a power reactor it  
10 is very clear that they have got to have many, many  
11 safeguards, but we just do not require that.

12 JUDGE CARTER: Is there anything further on this  
13 point?

14 MS. ENTWISLE: We would just refer Mr. Bachmann to  
15 Justice Douglas' quote questioning the propriety of  
16 licensing a trigger reactor in the absence of safety  
17 standards.

18 JUDGE CARTER: Now that concludes the discussion  
19 of the Contentions, but Mr. Bachmann you stated earlier that  
20 there were some matters involving environmental reports that  
21 you wanted to discuss.

22 MR. BACHMANN: Yes, sir.

23 On the stipulated Contentions, numbers V and VI --  
24 (Pause.)

25 MR. BACHMANN: We had all stipulated to these

1 Contentions based on the concept that we felt that an  
2 environmental contention could indeed be viable. However,  
3 we did it with the caveat that we would make certain remarks  
4 on the record at the pre-hearing conference.

5           Number V, the EPA I Contention, the Petitioner is  
6 requesting a full environmental impact statement. As of the  
7 time we stipulated it, and even as of today, the staff has  
8 not yet issued any form of an environmental report on the  
9 reactor.

10           We stipulated to this on the basis that the staff  
11 will do an environmental impact appraisal and at that point  
12 decide whether or not to issue an environmental impact  
13 statement. We put both of these Contentions in because we  
14 decided we would not object to them on the basis of  
15 timeliness.

16           As far as the EIS Contention, we would request  
17 that as actually is stated in the Contention, that this not  
18 be ruled upon or considered as litigable in the proceedings  
19 until the other Contentions are cleared, because it says  
20 entered in view of the foregoing Contentions. So if the sum  
21 of the weight of the evidence at the time the hearing draws  
22 to a close indicates the need for or the non-need for an  
23 environmental impact statement, we propose that that would  
24 be the proper time to address whether that is required.

25           This was our understanding -- that the need for an

1 EIS would be determined after all the other Contentions  
2 would be litigated, because at that point we would have  
3 enough evidence to know when it would be required.

4 MS. ENTWISLE: That was my understanding.

5 JUDGE CARTER: Excuse me. What do you expect  
6 would be the timing of that?

7 Suppose we were to go along with that and sometime  
8 down the road were to agree with them, have an additional  
9 delay, would you not, before the statement was completed and  
10 then have to reopen hearings? I'm not sure that the Board  
11 is prepared to make that kind of a commitment, but we will  
12 certainly consider any plan that counsel proposes that will  
13 serve the convenience of all concerned.

14 MR. TREBY: If I may elaborate a little bit  
15 further on what we're trying to say here, Section 51.5(a) of  
16 the Commission's regulations set out those instances which  
17 require the preparation and issuance of an environmental  
18 impact statement. The renewal of a license for a research  
19 reactor is not one of those instances, so the regulations do  
20 not require the issuance of an impact statement.

21 However, they do have in our regulations the  
22 provision that any action which significantly affects the  
23 quality of the human environmental course will require an  
24 environmental impact statement. The staff is in the process  
25 of preparing an environmental impact appraisal.

1           As a result of that appraisal we will be able to  
2 determine whether or not this renewal of the AFRRRI's license  
3 will significantly affect the human environment. If we make  
4 a finding in our impact appraisal that it significantly  
5 affects the human environment, then the staff will go on to  
6 prepare an environmental impact statement.

7           However, if we find that it does not significantly  
8 affect the human environment, then we will find that our  
9 environmental impact appraisal was sufficient. We would  
10 claim then that that document indicates that the impacts are  
11 such that they don't significantly affect the human  
12 environment and therefore no environmental impact statement  
13 was necessary.

14           JUDGE CARTER: When will the appraisal be  
15 completed?

16           MR. TREBY: I believe it will be completed by the  
17 end of August, but, as you notice, the following stipulated  
18 Contention, Number VI, indicates that the impact relates to  
19 the appraisal and indicates that the impacts do  
20 significantly impact the environment.

21           By indicating that we wish V to be deferred, what  
22 we mean is that first we should litigate VI, determine  
23 whether not, if the staff's document reaches the conclusion  
24 that the human environment is not significantly affected  
25 and, therefore, an impact statement is not required, to the

1 extent that there is any issues in controversy with regard  
2 to those conclusions and those are litigated, that we  
3 reserve until we have finished putting into evidence those  
4 questions and then it would, I guess, be strictly a matter  
5 of law as to whether or not an impact statement is necessary.

6           You will have litigated the factual instances of  
7 whether there is a significant effect on human environment  
8 in considering Contention VI. So, therefore, we don't think  
9 there's going to be a delay and all we are really  
10 acknowledging in the Contention V is the fact that the first  
11 step in the process is to do the impact appraisal.

12           JUDGE CARTER: I think Judge Hill had a question  
13 about this.

14           JUDGE HILL: My question really is directed to the  
15 Applicant. Is there an existing environmental impact -- I  
16 presume it would be either a statement or a report -- on the  
17 facility -- that is, one that has been prepared by the  
18 Department of Defense?

19           MR. RICKORD: I am not certain as to the answer to  
20 that. As you may know, the National Naval Medical Center is  
21 a Navy activity and I presume you are driving at the  
22 installation, ordinary operations under the Council on  
23 Environmental Quality Guidelines thing?

24           JUDGE HILL: Right.

25           MR. RICKORD: We would be pleased to provide that

1 information to you.

2 JUDGE CARTER: Would you please?

3 MR. RICKORD: Sure.

4 JUDGE CARTER: All right. Well, we will take this  
5 into consideration.

6 Miss Entwisle?

7 MS. ENTWISLE: I just wanted to point out that the  
8 issue may become moot if the Board rules that this is a  
9 testing facility. If that is the case, under section  
10 51.5(a)(1), the Commission has no discretion but simply must  
11 prepare an environmental impact statement. And I would  
12 again refer the Board to our written statement of position  
13 in support of the Contention, that this is a testing  
14 facility because it is briefed at much greater length than  
15 we have the opportunity to do here today in oral argument.

16 JUDGE CARTER: Is there anything further to come  
17 before us?

18 If not, we will adjourn.

19 MR. BACHMANN: Judge Carter, we almost forgot. I  
20 think it would be appropos at this point to suggest a  
21 schedule for discovery and other matters that could possibly  
22 be incorporated in the order following the pre-hearing  
23 conference.

24 And staff has some suggestions, if you care to  
25 hear them at this point.

1 JUDGE CARTER: Have they been discussed with the  
2 other attorneys? If not, I will recommend, first, that you  
3 do that with them. Is that a very long document?

4 MR. BACHMANN: Oh, it would take about two minutes.

5 JUDGE CARTER: Well, go ahead and we will get  
6 first reactions to it.

7 MR. BACHMANN: We would consider day one would be  
8 when the order is issued following this conference. Thirty  
9 days after that the first round of discovery would be filed,  
10 and thirty days after that the responses to the first round  
11 would be due.

12 Twenty days after that the second round of  
13 discovery would be filed and twenty days after that the  
14 response to the second round would be due.

15 And thirty days after that all motions for summary  
16 disposition would have to have been filed. Of course,  
17 summary disposition could be filed at any time, but that  
18 would be final date for filing, and that is what we suggest  
19 as a schedule.

20 JUDGE CARTER: Is there any objection to that?

21 MR. RICKORD: I would prefer, assuming there is a  
22 great deal that is going on, and two go-arounds of  
23 discovery, I would prefer to see a little bit more time  
24 there at the end to perhaps save the Board's time in an  
25 evidentiary hearing by allowing counsel to collate what they

1 have learned and perhaps come up with a more reasoned  
2 summary disposition.

3 JUDGE CARTER: Specifically how would you change  
4 it?

5 MR. RICKORD: I was looking at 45 days as the last  
6 number?

7 JUDGE CARTER: Miss Entwisle?

8 MS. ENTWISLE: 40 days -- filing last summary  
9 disposition?

10 MR. RICKORD: 45.

11 MS. ENTWISLE: I have no problem with this. I  
12 would prefer to have it as the Applicant has stated, with  
13 the greater time at the end.

14 MR. BACHMANN: The staff has no problem with that.

15 JUDGE CARTER: Fine. We will be gathered by  
16 that. Is there anything further to come before us? If not,  
17 the attorneys will --

18 MR. BACHMANN: Excuse me, Judge Carter. Just one  
19 more thing on discovery.

20 10 CFR 7.20(h) has this very difficult sort of way  
21 of discovery against the staff whereby they -- the other  
22 parties have to file it with the Board and the Board decides  
23 whether we should answer it, and then you send us the  
24 questions that you feel we need to answer.

25 The staff would be willing to put that aside,

1 without waiving that requirement, but put that aside and  
2 answer the interrogatories and the rest of the discovery  
3 directly from the parties without having to go through those  
4 particular things.

5           However, we do reserve the right to reassert that  
6 if any of the parties overdo it, shall we say.

7           JUDGE CARTER: We'll have to meet that situation  
8 when we come to it, I suppose. Thank you, Mr. Bachmann.

9           If there's nothing further, the hearing is  
10 concluded.

11           (Whereupon, at 12:45 o'clock p.m., the hearing was  
12 concluded.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the  
Atomic Safety and Licensing Board

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in the matter of: Armed Forces Radiobiology Research Institute

Date of Proceeding: May 1, 1981

Docket Number: 50-170 (Application to Renew Facility  
License N. R-84)

Place of Proceeding: Bethesda, Maryland

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

Alfred H. Ward

Official Reporter (Typed)

*Alfred H. Ward*

Official Reporter (Signature)

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