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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

UNITED STATES DEPARTMENT OF ENERGY
PROJECT MANAGEMENT CORPORATION
TENNESSEE VALLEY AUTHORITY -
CLINCH RIVER BREEDER REACTOR PLANT

Docket No. 50-537

Location: Bethesda, Maryland

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

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 In the matter of: :
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 UNITED STATES DEPARTMENT OF ENERGY :
 PROJECT MANAGEMENT CORPORATION : Docket No. 50-537 CP
 TENNESSEE VALLEY AUTHORITY :
 :
 (Clinch River Breeder Reactor :
 Plant) :
 :
 -----x

5th Floor Hearing Room
4350 East-West Highway
Bethesda, Maryland

Wednesday, September 28, 1983

Oral argument in the above-entitled case convened
at 9:30 a.m., pursuant to notice.

BEFORE:

JUDGE GARY EDLES, ESQ.,
Chairman, Atomic Safety and Licensing
Appeal Board Panel.

JUDGE REED JOHNSON,
Member, Atomic Safety and Licensing
Appeal Board Panel.

JUDGE MICHAEL WILBER,
Member, Atomic Safety and Licensing
Appeal Board Panel.

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Also Appearing:

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RICHARD STARK

C O N T E N T S

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P R O C E E D I N G S

JUDGE EDLES: Good morning.

The Board this morning is hearing oral argument on the appeal of the Natural Resources Defense Council and the Sierra Club from the Licensing Board's March 2nd, 1983 Partial Initial Decision, authorizing the issuance of a limited work authorization, that is an LWA-1, to conduct site preparation activities for the Clinch River Breeder Reactor Plant.

Each side has been allotted one hour for the presentation of arguments. Appellants may reserve a portion of their time for rebuttal, if they wish.

The Applicants and the NRC Staff as Respondents will divide their hour between them.

I will now ask counsel for all parties to identify themselves formally for the record, and I will ask the Appellants to indicate whether they do wish to reserve a portion of their time for rebuttal. I will also ask the Respondents to tell the Board how they plan to divide their one hour.

Let us begin with counsel for the Appellants, please.

MS. FINAMORE: My name is Barbara Finamore. I am an attorney with the Natural Resources Defense Council, and I am here on behalf of Appellant-Intervenors, Natural

1 Resources Defense Council and the Sierra Club.

2 I would wish to reserve 10 minutes of rebuttal
3 time.

4 JUDGE EDLES: That's fine.

5 For the Applicants?

6 MR. EDGAR: My name is George Edgar. I am a
7 partner in the law firm of Morgan, Lewis & Bockius. I am
8 counsel for the Project Management Corporation. I will be
9 speaking on behalf of the Applicants. We will take one half
10 hour of the one hour allotted to Respondents.

11 I would also like to note for the record the
12 appearance, seated to my far left, of Mr. Edard Vigluicci,
13 attorney for the Tennessee Valley Authority; Mr. William
14 Luck, to my immediate left, attorney for the Department of
15 Energy; and to my right, my colleague, Thomas Schmutz,
16 attorney for PMC.

17 JUDGE EDLES: Thank you.

18 For the NRC Staff?

19 MR. TURK: Good morning, Mr. Chairman and members
20 of the Appeal Board. My name is Sherwin Turk, appearing
21 on behalf of the NRC Staff. I am with the Office of
22 Executive Legal Director at the NRC. I will be taking the
23 remaining half hour of Respondents' time during the
24 argument today.

25 To my right is Mr. Richard Stark, project

1 manager for the CRBR Program Office here at the NRC.

2 JUDGE EDLES: Thank you very much.

3 With that, we will begin with Ms. Finamore.

4 ORAL ARGUMENT BY BARBARA FINAMORE, ON
5 BEHALF OF THE INTERVENORS.

6 MS. FINAMORE: Mr. Chairman and members of the
7 Board:

8 This case comes before the Board on exception
9 from the Atomic Safety & Licensing Board's grant of a
10 limited work authorization for the Clinch River Breeder
11 Reactor Plant.

12 As Intervenors see it, the case concerns two
13 broad questions:

14 First, was the Board correct in authorizing
15 over \$80 million of site preparation work to continue at
16 the Clinch River Breeder Reactor site on limited findings
17 of design feasibility, rather than on a finding of reasonable
18 assurance that the site is suitable under Commission regula-
19 tions?

20 And second, did the Board, the Applicants, and
21 the Staff take the required hard look at all the environmental
22 impacts of the Clinch River Breeder Reactor which is the
23 largest LMFBR ever to be proposed to be built in the country,
24 and also the first liquid metal fast breeder reactor that
25 has ever been licensed by this Commission?

1 Pursuant to the Board's request, I will not
2 embark upon a detailed recitation of the background of this
3 case, but it might be useful to highlight just a couple of
4 the differences between the CRBR and light water reactors
5 that would indicate the use of additional caution and
6 conservatism in designing the plant, in safeguarding it,
7 and in licensing it.

8 First, the Clinch River Breeder Reactor, unlike a
9 light water reactor, can undergo not only a core melt
10 accident, but also a core disruptive accident.

11 JUDGE EDLES: Would you be helpful and define for
12 me a core disruptive accident?

13 MS. FINAMORE: Well, the record indicates that
14 it could be described as an energetic accident or, as our
15 evidence indicated, a low order nuclear explosion. This
16 energetic core disruptive accident provides a potential
17 mechanism for release of substantially larger percentages
18 of the core and of fission products than would be the case
19 for a core melt accident in a light water reactor.

20 If a core melt accident occurred in the Clinch
21 River Breeder Reactor, there is a potential for the release
22 of a large fraction of the available sodium coolant into
23 the reactor cavity, which has the potential for causing
24 sodium fires, sodium/concrete interaction, as well as
25 potential for overpressurization and high thermal effects,

1 which you would not see in a light water reactor.

2 JUDGE JOHNSON: Ms. Finamore, I would like to ask
3 a rather fundamental question right here. You are describing
4 what is surely a significant consideration with respect to a
5 liquid metal-cooled breeder reactor. It does, however,
6 though, seem to me to be fundamentally a safety question, as
7 opposed to an environmental question.

8 In fact, to me, the question whether the CDA
9 should be considered as a design basis event seems to fall
10 clearly into the realm of a safety-related decision, not an
11 environmentally-significant decision. Obviously if an HCDA
12 is going to be -- or a CDA is going to be considered a
13 design basis event, then the design of the plant must be
14 made to accommodate that event, and the plant would still
15 have to meet Part 100 limits.

16 Therefore, the determination whether this CDA
17 should be considered in the design basis of this plant, I
18 consider to be a critical question.

19 I don't, however, see it being a critical question
20 relative to the LWA, and I guess this is a threshold question
21 in relation to our hearing this morning.

22 It is my understanding that the Board gave your
23 client the opportunity to litigate this question whether
24 the HCDA should be included in the design basis at the
25 safety or the construction permit hearing stage of this

1 plant, and it is also my understanding that your client
2 has withdrawn from the construction permit stage of the
3 hearing.

4 I frankly, if this question is as important as
5 you are now saying it is -- why is it that, given you have
6 not taken the opportunity to litigate it at the construction
7 permit stage, where certainly in my view, since it is a
8 safety-related question, it properly belongs?

9 MS. FINAMORE: If I may respond to the two
10 questions that I seem to be hearing --

11 JUDGE JOHNSON: I think there were at least seven,
12 but if you can respond.

13 (Laughter.)

14 MS. FINAMORE: Okay. You asked initially what
15 relationship this particular question has to the limited
16 work authorization hearing, I believe.

17 JUDGE JOHNSON: That is correct.

18 MS. FINAMORE: And second, what relation does it
19 have to the CP hearing and to our decision not to participate
20 in the CP hearing.

21 To take the first question, the LWA hearing has
22 two parts to it, and there are two findings that the Board
23 must make in order to grant a limited work authorization,
24 and the first one is, as you stated it, an environmental
25 question; namely, has the Staff, in its Environmental Impact

1 Statement, taken a hard look at all the environmental impacts
2 of the proposed plant and its associated fuel cycle and
3 alternatives?

4 Now this does have some relation to the accident-
5 safety questions, because the Nuclear Regulatory Commission
6 in an interim policy statement has said that one issue
7 that must be addressed in the Environmental Impact Statement
8 is the probability and consequences of severe accidents
9 and Class 9 accidents, in this case.

10 JUDGE JOHNSON: But it is the question that has
11 to be resolved, and I think properly, at the CP stage, whether
12 this is a Class 9 accident or a design basis accident.

13 In other words, on the one hand you are saying
14 it should be considered as a design basis which takes it out
15 of the Class 9 category, and thus out of the environmental
16 consideration category and puts it squarely in the realm of
17 the safety questions that must be addressed.

18 MS. FINAMORE: Okay. It would have to be described
19 in the Environmental Impact Statement whether or not it was
20 a design basis accident, because the whole range of
21 accidents must be described.

22 But, as I said earlier, there is a secondary,
23 crucial finding that the Board must make at the limited
24 work authorization stage in order to grant permission for
25 site work to begin, and that is a finding under Section

1 50.10(e) that the site is suitable for a reactor of the
2 general size and type as the CRBR, based upon reasonable
3 assurance and all the available information and review
4 to date.

5 JUDGE EDLES: Let's assume that the Board is
6 wrong in finding that this matter could be deferred for the
7 construction permit stage; that they read the regulations
8 wrong, or whatever; isn't it harmless error in the
9 consequences in which they have given you an opportunity
10 to litigate that matter fully in the construction permit
11 phase of the case? I mean, what difference does it make
12 whether we remand for a hearing in what is characterized
13 LWA-1 (on remand), as opposed to (construction permit
14 case)? What is the practical effect of that?

15 MS. FINAMORE: The practical effect is related
16 to the practical effect of granting the LWA, which is the
17 amount of site work that has actually gone on at the plant,
18 and whether or not that site work should be permitted to
19 continue under a finding that we argue was inaccurate and
20 not based upon the correct standard of review.

21 So, in other words, it is not harmless error,
22 because the Applicants have been able to continue with \$80
23 million worth of site work and unless this decision is
24 remanded, they will be able to continue with that site work.

25 JUDGE EDLES: How much is left to do?

1 MS. FINAMORE: I believe, from what the Applicants
2 told us in the LWA record, that they would be finished with
3 the site work at some point the end of this year. Now that
4 may have changed in the ensuing months since this record
5 was closed, and I believe the Applicants are the best ones
6 to ask about that. But there is still a great deal of work
7 to be done.

8 In addition, the environmental findings that are
9 found here are crucial to a construction permit. They are
10 full environmental findings that would have to be made in
11 order for a construction permit to be issued, and we had
12 several problems with the environmental findings that have
13 been made, and if the Board agrees with us, then a construc-
14 tion permit could not be issued either until those mistakes --

15 JUDGE EDLES: I understand that second element
16 of the argument, that the Board was just wrong on matters
17 that are not likely to be relitigated, and I understand that
18 aspect, but I am trying to understand the other argument,
19 which is that these are matters that should have been
20 litigated in the LWA-1, and that by deferring them we are
21 allowing a certain momentum to grow, a certain expenditure
22 of funds, but surely you can't be here trying to save the
23 Applicants the \$80 million. Because if the construction
24 permit you win -- forget for the moment that you have
25 voluntarily withdrawn; assume for the moment with me that you

1 had gone over into the construction permit case at the
2 Licensing Board's invitation -- wouldn't it merely be that
3 the Applicants -- if you litigate the issue subsequently and
4 you win, wouldn't it merely mean that the Applicant has
5 expended \$80 million and they would have to restore whatever
6 it is that they have done to the land?

7 MS. FINAMORE: Yes, that is correct.

8 JUDGE EDLES: So you are here, what, trying to
9 save the Applicants \$80 million? That can't be right.

10 MS. FINAMORE: No, we feel that -- and this
11 goes into the second question that you asked, which is why
12 didn't we just litigate these issues fully at the construc-
13 tion permit stage, because I believe what you are saying is
14 that the issue is more properly dealt with there.

15 JUDGE EDLES: Well, I'm not saying whether it is
16 more properly dealt with there or not. In fact, from my
17 hypothetical, I am suggesting the Licensing Board was
18 dead wrong; that it should have been dealt with in the
19 LWA-1. What I'm trying to figure out is why we don't have
20 what I am characterizing as sort of harmless error?

21 In other words, you have not been deprived of an
22 opportunity to litigate the issue. It's only a matter of
23 timing. You suggested to me that the deferral of the issue
24 might well mean that they could continue with site prepara-
25 tion activities. I understand that argument, but what I'm
trying to find out is, so what if they continue?

1 They're obligated to restore to the ground to its prior
2 condition in the event that they lose at the construction
3 permit phase.

4 MS. FINAMORE: Well, the fact that the work that
5 they have done to date is at their own risk does not relieve
6 the Board from having to make the necessary finding, and
7 that is what we are arguing about today.

8 JUDGE EDLES: That may be true in terms of
9 establishing a precedent for future cases, but how is there
10 genuine harm done in this case to your client, as a result
11 of, let us assume the Board's mistake? That's what I'm
12 having trouble focusing on.

13 MS. FINAMORE: Well, as you said before, there
14 is a big harm to our client in the precedent that is set
15 for this case, since it is the first time a liquid metal
16 fast breeder reactor has been licensed by the Commission.

17 JUDGE EDLES: Could this Board reach the legal
18 issue that you are raising and say yes, it made a mistake,
19 but in future cases Licensing Boards should consider these
20 matters in the LWA; but given the special circumstances here,
21 they have deferred it and it's subject to litigation in the
22 CP, we're not going to order a remand?

23 MS. FINAMORE: Another point to remember is that
24 as the cases have shown in NEPA issues, that the work that
25 has been done on a particular site does give the plant

1 momentum and it is difficult later on to argue, for example,
2 that an alternative site would be preferable.

3 In fact, under the Commission's regulations, one
4 can take into account the amount of work that has been done
5 at a particular site in determining whether it is preferable
6 or whether other sites are substantially preferable. And
7 the more work and the more time that is put into this site,
8 whether or not it's at the Applicants' risk, the more diffi-
9 cult it is to have an objective NEPA hearing, as well as
10 any other impact it might have upon the Board in other
11 findings. Even though it is not supposed to take these
12 things into account, it's difficult not to notice them.

13 JUDGE EDLES: Subliminally, I know. I understand.

14 You argued in your motion to the Licensing
15 Board in the construction phase of the case that you
16 preserved your right on appeal, and if you were successful
17 on appeal, you were prepared to litigate the matter on
18 remand to the Licensing Board, although you indicate that
19 you were going to withdraw your contentions because
20 financial considerations dictated that you not go ahead
21 with the construction phase, as I recall.

22 Are you still prepared to litigate the matter on
23 remand if we were to remand?

24 MS. FINAMORE: Yes, we are, and one crucial
25 difference would be that the hearings that would go on on

1 remand would be in accordance with the standard of review
2 that we believe is appropriate, and the standard of discovery,
3 and our ability to get certain information that we believe is
4 appropriate.

5 We don't feel that the standard of review was
6 correct in the LWA, and we also had problems with the
7 standard of review and the scope of our contentions in the
8 CP.

9 JUDGE EDLES: A separate question, but on the
10 same matter:

11 To what extent does the exemption that the
12 Commission granted overlap the work that could be done on an
13 LWA? Are they coextensive?

14 MS. FINAMORE: What happened in that case was
15 the Commission originally granted a special exemption from
16 the requirements of the LWA in order to begin the site
17 preparation work before the LWA was completed, and we
18 appealed that decision to the U.S. Court of Appeals for the
19 District of Columbia Circuit, and what they eventually
20 found was that our decision -- the 50.12 exemption case
21 was moot because the LWA had already been granted.

22 So, in other words, as soon as the LWA was
23 granted, the Board felt that it, in fact, covered the site
24 preparation work.

25 JUDGE EDLES: Is that in a second Court of Appeals

1 decision? I have read the one or maybe the one and a half
2 that the Court issued in connection with your initial suit.
3 Subsequent to that you are telling me you went back to them?
4 You mean when the Commission reaffirmed the exemption?

5 MS. FINAMORE: Yes, the District -- the U.S.
6 Court of Appeals for the District of Columbia Circuit
7 sent the case back to the Commission to have them decide
8 whether or not there was really an emergency. The Commission
9 reconvened and found out that, yes, there was an emergency,
10 sent it back to the Court of Appeals, and subsequent to that
11 the Court of Appeals issued a decision saying that the 50.12
12 case was moot because the LWA had been granted.

13 JUDGE EDLES: And is what you are arguing that
14 if we were to find that the LWA was improvidently granted
15 by the Licensing Board, that that would have the effect of
16 staying or stopping the Commission's exemption award?

17 MS. FINAMORE: We would take that matter back
18 to the Court of Appeals since they really had not decided
19 the legal adequacy of the 50.12 exemption, and that would be
20 up to them to decide.

21 JUDGE EDLES: What would be your posture before
22 us? I guess I'm trying to figure out whether or not we can,
23 as a practical matter, stop activities from going forward
24 under the exemption. Maybe the Court of Appeals can, and
25 obviously you would have an awfully big oar in the water

1 if you took to the Court of Appeals an opinion by this
2 Board that said the LWA-1 had not been properly granted.
3 But to what extent does this Board have the authority to
4 overturn the Commission exemption de facto?

5 MS. FINAMORE: I would argue that what the 50.12
6 exemption did was give the Applicants authority to begin
7 site work until such time as a decision on the LWA was
8 made, and that once the LWA was authorized, that it would
9 control the remaining site work to be done, and that
10 therefore this Board could in fact halt the site work by
11 remanding the LWA decision.

12 JUDGE EDLES: But that would be purely an
13 inference to be drawn from the Commission's decision? I
14 mean we don't have any case law on the effect of subsequent
15 LWAs on exemptions, presumably, as far as I'm aware.

16 MS. FINAMORE: Well, as you may know, this is one
17 of the very few exemptions ever granted by the Commission.

18 JUDGE EDLES: So your argument is that would be
19 a necessary or more likely inference to be drawn from the
20 Commission's exemption order? The most reasonable inference?

21 MS. FINAMORE: Yes, the 50.12 says that the
22 Commission's regulations may be waived in certain circum-
23 stances.

24 JUDGE JOHNSON: Do I properly understand your
25 position that whereas if you will not take the opportunity

1 to litigate the question whether a CDA should be considered
2 a design basis event in the construction permit phase,
3 however, if we remand that question under the LWA phase,
4 you would litigate it?

5 MS. FINAMORE: That's correct. And one difference
6 is that the scope of our contentions under a remand would be
7 different from the way they were under the construction permit
8 hearings at the time we withdrew.

9 What the Board had said in its LWA preliminary --

10 JUDGE JOHNSON: Wait a minute. First of all,
11 how is the scope of your question under remand going to be
12 any different than what it was in the beginning, or what
13 control do you have in any way if we were to remand some-
14 thing? We could remand it under our particular scope, we
15 could not remand it, I mean -- it is a very nebulous thing,
16 what you would be litigating under a remand, and that litiga-
17 tion would be controlled by our decision, would it not?

18 MS. FINAMORE: Oh, absolutely.

19 JUDGE JOHNSON: So I'm having trouble with the
20 logic of your client's position. If this is an important
21 issue, whether a CDA should be considered in the design
22 basis, the logic which says, well, we will not take the
23 opportunity that's given to litigate it, but we will bank
24 on the possibility of a remand under some conditions that
25 might be established by an Appeal Board, and then we will

1 litigate it -- this completely confounds me, and I would
2 wish you to try one more time to explain the logic that
3 governs your client's position on that.

4 MS. FINAMORE: When I said before the scope of
5 the contentions on remand, I was referring to if our
6 position prevailed as to what that scope would be. I
7 understand fully that the scope would be whatever the
8 Appeal Board determines it to be. But what we are asking
9 for pursuant to the scope of remand would be greater if we
10 were to prevail than the scope that was set out by the Board
11 when it held the prehearing conference on the CP hearing, and
12 the difference is this:

13 The Board had said in the LWA hearings that the
14 findings were limited and that we would be able to go into
15 these issues at the construction permit stage. But when we
16 went to the construction permit stage -- and I'm referring
17 now to our Contention 2 which related to the site suitability
18 source term analysis -- the Board then said that we had
19 already gone into those matters fully and that we would not
20 go into them again at the CP stage. So we were caught in a
21 bind.

22 The Applicants argue that we could go into those
23 issues fully, but as far as we were concerned, we were
24 again constrained by the Board as to the scope of matters
25 we could bring up at the supposed fully construction permit

1 stage.

2 JUDGE EDLES: So you are saying you would not
3 get a full shot in the construction permit phase?

4 MS. FINAMORE: That's correct.

5 JUDGE EDLES: But do I understand the principal
6 reason why you'd like us to decide that it should be
7 determined in the LWA is so we would bring construction to a
8 halt during the pendency of the remand, rather than allow
9 construction to go forward on the theory that this will all
10 be fixed up at the end of the CP case?

11 MS. FINAMORE: That's correct. As we mentioned in
12 our brief, the Board has not resolved the issues with
13 reasonable assurance. The burden of proof is on the Applicants
14 to show that there is reasonable assurance of site suitability.
15 If they have not done so, the LWA was illegally granted.

16 JUDGE EDLES: Okay, but as to those issues that
17 have been finally decided by the Board, I can understand
18 making a determination as to those, and I presume if you are
19 correct on your point there, that we would then issue some
20 kind of an order saying -- acknowledging what you said; that
21 these have been -- the LWA-1 was illegally granted or
22 improperly granted.

23 But as to those issues that have simply been put
24 off to the CP stage, there the thrust of your argument is
25 more a practical one, that we ought to decide that it's to be

1 taken up in the LWA as a vehicle for bringing construction to
2 a halt so as not to build any momentum for building the --
3 the sort of implicit momentum that is likely to grow once
4 we get over into the construction phase.

5 Have I characterized your argument correctly?

6 MS. FINAMORE: Yes.

7 If I may continue with just a brief statement
8 of the differences between a CRBR, a liquid metal fast
9 breeder reactor, and a light water reactor.

10 Given a core melt or a core disruptive accident
11 at an LWR versus a CRBR, the potential for serious harm
12 from ground contamination is much greater for a CRBR because
13 of the extreme toxicity and long half life of plutonium;
14 whereas in an LWR the fission products are much shorter-lived.

15 JUDGE EDLES: I apologize for interrupting you
16 again, but let me just come back for a second, because I
17 don't recall the Contention 2 issue being argued on brief.
18 Am I right in that? And is it because it occurred after
19 the time that the briefs were filed? The argument that you
20 are making this morning, which is that you have been short-
21 changed by the Licensing Board in the CP phase on your
22 Contention 2, that occurred after you filed your brief with us?
23 Or am I wrong? Did I just miss it in your brief?

24 MS. FINAMORE: I believe it happened after the
25 briefs were filed, if I am correct.

1 JUDGE EDLES: Okay. Mr. Wilber says he thinks
2 he agrees with you.

3 JUDGE JOHNSON: While we are on that question,
4 your being short-changed in the scope of litigation of any
5 issue during the CP stage, there is always available to you
6 the remedy of appealing the Board's restriction of the scope
7 to us subsequent to that hearing; is there not?

8 MS. FINAMORE: That is correct.

9 JUDGE JOHNSON: In other words, if the Board
10 misconstrued your contentions or did not allow a contention,
11 you can always say subsequent to those hearings that -- in an
12 appeal to us -- that the Board improperly constrained the
13 scope of the CP hearing.

14 MS. FINAMORE: That is correct. That would be a
15 lot longer down the line. The LWA is also a final decision
16 and we have been given this opportunity today to appeal the
17 mistakes that we felt were made at the LWA.

18 JUDGE JOHNSON: Okay. Let me get to one other
19 question.

20 You just told me -- is it part of your description
21 or distinction between a light water reactor and a fast
22 breeder reactor, that there is no plutonium present in the
23 fuel of a light water reactor?

24 MS. FINAMORE: Well, there may be, as the fission
25 reaction goes on, but the difference in the quantities of

1 plutonium --

2 JUDGE JOHNSON: No, we are really talking shades
3 of gray, not an absolute distinction, one has plutonium and
4 the other does not; is that not --

5 MS. FINAMORE: Well, I wouldn't say shades of
6 gray, because the difference in quantities is so great.
7 The CRBR will be fueled initially with 1.7 metric tons of
8 plutonium.

9 JUDGE JOHNSON: Do you know what the inventory
10 of plutonium is in a light water reactor at the end of core
11 life?

12 MS. FINAMORE: Well, I don't have the figures
13 offhand, but I know that in terms of safeguards impact,
14 what I'm talking about now, the fresh plutonium fuel is of
15 much greater interest to thieves or saboteurs than would be
16 spent fuel.

17 JUDGE JOHNSON: I thought you were talking about
18 environmental impact.

19 MS. FINAMORE: Yes, that's correct.

20 JUDGE JOHNSON: And ground contamination.

21 MS. FINAMORE: That's correct.

22 JUDGE JOHNSON: Well, that has nothing to do
23 with safeguards, does it?

24 MS. FINAMORE: No, it doesn't.

25 JUDGE JOHNSON: Okay. Go ahead.

1 JUDGE WILBER: You have used the words "core melt"
2 and "CDA." Are you using them interchangeably here?

3 MS. FINAMORE: No, I'm not. The CDA includes both
4 core melt accidents and energetic core disruptive accidents.

5 JUDGE WILBER: All right.

6 MS. FINAMORE: If I can jump ahead to the safeguards
7 differences. As I said before, the difference in the quantities
8 of plutonium available in fresh CRBR fuel versus LWR fuel
9 make it a much more attractive target for thefts or saboteurs,
10 and the quantities of plutonium associated with the fuel
11 cycle are unique in the context of commercial power genera-
12 tion. Therefore, the CRBR and its supporting fuel cycle
13 clearly present new and different kinds of risks, of theft
14 or diversion of nuclear-weapons-usable material.

15 JUDGE JOHNSON: Are those risks risks that should
16 be dealt with only in the context of their environmental
17 impact, or are they too risks which should be dealt with
18 in terms of their own specific consequences, meaning in a
19 security contention and a safety contention?

20 MS. FINAMORE: Well, this is something that
21 could be brought up in a safety contention, but not at the LWA
22 stage, since it does not relate to the site suitability
23 finding that must be made under 50.12. There are
24 Commission regulations for safeguardings that must be met
25 at a later stage in the proceeding. At the LWA stage of

1 the proceeding, this issue relates mostly to the environmental
2 effects of the CRBR and its fuel cycle. So there is some
3 overlap there. But in terms of a safety issue, our position
4 is that that is something that is more adequately dealt
5 with at the CP and OL stages.

6 JUDGE JOHNSON: But you choose not to litigate it
7 at that point; is that correct?

8 MS. FINAMORE: Well, we believe that it was
9 inadequately dealt with at the very beginning in the
10 Environmental Impact Statement.

11 JUDGE JOHNSON: Okay.

12 MS. FINAMORE: In contrast with light water
13 reactors, over 150 of which have been licensed by the
14 Commission, there is virtually no licensing experience -- or
15 there is virtually no experience with liquid metal fast
16 breeder reactors and, as I mentioned before, this is the
17 very first time that a liquid metal fast breeder reactor
18 has been licensed by the Commission.

19 As a consequence, many of the Commission's
20 particular regulations, criteria, and regulatory guides
21 simply do not apply to the facts of this situation, and
22 they have had to have been modified by the Staff with varying
23 degrees of conservatism to take account of the specific
24 facts and design of this light water -- of this liquid metal
25 fast breeder reactor.

1 The Commission, in its regulations and its cases,
2 has indicated how a Board should deal with the cases of
3 first-of-a-kind reactors, which is novel in design or
4 unproven as a prototype, and that is that it should apply
5 the criteria in Part 100 in a manner that takes into
6 account this lack of experience. I would say that that
7 particular --

8 JUDGE WILBER: Is that to be considered during
9 an LWA or during a CP procedure?

10 MS. FINAMORE: Well, Part 100 does include
11 material that must be covered in an LWA, so, yes, that
12 additional conservatism does apply to an LWA. Because an
13 LWA finding must be that there is reasonable assurance that
14 Part 100 is satisfied for a reactor of the general size and
15 type.

16 Another example, as we mentioned in the brief,
17 of a case that is different from the usual light water
18 reactors, is the case of Offshore Power Systems, Offshore
19 Power Plant's manufacturing license. And in that case
20 the Commission said that it was not required to treat that
21 application in the same way that it treats land-based plants
22 because the facts are so different. And we submit that
23 the differences between an offshore and a land-based LWR
24 are much less than the difference between a CRBR and a
25 light water reactor plant.

1 JUDGE EDLES: But I don't understand that there
2 is any disagreement over the notion that we are to treat
3 these somehow differently from a conventional LWA. The
4 only question, as I understand it, is at what stage of the
5 case do we undertake that consideration. Am I right?

6 MS. FINAMORE: At what stage of the case?

7 JUDGE EDLES: Right. Whether we do it at the
8 LWA phase or the construction permit phase.

9 MS. FINAMORE: No, I believe that all parties are
10 in agreement that additional conservatism needs to be applied
11 to the CRBR at the LWA stage, as well as at the CP stage.
12 The difference seems to be that the Applicants, for one,
13 claim that they have applied additional conservatisms, and
14 we claim that they haven't.

15 But we also claim that by its findings of design
16 feasibility, rather than reasonable assurance, the Board
17 has applied even less conservatism in this particular situa-
18 tion than it would have for an LWR.

19 JUDGE EDLES: Let me pick up on that for a moment.
20 Tell me if I am reading the Licensing Board's decision
21 correctly. Maybe I am extrapolating or interpreting.

22 What they are saying, basically, is that breeder
23 reactors can be made sufficiently safe, they think, so that
24 no matter where it is sited, the risk of an accident
25 would be sufficiently low, so that there would be no

1 difference from an environmental point of view between
2 whether it is placed here or there or somewhere else.

3 In the CP phase, we will look to see whether in
4 fact this given breeder reactor can be rendered safe, or
5 whether you have to have additional fixes in the design in
6 order to protect against core disruptive accidents, but that
7 that is really a question as to the given breeder reactor, not
8 a question as to whether or not a reactor sited in one place
9 is going to be safer or less safe than a reactor sited else-
10 where.

11 Is that roughly correct, or am I misinterpreting?

12 MS. FINAMORE: We have a different interpretation.
13 It's not correct in our mind that the Board found that the
14 CRBR -- it's feasible to design is so that no matter where
15 it is sited, the plant will be safe.

16 The way Part 100 is written, the only difference
17 between the Part 100 finding at the CP stage and at the
18 LWA stage is that for the LWA stage, the plant has to meet
19 the Part 100 criteria for a reactor of the general size and
20 type at that particular site, and they used site-specific
21 considerations, meteorology and population distance and
22 consequences at the LPZ and exclusion area.

23 Whereas at the CP, they still use those same
24 site-specific considerations, but they look at the whole
25 specifics of the CRBR design that have come out in the SER

1 in determining whether or not it still meets those site-
2 specific considerations. That is what is supposed to happen.

3 We have a problem in this case because there is
4 no other reactor of the general size and type as the CRBR.
5 What's happened in the light water reactor context is that
6 they have been able to look at prior licensing experience
7 with reactors of the same general size and type and plug in
8 some of the findings that have been made there; for example,
9 the site suitability source term.

10 JUDGE EDLES: But other than population density
11 which you argue -- I mean you argue that they ought to be
12 placed in a site where there are fewer people per square
13 mile or something -- what other site-specific either effects
14 or consequences are there from putting the reactor here as
15 opposed to somewhere else?

16 MS. FINAMORE: Well, as we mentioned in our
17 Contention 5-A and 7-C, another difference is the difference
18 in meteorology, and the reason that is important is mainly
19 because of its effect on radiological risk. There is
20 evidence in the record that when you combine population and
21 meteorological factors, it is a crude surrogate for radiological
22 risk, and as the Staff said in its 1977 Environmental Impact
23 Statement, the radiological risks at the alternative DOE
24 sites, for example, Hanford, Idaho, were 50 times less than
25 the radiological --

1 JUDGE EDLES: But that is still a factor of the
2 consequences aspect, not -- I appreciate risk is a combination
3 of two factors, but it is still a function of consequences.
4 That's why the risk is higher, you say; is that right?

5 MS. FINAMORE: That is what the Staff found, yes.

6 Another factor, as we mentioned -- and this also
7 relates to consequences, but it's a little different -- is
8 as we mentioned in our Contention 5-B, there are certain
9 facilities that are vital to national security and the
10 national energy supply that are located very close to the
11 proposed site, and that the effects of a severe accident
12 at the CRBR would have unacceptable consequences to these
13 facilities, and we didn't find that at alternative sites.

14 JUDGE EDLES: Okay, but as I understand it, though,
15 that is simply one factor to be considered in the mix when
16 you determine site suitability. Am I right on that?

17 MS. FINAMORE: Excuse me, which is --

18 JUDGE EDLES: The risk factor, is that a
19 determinative factor or is that simply one of a number of
20 factors?

21 In other words, the fact that the federal govern-
22 ment owns the land, let us say, that is yet another factor
23 in the mix that we look at when we determine site suitability.
24 What I'm trying to get at is the effect of your argument on
25 consequences.

1 As I understand it -- let me back up, maybe I'm
2 not making myself clear. As I understand it, you are saying
3 that the consequences of placing it here, namely a lot of
4 people can be hurt if something happens, is greater than it
5 would be at several other sites.

6 As I understand it, the risk is a function of
7 consequences plus probability. The probability is low, it
8 is argued by others, in all cases. Consequently the risk
9 factor, the end product of the equation, is very, very low
10 irrespective of where we place the reactor. That factor,
11 along with two or three or four other factors, is then
12 mixed together and we determine which is the best site.

13 Is my analysis right? Apart from, now, whether
14 you agree with one or two of the elements. Is my analysis
15 of what we are doing correct?

16 MS. FINAMORE: I think what we have done here
17 is put together two separate parts of the analysis that have
18 to be made, and one is an analysis of whether or not there
19 are substantially better alternatives to the proposed site.
20 That's an environmental finding that has to be made, weighing
21 all the factors that you've mentioned.

22 But, under the site suitability findings of
23 10 CFR Part 100, the Board has to find reasonable assurance
24 that all the regulations in Part 100 are met for a reactor
25 such as the CRBR. And one of those is that the dose

1 consequences from a site suitability source term will not
2 exceed the dose guideline values that have been indicated in
3 Part 100. And that is determinative, in our mind.

4 JUDGE EDLES: Am I correct that the Licensing
5 Board must either have explicitly or implicitly concluded
6 at this stage of the case that it is likely, or that they
7 had reasonable assurance that a reactor could be designed,
8 irrespective of the site, which would meet the source term
9 requirements, the Part 100 requirements? Now that may turn
10 out to be wrong, they may be inaccurate, but if they are
11 inaccurate, the time to make the fixes or perhaps not to
12 license the plant would be at the construction permit phase
13 of the case.

14 MS. FINAMORE: All the Board found was that the
15 site suitability source term that the Staff had drawn up
16 would probably bound or would probably have dose consequences
17 that fall under the guideline values that the Staff had --

18 JUDGE EDLES: All right, now, you're disagreeing
19 with that?

20 MS. FINAMORE: Well, we are disagreeing with
21 the site suitability source term that the Staff had come up
22 with.

23 JUDGE EDLES: In my frame of reference, that's a
24 piece of the question, but that's a separate question from
25 what -- I'm trying to figure out the framework for analysis

1 here. That's a different question from whether or not if
2 the Staff is right on that, whether or not the Licensing
3 Board could reasonably have considered that as just simply
4 one factor, rather than a critical or determinative factor.

5 MS. FINAMORE: Oh, no, I would say that you have
6 to have reasonable assurance that the site suitability
7 source term is correct and that it is within the dose guide-
8 line values, and if it is not, we would say that the LWA
9 should not be granted.

10 JUDGE EDLES: Okay.

11 JUDGE WILBER: You said that there is no reactor
12 of general size and therefore they should do a more detailed
13 review for the site suitability?

14 MS. FINAMORE: Well, we are not asking, contrary
15 to what the Applicants have stated, for a full safety review
16 before an LWA can be granted. We are talking about the issue
17 of whether -- the fact that you cannot use a standardized
18 source term for liquid metal fast breeder reactors because
19 you have never licensed one before means you have to decide
20 de novo at this stage whether or not the site suitability
21 source term you have chosen bounds all accidents considered
22 credible.

23 The regulations say the site suitability source
24 term must be great, must have consequences greater than that
25 from any argument considered credible. So you have to have

1 at this stage some idea and reasonable assurance of what
2 credible accidents are, and of whether the site suitability
3 source term bounds those credible accidents. And the Staff
4 has come up with a safety objective that it has not changed,
5 that in order to determine what the credible accidents are,
6 you must -- well, they have a safety objective which they
7 characterize as an aiming point that there be no less than
8 one in a million chance per year of having dose consequences
9 that exceed the guidelines. And they have not established
10 in the record that the CRBR core disruptive accident would
11 meet or even approach that safety objective.

12 JUDGE EDLES: Let me ask, how do we handle
13 Class 9 type accidents if we were to have an LWA-1 proceeding
14 as part of a conventional light water reactor case? There,
15 too, I assume that the consequences of an accident are
16 catastrophic and that basically what must be decided is that
17 probability of the accident is sufficiently low so that the
18 risk at the end doesn't turn out to be too high.

19 But how do we deal with that, and why should we
20 deal with this differently or the same way?

21 MS. FINAMGRE: What happened was that, I believe
22 it was in the early '60s, the Staff developed a document
23 where they decided this issue for the first time for light
24 water reactors, and I think that's TID-144. It's in the
25 record.

1 At that point they went through a catastrophic
2 accident which involved a substantial core melt in a light
3 water reactor and calculated what the fission release
4 from the core would be for that, and the Staff has said that
5 that was based on a core melt accident, and then they decided
6 that, and once it was decided, it was plugged into every other
7 light water reactor site suitability analysis because it was
8 for a reactor of the general size and type. They didn't
9 have to do it specifically for each reactor, because at that
10 early stage they had previous experience with generally
11 similar reactors to plug in.

12 So this issue doesn't even arise in light water
13 reactors any more.

14 JUDGE EDLES: No, I understand that, but what I'm
15 -- I guess maybe I don't understand it fully.

16 MS. FINAMORE: There are several other ways that
17 you can determine what accidents are credible and therefore
18 whether or not you should include them in the design basis,
19 and once you do so, whether or not you have to pick a source
20 term that bounds them.

21 For example, in light water reactors, you have a
22 set of criteria that you can apply, Appendix A of Part 50.
23 You don't have that here, so you can't say that, well, this
24 reactor is going to meet these design criteria, so therefore
25 we can have reasonable assurance that the core disruptive

1 accidents are incredible.

2 JUDGE EDLES: Are you saying that in a light water
3 reactor case which began with an LWA-1 proceeding, we would
4 look at the LWA analog of the core disruptive accident or
5 the core melt and that would be plugged into the environmental
6 analysis at the LWA-1 stage?

7 MS. FINAMORE: In a light water reactor, LWA
8 proceeding, one would start with this site suitability
9 source term that has been set for all LWAs, and that includes,
10 I believe, 100 percent of halogens and 50 percent of fission
11 products, whatever.

12 JUDGE JOHNSON: You seem to be a little fuzzy on
13 what the suitability source term is. Is the site suitability
14 source term -- how would you have the site suitability source
15 term for the Clinch River Breeder Reactor be different from
16 the one that is used for light water reactors? Now they
17 both use 100 percent of the noble gases and 50 percent of
18 the halogens, and I think they both use 1 percent of the
19 gross of the fuel in the fission product.

20 What is your position as to how the CRBR source
21 term should be changed?

22 MS. FINAMORE: You are correct. The only difference
23 between the two right now is that the CRBR includes 1 percent
24 of the plutonium, whereas the LWR doesn't, and the reason for
25 that is that all the Staff did, instead of deciding this

1 issue the same way they did for an LWA, through a
2 mechanistic analysis in --

3 JUDGE JOHNSON: Are you referring to TID-14.441
4 as a mechanistic analysis?

5 MS. FINAMORE: Well, that is a term that is
6 subject to interpretation, but what they did was look at
7 the effects of a core melt accident in a light water reactor,
8 and that's the way I'm using the term "mechanistic." They
9 determined what the effects would be if one starts from a
10 core melt.

11 JUDGE JOHNSON: Well, I think my simple question
12 is, how would you have the source term change for CRBR?

13 MS. FINAMORE: First of all, the source term
14 would have to look at the implications of a release of a core
15 disruptive accident, and that would include the effects of
16 sodium reaction with the concrete and air, sodium fires; it
17 would include overpressurization of the containment, and
18 therefore would include operation of the vent-purge system.

19 In addition, we feel that it should include at
20 least 10 percent of the plutonium, rather than 1 percent,
21 because in the Applicants' calculations of the effects of an
22 energetic CDA, they came up with 10 percent of the plutonium
23 factor. So there is two issues. One, is the plutonium fraction
24 conservative enough; and second, did they consider all the
25 actual effects of a light water -- of a breeder reactor

1 having a core disruptive accident, especially the ones that
2 would not occur in an LWA? Because there are those differences,
3 we feel that just taking the source term analysis from an
4 LWA and adding 1 percent plutonium is not sufficient.

5 JUDGE EDLES: We are approaching the end of your
6 50 minutes. Why don't I give you 10 minutes, if you'd like,
7 to sort of pull together the remaining portions of your
8 argument, unless my colleagues have any other questions.
9 I won't deprive you of your rebuttal. I'll give you an
10 extra 10 minutes.

11 MS. FINAMORE: Thank you.

12 I won't have time to go into all of the issues,
13 by any means, but if I could just touch briefly on why we
14 feel this feasibility argument is wrong, I can then respond
15 later to any specifics you have on the environmental issues.

16 The Board explicitly did not find reasonable
17 assurance at this stage that the core disruptive accidents
18 are not credible and therefore the site suitability source
19 term used by the Applicants and Staff is sufficient. They
20 specifically said they were not persuaded by the evidence
21 to date that the CDA could be built and operated such that
22 CDA could be incredible.

23 The only thing that they mentioned in terms of
24 the Applicants' case was that all the design features that
25 the Applicants came up with -- for example, the reactor

1 shutdown system, lend credibility to the argument.

2 JUDGE EDLES: It's sort of like the burden of going
3 forward as opposed to the burden of persuasion, isn't it?
4 I mean what they said is all right, there's enough here to
5 go forward and in the CP stage you've got to prove it then.
6 Isn't that roughly right?

7 MS. FINAMORE: That's correct. We feel the
8 feasibility argument also shifted the burden of proof to the
9 Intervenors because they said Intervenors have come up with
10 no threshold issues that would prevent this finding of
11 feasibility, and we feel --

12 JUDGE EDLES: At this stage. In other words,
13 you haven't filed your -- you can't prevail on a motion for
14 directed verdict, so to speak, but that doesn't mean -- I
15 don't think that means that the burden has been shifted.

16 In other words, all they said is you haven't given
17 us enough to direct a verdict, but the Applicant still has
18 the ultimate burden of persuading in the CP that it can
19 build this thing safely.

20 MS. FINAMORE: Okay, that's one way of putting it,
21 I would agree. However, we would argue that the burden of
22 persuasion is on the Applicants at the LWA stage, of reason-
23 able assurance that the Part 100 criteria can be met for
24 a reactor such as the CRBR.

25 JUDGE EDLES: As opposed to the burden of proving

1 that they are likely to be met, you are saying?

2 MS. FINAMORE: The difference there is that
3 the Board seems to feel that without having to look at the
4 specifics of the reactor, or without having to look at the
5 failure rate of the supposed state of the art safety systems,
6 that one can come up with a finding of feasibility. It's
7 not based on enough specifics because the Board is saying
8 that whatever the design of the reactor now, as long as
9 its potential to have containment fixes later on -- we
10 don't really have to find out whether the design as it is
11 now is sufficient; we don't have to find whether or not
12 changes that might be required later on would make this no
13 longer a reactor of a general size and type, or what that
14 design would be. And without a finding that the state of
15 the art systems have reliability that is sufficiently low,
16 it's not enough to say, well, they're doing the best that
17 they can, they're coming up with state of the art systems.
18 Because we were prevented at this stage from getting
19 discovery on those crucial issues of systems reliability
20 and failure rates, and whatever probabilistic risk assess-
21 ments the Applicants had come up with.

22 Again, as I might point out, the LWA regulations
23 require that the findings be made on the basis of all the
24 available information and review to date. With this finding
25 of feasibility, the Board has cut off some crucial

1 information, and that's why it was able to make those
2 feasibility findings. We feel for that reason alone the
3 decision should be reversed.

4 JUDGE JOHNSON: But the point remains that it
5 did not cut off that for all time. It cut it off for the
6 purpose of making this one simple decision. It gave you
7 the opportunity to pursue those questions at the CP stage.
8 That is true, is it not?

9 MS. FINAMORE: Yes, but the fact remains that this
10 is a final agency action with certain requirements that must
11 be met before a decision can be reached, regardless of what
12 is going to happen at a separate, later proceeding.

13 JUDGE JOHNSON: Okay. Go ahead.

14 MS. FINAMORE: All the Board did at this stage
15 is come up with four categories of inquiry, and that was
16 what the discovery was limited to at this stage. What
17 the major classes of action initiators are. We would claim
18 that that is not enough at this stage, to know what the
19 major classes of initiators are, because it is also important
20 to know what the interactions of these systems are, and
21 what the common mode failures, because that can, as the
22 evidence shows, significantly affect the ability of a plant
23 to mitigate accidents and prevent their initiation.

24 As we are saying, there was information available
25 on these common cause and systems interactions. We were not

1 permitted to go into that on discovery, and as far as the
2 reliability program goes, cross-examination on that issue
3 was also cut off.

4 The relevant criteria to be adopted, as you know,
5 in this case they still don't have any relevant -- or at
6 least as far as the LWA proceeding was concluded, there were
7 no relevant criteria applicable to the CRBR such that one
8 could apply them and determine that CDAs are credible.

9 The Staff claims that all it needed to do was
10 find that the systems are similar enough to those from a
11 light water reactor because they would perform the same
12 safety function of shutting the plant down, and our argument
13 is that showing that both plants have the ability to shut
14 the reactor down is not enough to show that the probability
15 of an anticipated transient without scram, for example, at
16 the CRBR, is less than three to four -- is three to four
17 orders of magnitude better than that for an LWA, because
18 the probability of an ATWS in an LWA is shown to be somewhere
19 in the neighborhood of 10^{-3} per year, which is not adequate.
20 And the Applicants and Staff have not shown that the CRBR,
21 even though it has two safety systems, will be that much
22 different in the probability of an ATWS.

23 As I said before, without any of these particular
24 ways of determining that a CDA is not credible, without a
25 detailed safety review, or a quantitative probabilistic

1 assessment to show that they are meeting or even approaching
2 the Staff's 10^{-6} safety objective, without criteria that it
3 can apply, or without enough of a showing of comparability
4 between this plant and the light water reactors, one must
5 use bounding assumptions at the site suitability LWA stage
6 in order to account for the probability, or in order to give
7 enough assurance to the LWA finding that it is bounding
8 whatever might happen later at the CP stage.

9 In this case we feel that the use of a 10 percent
10 plutonium release from the core would be bounding
11 sufficiently to provide reasonable assurance that regardless
12 of what happens at the CP stage, the site suitability analysis
13 is likely to stand, and this is also consistent with other
14 earlier LWA reactor experience where there is insufficient
15 information, that Boards for LWAs have used bounding
16 assumptions in cases where they really don't know.

17 JUDGE EDLES: But aren't the site suitability
18 regulations -- don't they contemplate that there could in
19 fact be a change so that even though the site is suitable
20 at the construction permit case, it may well be that you
21 can't build the reactor there because it would not be safe
22 to do so? Isn't that contemplated by the regulations?

23 MS. FINAMORE: Well, the cases indicate that
24 this site suitability source term analysis in Part 100 is
25 the most critical decision facing the Commission, and that

1 the --

2 JUDGE EDLES: I agree that it's critical. My
3 question is, is it irrevocable?

4 In other words, if at the construction permit
5 phase we discover that the Licensing Board made a wrong
6 judgment, that you really can't build the plant there
7 safely, it seems to me that the site suitability regulations
8 do the best they can, but it still doesn't foreclose denial
9 of the license or the permit, if it turns out that the risks
10 would be too high.

11 And I guess what I'm getting at, isn't it
12 essentially a judgment call on the Licensing Board's part
13 as to how likely is likely? You know, they make a judgment
14 that, look, we think, given what we know, that it is likely
15 you'd be able to build a safe plant there. That's not
16 saying that we know it absolutely.

17 But are you asking us to get into that sort of
18 discretionary range of how likely is likely?

19 MS. FINAMORE: Well, the standard here is
20 reasonable assurance, which one case has shown to be a
21 clear preponderance of the evidence, and that is much
22 greater than a likely standard.

23 JUDGE EDLES: All right. I am not getting at
24 sort of the procedural standard of how likely is likely.
25 What I'm asking is what is it that you have to show

1 substantively? I mean do you have to show simply that it
2 looks like you can build, more likely than not, that you
3 can build a safe reactor on this site? That would be kind
4 of a preponderance of the evidence standard, I guess; more
5 than 50 percent or something.

6 MS. FINAMORE: Well, I would say that you have
7 to show that the source term that you have designed is
8 adequate and falls within these guideline values. If it
9 doesn't, you don't necessarily have to shut the plant
10 down and deny the licenses. It is possible that you could
11 say, well, even if they used a bounding assumption, for
12 example, 10 percent plutonium, there's enough evidence in
13 the record to show that even that would be enough to meet
14 these dose guideline values.

15 That is not the case here, because the evidence
16 is clear that if the 10 percent plutonium fraction would be
17 used, the Staff and Applicants would have to redo their site
18 suitability analysis. You cannot tell at this stage whether
19 the site would be suitable, given this 10 percent plutonium
20 fraction.

21 JUDGE JOHNSON: Let me ask you; you said something
22 that I don't -- I'm not sure you meant to say. If at a
23 subsequent construction permit hearing it was determined
24 that the CDA would have to be considered as part of the
25 design basis, it is not your position that the plant would

1 not then have to meet the provisions of Part 100, is it?

2 I mean no matter whatever, if the CDA is put into
3 the design basis, the plant would still have to meet the
4 Part 100, would it not?

5 MS. FINAMORE: Yes, of course.

6 JUDGE JOHNSON: Would not that protect your
7 position?

8 In other words, whatever the source term, whatever
9 source term arose as a result of using the CDA, the plant
10 could not go forward unless the subsequent design of the
11 plant limited that source term to the extent that the plant
12 would meet the radiological provisions of Part 100, would it
13 not?

14 MS. FINAMORE: That is correct. Maybe you mis-
15 understood me. All I was saying that it's possible that
16 there might be evidence in the record to show that it
17 didn't matter whether CRBRs were credible or not, because
18 the source term from a CDA would easily meet the dose
19 guideline values.

20 Now we are saying that the record doesn't show
21 that, so you are right, they would have to prove -- either
22 change the design or redo the analysis to determine whether
23 it meets Part 100.

24 As we also went into detail in our brief, it is
25 clear that even given the site suitability source term of

1 the Applicants and the Staff, that one, because of a list
2 of errors, also does not meet the dose guideline values,
3 so that as a separate matter from whether the CDA should
4 cause the SSST to be lowered, even without deciding that
5 issue, the evidence is not sufficient to provide reasonable
6 assurance that Part 100 is met in this LWA.

7 JUDGE EDLES: Why don't you take one more minute?

8 MS. FINAMORE: Okay.

9 Basically our main arguments are this:

10 The standard of reasonable assurance is required.
11 The Board has not met it in this case. The Board could not
12 meet it in this case, given the information in the record.

13 Another issue I did not go into is the various
14 problems with the environmental impacts of the plant. The
15 fuel cycle impacts were severely underestimated, the health
16 effects of plutonium, and the amount of plutonium that would
17 be released from alternative reprocessing facilities.

18 We believe the safeguards issues were not
19 adequately considered, and in that case again, a great amount
20 of our discovery and evidence was excluded from the proceeding.

21 We had problems with the alternative site
22 analysis because it downplayed the importance of radiological
23 risk at alternative sites which would make them
24 substantially better alternatives.

25 And as we had a number of procedural arguments

1 as well, we believe that as a final matter the LWA was
2 improvidently granted. It should be remanded back to the
3 Licensing Board for hearings with a correct standard of
4 review with full opportunity for discovery on all the
5 available information to date that might bear upon this issue.

6 JUDGE EDLES: Thank you very much.

7 Mr. Edgar, you have 30 minutes.

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1 ORAL ARGUMENT BY GEORGE EDGAR,
2 ON BEHALF OF THE APPLICANTS

3 MR. EDGAR: I would like to begin with a few
4 preliminary points just for clarification and then proceed
5 to what I perceive as the key question which was brought
6 out by Dr. Johnson's question and later by Judge Edles.
7 Just as a matter of record, the site preparation status,
8 the site preparation work has advanced such that safety-related
9 -- or the excavation would be in a condition to accept
10 safety-related construction by December.

11 So secondly, the work on the LWA and the 50.12
12 are indeed coextensive. There was another minor factual
13 point in relation to the argument of momentum, and that is
14 what effect that might be and how that might affect
15 alternative sites, the so-called -- as referenced by
16 counsel, the \$80 million site preparation costs were indeed
17 not credited to Clinch River to show an advantage, and that
18 would show in Staff Exhibit A and the appendix dealing with
19 site selection.

20 Another point, in the interest of accuracy,
21 Intervenors made the argument that they were shortchanged
22 by the Licensing Board in connection with limitations on
23 their contentions at the CP phase. They said they didn't
24 like some of the rulings and they may not get a fair shot.
25 The fact is, whatever the case may be there, they have

1 completely waived those arguments. They have withdrawn
2 from the CP. They have not filed findings of fact. And
3 they have no right to appeal those findings.

4 Another factual point was raised, what is the
5 site suitability source term and how does it differ from
6 that of LWRs. The LWRs use the prescription set forth
7 in TID-14.484 which is referenced in the last footnote
8 in 10 CFR Part 100. The CRBR prescription is the same
9 as LWRs with one difference. That is, CRBRP requires,
10 in addition, 1 percent of the fuel. You don't take 1 percent
11 of the fuel in the LWR case, but everything else is the same.

12 Now, Dr. Johnson's question -- and I will try to
13 pick up as we go in that context -- Judge Edles' question
14 about what LWRs do in connection with an LWA in regard to
15 Class 9 accidents. There are really three issues that are
16 involved with site suitability findings for Clinch River.
17 And then there is a relationship but one which was not
18 accurately portrayed by counsel for the Intervenors between
19 the site suitability issues and the environmental findings.

20 There are three things that reside in the
21 site suitability finding in regard to accidents. The first
22 question is whether the site suitability source term
23 prescription is appropriate for Clinch River. That is a
24 finding which is made for LWA purposes for a reactor of a
25 general size and type at that specific site. Then at the CP

1 the finding is made for that specific design at that specific
2 site.

3 Now, as a part of that issue as to how one
4 sets the site suitability source term prescription, one should
5 look at, and the Board indeed did look at the issue of
6 whether an HCDA should be a design-basis accident. The
7 consequences of releases from the core to the site
8 suitability source term prescription should exceed those
9 for any accident which is judged to be within the design
10 basis. That is a site suitability issue.

11 There is a second issue and that is, given
12 the source term prescription, does the source term
13 prescription involve a release from the core with consequences
14 exceeding those of any DBA. That is not a contested issue
15 here. That was Exception 42 at 9 which was waived; it not
16 being briefed.

17 The third question under site suitability would
18 be, are the consequences of the site suitability source term
19 release within the site suitability dose guideline values.

20 These three issues need to be kept separate.
21 They are being overlapped with a third question or a fourth
22 question. And that is the question of the environmental
23 risk of accidents and compliance with the Commission's
24 Class 9 interim policy statement on how one treats accidents
25 in an environmental assessment context. That issue, the

1 environmental issue asks the question -- and it is
2 separate from the site suitability questions -- were the
3 accident risks adequately analyzed for environmental
4 purposes.

5 The Staff's Appendix J to the final environmental
6 statement supplement addressed that question. There are
7 no exceptions taken to the validity of the Board's findings
8 in regard to Appendix J. The unspoken implication of
9 Intervenors' argument is that the environmental analysis
10 did not consider accidents beyond the design basis.
11 That, gentlemen, is just plain wrong.

12 The environmental analysis considered a full
13 range of accidents -- core melt accidents, energetic
14 accidents. And the point here is that that is in compliance
15 with the Commission's Class 9 policy statement.

16 LWRs today, under the regime of the June 13, 1980
17 policy statement should, in an environmental context,
18 consider core melt events, events beyond the design basis.
19 That was done here. The Board made findings. You have no
20 exceptions taken on that point.

21 JUDGE JOHNSON: Well, may I inject a question here.
22 Were there not exceptions taken on the basis that the population
23 around Clinch River was higher than the population, and the
24 combined population-meteorological saturation around Clinch
25 River make Clinch River a less favorable site in view of the

1 consequences of these Class 9 accidents than other alternative
2 sites so that, in fact, is that not the proper way to
3 consider that analysis in an environmental balancing context?

4 MR. EDGAR: Your characterization as to the
5 exceptions on site selection is correct. That is not, though,
6 the proper context for considering it, and let me explain
7 that.

8 JUDGE JOHNSON: I would like you to, yes, because
9 I don't agree with you.

10 MR. EDGAR: All right. Well, let me see if I
11 can convince you of that.

12 Appendix J, Your Honor, tries to take a look at
13 beyond design basis events in Clinch River. That is a
14 spectrum of core melt and disruptive accidents. It arrives
15 at a judgment that the residual risk of those accidents,
16 considering probabilities and consequences, is not different
17 from LWRs, that if one assigns a spectrum of risk to that
18 class of accidents, that it is not significantly different.
19 In the site selection context you have another set of
20 comparisons to make.

21 JUDGE JOHNSON: Let me just make one little
22 comment here. How strong, valid or proper, accurate --
23 whatever word you want to use -- would you say that those
24 conclusions that the risks associated with Class 9 accidents
25 in a CRBR are roughly the same as the risks associated with

1 a Class 9 accident in light water reactors? First of all,
2 we have a history, operation and accidents in light water
3 reactors. I don't believe we have a great deal of history
4 related to the operation and accidents with liquid metal
5 cooled breeder reactors. So how firmly am I going to hang
6 my hat on the statement you just made that they are the same
7 or comparable?

8 MR. EDGAR: Well, I would suggest, Your Honor,
9 that there is a reasonable basis in the record, a substantial
10 basis in the record for that judgment. I will grant you
11 that there is lesser experience in terms of operating
12 experience between LWRs and LMFBRs. The structure of
13 Appendix J, though, was set up to take a first-order look
14 or an approximation of the risks of these beyond design
15 basis events.

16 In order to do that, the Staff made some very
17 conservative assumptions. I think the Staff has developed
18 a very reasonable, if not conservative, estimate of what
19 those risks might be. For environmental analysis, though,
20 I don't believe they were talking about a finding which is
21 by its substantive nature a definitive, scientific safety
22 finding. We are talking about a reasonable basis for the
23 finding for the purpose of environmental analysis. The actual
24 safety finding as to what the risks are beyond the design
25 basis and whether those risks are indeed acceptable is one that

1 must be made by the Board on the basis of the CP record.
2 And indeed the CP record is now before the Board for a
3 decision.

4 JUDGE JOHNSON: Well, hold on. The question I
5 thought we were addressing is how the Class 9 analyses,
6 the Appendix J analyses would be factored into a site
7 selection process or the determination of the suitability
8 of a particular site relative to alternative sites.

9 MR. EDGAR: Okay. I did not go on to address that
10 point. The relevance of Appendix J -- I started with the
11 proposition that Appendix J provides a reasonable basis to
12 conclude that the risks in that Class 9 layer are not
13 different from LWRs. In the alternative site comparison,
14 one considers a broad spectrum of environmental parameters
15 for each site.

16 The findings of the final environmental statement
17 supplement as to site selection were that considering
18 environmental parameters, there was no significant difference
19 among the sites. Meteorology and population density,
20 however, were indeed different as between the alternative
21 sites and Clinch River.

22 The significance of those two parameters does
23 not reside in the consequences of accidents per se. It resides
24 in the risk. The point of the Staff's analysis and the
25 Board's finding was that the risk in the Class 9 layer was

1 very small at any site; that the difference between the
2 two quantities, the risk at Clinch River versus the risk
3 at Yaloo Creek, was not significant and it did not weigh
4 heavily in the balance.

5 JUDGE JOHNSON: You are saying that they are
6 not significant because the 10 to the minus whatever
7 factor was large, that you will agree that there was a
8 significant difference in the absolute value between one
9 and the other.

10 MR. EDGAR: There would be in the absolute
11 value; there is no question. You were talking about factors
12 which are ranging from five at the bottom up to 30 or so,
13 so there is.

14 JUDGE JOHNSON: Now, this is a very hypothetical
15 question. If we struck an environmental balance between
16 five different sites and all of the spectrum of factors that
17 were considered at all five sites, except risks associated
18 with Class 9 accident was in equipose, and then we added this
19 Class 9 accident risk, clearly the site with the lowest Class
20 9 accident risk even though it had a larger negative exponent
21 would then become the preferable site, would it not?

22 I mean, do you argue with that way of doing it?

23 MR. EDGAR: I will argue, though, with the
24 conclusion or the inference you draw from that. You are
25 correct that if we have got an imbalance and I drop a gram on

1 it, it is going to balance in terms of the other sites.
2 However, that is not the test. The Commission's August 1976
3 decision said that one does not analyze alternative sites
4 to select the optimally beneficial alternative. The question
5 is, are the sites substantially better alternatives for
6 satisfying the informational objectives of the LMFBR program.

7 Clearly, they are not substantially better. The
8 point I am trying to make is that the weight we dropped
9 on the scale was so light that it doesn't give rise to a
10 substantially better alternative.

11 JUDGE EDLES: In light of the other factors that
12 the Board looked at, you are saying.

13 MR. EDGAR: Your Honor, I think you can reach
14 that point and the Board indeed reached that point without
15 regard for other factors such as delay and cost and
16 satisfaction of utility participation.

17 JUDGE EDLES: To what degree did the Board rely
18 on the delay factor? How heavy did that weigh in the balance?

19 MR. EDGAR: The Board said at the end of its
20 findings, in connection with site selection, that we are
21 not going to rely on timing. We don't need to. The evidence
22 shows that there are no substantially better alternatives
23 without regard for timing. However, the Board noted that
24 that would be an effect, but it wasn't a necessary element
25 of the logic in the decision.

1 JUDGE EDLES: That was dictum, or was it
2 merely subconscious? Because there is a difference.

3 MR. EDGAR: I would say it is unnecessary to
4 a decision, so therefore, it would be dictum.

5 The point I was trying to originally progress to
6 was that if one separates site suitability issues from
7 environmental issues, the key point is that the environmental
8 analysis was not truncated at the design basis. It was
9 full; it was complete. It was a reasonable basis for
10 considering a full range of accidents.

11 In regard to Offshore Power, the Intervenors
12 have totally confused that case by overlapping site
13 suitability and environmental considerations. In the
14 Offshore Power case, the Commission basically held that
15 it wasn't required to treat the barge reactor like any
16 other LWR, and it could require consideration and an
17 environmental statement of liquid pathway Class 9 risk.
18 Those were described as special circumstances.

19 JUDGE EDLES: Now that is what we do routinely.

20 MR. EDGAR: That's right, as a result of the
21 policy statement. Interestingly, in the policy statement
22 the Commission issued in June of 1980, two cases are cited:
23 Clinch River and OPS. In 1977, the FES for Clinch River
24 Class 9 accidents were addressed even though at the time
25 LWRs did not do so.

1 The point here is that Appendix J fully
2 complies with the Class 9 policy statement, and you have
3 no exceptions here before you taken to the Board's findings
4 in regard to Appendix J.

5 Now, if I might address the question of the
6 Board's scope limitations. If one starts with the proposition
7 that the LWA regulation contemplates a general size and
8 type of finding at the site versus a specific plant
9 finding at the site, at the CP under 50.35(a), it is clear
10 that there must be some reasonable limitations on the scope
11 of review at the LWA stage for site suitability.

12 Intervenors have never suggested any reasonable
13 set of limitations. We learned for the first time today,
14 or at least I did, that they don't believe that a full
15 safety review is required. They instead insist on a test
16 which is simply that one must demonstrate, using probabilistic
17 analyses, that the likelihood of exceeding Part 100 doses is
18 10 to the minus 6 or less.

19 We believe that that test -- and we briefed that
20 fully -- is totally inconsistent with the Commission's
21 statutory and regulatory scheme and with the Commission's
22 policy statements.

23 We believe, on the other hand, that the Board's
24 choice of limitations was technically realistic, technically
25 correct, and a sound exercise of discretion.

1 The Board's discretion and the Board's factors are totally
2 consistent with the realities presented in this record.
3 The Board considered the major classes of accident initiators
4 that could lead to a CDA, the major design characteristics
5 of importance to prevent progression to a CDA, the applicable
6 criteria and the state of technology.

7 The record clearly shows that these are
8 the considerations of major importance to a determination
9 of whether a reactor of the general size and type should or
10 should not have CDAs in the design basis.

11 The Board found and based it on a reasonable
12 judgment that a CDA can be precluded. The Board did not
13 rely on probabilistic analyses and some wooden adherence
14 to a test. The Board relied on a judgment based on
15 deterministic engineering analyses and principles.

16 JUDGE JOHNSON: Did the Board not say actually
17 that it appeared to it that it was feasible to avoid a
18 CDA and that the ultimate determination would await a fuller
19 exploration of these things at the CP stage?

20 MR. EDGAR: Definitely, yes.

21 And here is the critical element.

22 JUDGE JOHNSON: I don't think that is what you
23 just said. That is why I asked.

24 MR. EDGAR: I was going to reach that. What the
25 Board said was the Board made a threshold finding that this

1 can be done. The Board then said the final decision on
2 whether that can be done or will be done will be left with
3 the CP, the full safety review. The Board protected
4 intervenors' rights to litigate whatever remained under
5 those contentions.

6 JUDGE EDLES: But Ms. Finamore's point is that
7 by using feasibility, the Licensing Board -- and I am
8 interpreting her words now -- has really said that it is
9 possible but they cannot yet say it is likely. I don't
10 know what feasible means. Maybe feasible means possible.
11 Does feasible mean probably or likely? I think her
12 argument is that by saying feasible they say yes, it is
13 conceivable; it is possible that such a design can be built.
14 But that doesn't quite tip you over into the reasonable
15 assurance standard. It is not quite high enough is what
16 she is saying, I think.

17 MR. EDGAR: I would suggest, Your Honor, that
18 it goes beyond -- that that reads feasibility too narrowly
19 in light of the record. The Board did consider the design
20 characteristics of the plant, the initiators, and the Board,
21 in my judgment, found two things. One, that they saw the
22 evidence as showing that the CDA can be precluded and, two,
23 that there was nothing that militated the other way.

24 Next the Board, though, and I think out of an
25 abundance of caution, said, We will require full litigation of

1 this point and a complete analysis of the point at the CP.
2 The Board was motivated by protecting the Intervenors'
3 rights to fully and finally litigate that issue. And what
4 happened then? Well, this Appeal Board has already been over
5 that.

6 The Intervenors, when the time came, withdrew.
7 Whatever may have motivated the Intervenors is not before
8 this Board. The fact is, Intervenors are asking you to
9 remand the case for additional hearings on the very points
10 as to which the Intervenors have foregone the relief that
11 the Licensing Board granted.

12 I want to do an inventory on my time.

13 JUDGE EDLES: How about eight minutes? Is that
14 about right?

15 MR. EDGAR: All right.

16 Several additional points in the record. The
17 first is a point of emphasis. We have briefed this, but
18 I would like to bring one thing out. The Intervenors have
19 raised an argument that their testimony concerning waste
20 disposal was improvidently stricken by the Licensing Board.
21 The key element here is to look at the realities of the
22 situation.

23 Intervenors argue in their brief before you that
24 the problem with that Board ruling was that the matters
25 stricken were not the subject of the generic Table S-3 and

1 Waste Confidence proceedings. That is the thrust of their
2 argument. You find that statement at Intervenors' brief
3 at 56.

4 Now, the Appeal Board should look at
5 Intervenors' Exhibit 13 at pages 35 through 37, tr. 4601
6 through 10. Each item that was stricken went directly to
7 the issue of whether a satisfactory long-term disposal
8 method for waste can be found.

9 Moreover, the items that were not stricken
10 dealt directly with waste disposal impacts. If you read
11 the portions of the testimony which were stricken, you
12 will find that on every page the basis for the Intervenors'
13 testimony was either testimony or reports from the S-3 or
14 Waste Confidence proceedings.

15 If the Intervenors are right and the material
16 stricken was beyond the scope of the generic proceedings,
17 then why was the testimony based directly on material taken
18 from this proceeding. The fact is that the Intervenors'
19 argument is inherently contradictory and has no merit.

20 The second consideration, with the limited time
21 available, that I would like to bring to --

22 JUDGE EDLES: Mr. Edgar, I will give you five
23 additional minutes. I don't want to be accused of playing
24 favorites. So we will divide the five minutes that I gave
25 Ms. Finamore between you and the Staff.

1 MR. EDGAR: There are a couple of points I would
2 like to bring out on the question of the third site
3 suitability issue that I raised at the beginning of the
4 argument. And that is, whether the consequences of the
5 site suitability source term relief meet the site suitability
6 dose guideline values. This issue addresses the validity
7 of the Staff's analysis of the site suitability Part 100
8 analysis.

9 We have an argument which is labeled
10 plutonium isotopics. The same argument came up not only
11 in site suitability but in the fuel cycle analysis. You
12 will see it addressed in the partial, initial decision at
13 pages 48 through 49 and findings 126 through 128.

14 The basic thrust of this argument is that it
15 is possible that fuel with higher plutonium-238 and 240
16 content than that assumed in the application could be used
17 for Clinch River. And thus, if maximum values were assumed,
18 the doses could go up by factors of two to four.

19 The points here that answered the argument are,
20 the Staff used conservative values relative to the application.
21 They increased the percentages relative to the application.

22 Secondly, any change would obviously be subject
23 to review by the Staff in an amendment process. Third,
24 most of the fuel in the pools and existing reactors today
25 is low burn-up and it is not high plutonium-238 and 240.

1 And then there is another fundamental here.

2 JUDGE JOHNSON: Wait a minute. Is there a
3 license condition that the fuel be low burn-up fuel?

4 MR. EDGAR: We don't have an explicit license
5 condition that I am aware of, Your Honor.

6 JUDGE JOHNSON: Well, then the protection against
7 using high burn-up fuel is the fact that maybe the Staff
8 would pick up on it or that there isn't much around?

9 MR. EDGAR: The licensees would be obligated to
10 review any question. A general environmental condition
11 of the license and, of course, a safety condition as well,
12 if it is issued, would be that if you have any item that
13 departs from the analytical basis in the FES, you have got
14 to review it. If it comes out different, you have got to
15 report it to the Staff. That is a condition of the FES,
16 so the Applicants would be obligated to come forward if
17 there were a material difference.

18 The other point that is important here is the
19 Intervenors' theory on isotopics is based on looking at
20 recycle of fuel in LWRs. In an LWR, if you recycle
21 plutonium, you are going to build up the isotopes 230 and
22 240 in relative proportion and, thus, the doses might be
23 higher. In an LMFBR the Applicants presented specific
24 calculations for Clinch River which showed that the opposite
25 is true with repeated recycle in Clinch River. The plutonium

1 is burned. The 238 and 240 decreases in relative
2 concentrations rather than increases, so that the Intervenor's
3 whole argument rests on a technically invalid premise.

4 We believe that there is no merit to the
5 argument. We believe that the Board properly disposed of it.

6 Another point that the Intervenor's have raised,
7 which is a matter of confusion, stems from their failure to
8 understand the systems provided in Clinch River for dealing
9 with accidents. The site suitability source term analysis
10 was based upon consideration of engineered safeguards
11 that are essentially the same as those one would see in
12 an LWR. There is an annulus filtration system; the effect
13 of which is to continuously exhaust the annulus between
14 the containment and the concrete confinement structure.

15 Some of that exhaust is recycled so as to
16 provide a negative pressure in that annulus. Any leakage
17 through that system was in accordance with the Staff's
18 standard assumptions and calculational methods considered
19 as part of the site suitability source term dose calculation.
20 See here the partial, initial decision, findings 18, 26,
21 27, and 30.

22 However, Clinch River has a unique feature which
23 is not found on an LWR. And that is, Clinch River has a
24 containment vent-purge system and a containment cleanup
25 system.

1 The idea here is that if events should ever
2 progress beyond the design basis and there were a challenge
3 to containment integrity, by either the buildup of
4 hydrogen or by overpressure, then this normally isolated
5 system could be opened. What it would to would be to take
6 the atmosphere in the containment building and vent that
7 through a cleanup system so as to assure that containment
8 integrity is maintained and that radiological releases
9 are mitigated.

10 This is a beyond design basis system. It is a
11 system which is normally closed. It would not be activated
12 until 24 hours after initiation of a core melt event. The
13 Intervenor's keep arguing without understanding this
14 distinction that the releases through the containment
15 vent-purge system must be considered in the site suitability
16 source term analysis. It doesn't make sense. The system
17 is normally closed and it would not be activated.

18 JUDGE JOHNSON: The releases through that system
19 would, however, be considered in the Class 9 analysis. Were
20 they considered in Appendix J?

21 MR. EDGAR: Yes.

22 JUDGE JOHNSON: Was credit taken for the cleanup
23 system?

24 MR. EDGAR: Yes.

25 JUDGE JOHNSON: Does the cleanup system have

1 high temperature capability?

2 MR. EDGAR: Yes, sir.

3 JUDGE JOHNSON: At what level?

4 MR. EDGAR: I would have to find that and
5 submit it, but this was gone over very thoroughly in the
6 CP stage. There have been tests at HEDL that were
7 discussed at the CP on how that filtration system --
8 I am using a little license to call it filtration; it is
9 really a Venturi scrubber system. But this system has
10 been thoroughly tested and the Board went into that in
11 great detail at the CP hearings.

12 I have used my time.

13 JUDGE JOHNSON: I have one other question.
14 The Intervenor has a number of -- four contentions related
15 to testimony that was not allowed relating to safeguards.
16 These are contentions 84, 85, 97, and 98. Where are they
17 dealt with in your brief? In a cursory look, I could
18 not find them.

19 MR. EDGAR: All right. I will look at that.
20 The safeguards are addressed in our brief -- let me get the
21 citation, but let me raise one other point here. And it is
22 a critical distinction that we may not have given enough
23 emphasis to in our brief.

24 The safeguards contention was admitted by the
25 Licensing Board in March of 1976 by an order and later

1 readmitted pursuant to the April 14, 1982 order confirming
2 the initial ruling on a limited basis. That contention
3 was not allowed to go into a broad-ranging inquiry into
4 generic safeguards issues at all nuclear facilities.

5 That Board ruling has stood since March of 1976.
6 Intervenors have never taken exception to that Board ruling
7 which defined a limited scope of the safeguards contention.
8 The safeguards contention was admitted only to consider
9 the incremental effect of safeguards risks and cost on the
10 cost benefit analysis.

11 Nevertheless, the Intervenors, and particularly
12 in their discovery, sought a broad-scale inquiry into
13 safeguards at all DOE, NRC-licensed, DOD and foreign facilities.
14 The Board denied that discovery because when the Applicants
15 attempted to confer with the Intervenors and arrive at
16 some more reasonable limitation which would, A, be
17 confined to CRBR fuel cycle facilities and, B, be confined
18 of the scope, the limited scope considered by the Board,
19 the Intervenors refused to budge. They wouldn't pare it back.
20 The Intervenors are coming here now and arguing that that
21 is error. In fact, all of their safeguards contentions
22 argue that the Board set an improper scope or set of
23 limitations on the review.

24 The fact is that the Commission's August 1976
25 decision ruled out contention 11 by the Intervenors which

1 dealt with the risks of sabotage, theft, and diversion from
2 widespread use of LMFBRs and plutonium. The Commission
3 ruled out a broad generic expansion of the issue. We
4 believe that all of the Board's rulings were totally consistent.

5 We do not believe that the Intervenors have
6 properly taken exception to the Board's ruling in a timely
7 manner and that the Board's decisions should all be upheld
8 in this respect.

9 JUDGE JOHNSON: I didn't get the answer to the
10 question that I asked.

11 MR. EDGAR: I have it. The citation, Your Honor,
12 is page 50, note 83.

13 JUDGE JOHNSON: Thank you.

14 JUDGE EDLES: Mr. Edgar, thank you very much.
15 We will take a ten-minute recess.

16 (Recess.)

17 JUDGE EDLES: Mr. Turk, you have half an hour.

18 MR. TURK: Thank you.

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ORAL ARGUMENT BY SHERWIN TURK ON BEHALF
OF THE NRC STAFF.

MR. TURK: For the record, let me note that Steven Goldberg, who is with the Office of Executive Legal Director, is now seated at counsel table, Mr. Goldberg wrote the brief which the Staff has submitted on appeal.

The questioning thus far today correctly recognizes the importance of a crucial question, and that is whether the Licensing Board properly defined the scope of the LWA-1 proceeding.

I would like to address that question briefly, without too much repetition, I hope, and then proceed to discuss the correctness of the substantive rulings by the Licensing Board.

In the Staff's view, the Licensing Board was absolutely correct in defining the standard for LWA review. The question is defined by 10 CFR Part 50 Section 50.10(e)(2), where the regulation states that based upon available information to date, a determination must be made that there is reasonable assurance that the proposed site is suitable for a reactor of the general size and type as the one proposed.

By contrast, at the CP stage, the Licensing Board either must review all of the design details or must make a series of four findings, the fourth of which is specified in 10 CFR 50.35. It is as follows --

JUDGE EDLES: But isn't there something to Ms.

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1 Finamore's argument that we really don't have breeder
2 reactors of a general design, and so we really ought to kind
3 of look at these things together. The safety or design issues
4 ought to be looked at up front in the LWA as well.

5 MR. TURK: She's partially correct to the extent
6 she recognizes that we have not licensed breeder reactors of
7 the size of this one in the past. I would point out, first,
8 that she's incorrect when she says the NRC has not licensed
9 breeder reactors in the past. As I'm sure the Appeal Board
10 members are aware, one such reactor was licensed, and that's
11 the Fermi reactor. In addition, there's the C-4 and the
12 FFTF reactors. I believe one was licensed by the NRC and
13 one was reviewed by NRC.

14 But here's the point I would make; not that it's
15 just the first reactor of its size that's a breeder, but the
16 Staff has reviewed all available evidence concerning breeder
17 reactors, and the Staff has also reviewed LWR experience, and
18 it's on the basis of that kind of review that we come before
19 the Licensing Board and Appeal Board and make the conclusion
20 that a CDA need not be in the DBA envelop for the Clinch River
21 reactor.

22 I would like to touch very briefly upon --

23 JUDGE JOHNSON: The argument was the construction
24 was on the scope, and I think the chairman's question related
25 to you were justifying the scope as being what it was in terms

1 of a general size of a reactor, of a particular general size
2 and type. We really had not gotten to whether the CDA should
3 be included in the design basis or not.

4 MR. TURK: The point I was going to make next,
5 I think, anticipated your question. The point I was going
6 to make is, the breeder reactor is not just in a conceptual
7 stage. There is an advanced level of knowledge which the
8 Applicants and Staff both have.

9 JUDGE JOHNSON: That's information in hand. Why
10 should not that information have been included in the LWA
11 analysis?

12 MR. TURK: It was, but it was limited in its offer
13 to the extent that information was used to define the general
14 size and type of the reactor proposed, not as to whether or not
15 the design details are satisfactory, and whether the design
16 details provide the 50.35 reasonable assurance findings as to
17 whether the reactor can be built and operated in accordance
18 with Commission regulations.

19 JUDGE EDLES: Just give me a hint here, like a
20 trailer. What is it that's likely to come in in the CP, now
21 that it's all over?

22 MR. TURK: Well, much of the same type of informa-
23 tion which has been presented at the CP stage was also
24 presented at the LWA-1 stage, but for the limited purpose of
25 defining the general size and type and indicating whether it
was feasible to keep the CDAs out of the DBA envelop. At

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1 the CP stage that information was then reviewed critically.

2 JUDGE EDLES: As opposed to uncritically at the
3 LWA stage?

4 MR. TURK: As opposed to not being reviewed for
5 design detail at all at the LWA stage. The design detail
6 then was reviewed at the CP stage in order to hopefully
7 make the finding under 50.35 that this particular reactor
8 is going to be designed such that it can be in compliance
9 with Commission regulations.

10 JUDGE EDLES: What about the argument that when
11 you get around to the design phase of the case, some of the
12 fixes might be so costly that you might want to look around
13 and perhaps you would have sited the plant at a location
14 with a smaller population density?

15 MR. TURK: The level of knowledge which was present
16 at the LWA-1 stage took into account the nature of the systems
17 that were proposed for the CRBR. That includes the two
18 independent and diverse shutdown systems, the diversity and
19 reactor cooling systems, and other such information also
20 related to fuel failure propagation, and the need to detect
21 and prevent sodium leaks.

22 The point I'm making -- maybe I've just gone a
23 little bit off your question -- the point I'm making is that
24 at the LWA-1 stage, there was no reason to think that major
25 technological fixes would be necessary, and that's a finding

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1 that the Staff had itself, satisfied itself as to, and the
2 Licensing Board, I believe, also made that finding.

3 Incidentally, the question you raise is similar
4 to a question raised in the River Bend decision which the
5 Intervenors cite. Intervenors contended here that you needed
6 to find not just that it was feasible to build the CRBR in
7 a way that would comply with Commission regulations, but
8 also the cost of any alternate fixes.

9 For the CRBR there was no need to go into a
10 detailed examination of the cost for alternatives, because
11 the level of satisfaction as to the adequacy of the proposed
12 systems, in order to make the reactor acceptable.

13 JUDGE EDLES: But that is still subject to review
14 and possibly change in the CP phase.

15 MR. TURK: That's correct.

16 JUDGE EDLES: Will further environmental considera-
17 tions be looked at in the CP stage?

18 MR. TURK: Not from the environmental standpoint,
19 unless something was disclosed in the safety review that
20 could affect the environmental balance. With that record
21 behind us, it's possible to say that no such information
22 came to light during the safety review.

23 JUDGE WILBER: The diverse systems -- do I under-
24 stand you're saying in the LWA, all you're saying is, you
25 said they exist and not how they're accomplished? Is that,

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1 in essence, what you're saying?

2 MR. TURK: No. Information was presented as to
3 the nature of those systems, how they operate, what they're
4 intended to accomplish, and whether they're likely to
5 accomplish their objectives. But the offer of that informa-
6 tion was not to prove the sufficiency of design detail,
7 but rather to give a clear understanding of the type of
8 general reactor and as to its environmental consequences.

9 JUDGE WILBER: You said how likely they are to
10 operate. Are you talking reliability here?

11 MR. TURK: No. Well, I should clarify. Reliability
12 per se, from a quantitative standpoint, was not gone into,
13 either at the LWA-1 stage or at the CP stage, consistent with
14 Commission regulations that PRAs are not required at the CP
15 stage. But what was gone into was the determination by the
16 Staff certainly, and also by Applicants, that the systems,
17 based upon a deterministic approach, have been judged to be
18 reliable. And on that basis, CDAs can be excluded from the
19 DBA envelop.

20 JUDGE JOHNSON: It is, then, your continuing
21 argument, and apparently it persisted into the CP stage, that
22 some level of probability is not necessary to determine whether
23 a CDA should be included in the design basis?

24 MR. TURK: Some label of quantitative assessment
25 of probability, that's correct.

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1 JUDGE JOHNSON: So can you describe for me what
2 sort of judgment is made -- for instance, why would it not
3 be adequate, then, to simply have one shutdown system?

4 MR. TURK: In 1976, the Staff issued a letter to
5 the Applicants, and this is contained in the Staff's FES
6 at Appendix I, that Staff exhibit 7 which set out the basic
7 requirements for CRBR in order to achieve fundamental safety
8 goals. Among them was the requirement there be two independent
9 diverse shutdown systems. That requirement recognized the
10 lack of extensive operating experience with LMFBRs. Because
11 of the lack of experience, it was decided that additional
12 reliability would be required to be provided by an additional
13 shutdown system.

14 JUDGE JOHNSON: Well, in essence then, you abandoned
15 the single failure criterion, is that correct?

16 MR. TURK: The single failure criterion which is
17 applicable to LWRs was not made applicable to CRBR. The
18 Staff went further.

19 JUDGE JOHNSON: In regard to anything, or simply
20 in regard to shutdown systems?

21 MR. TURK: I believe the best way I can characterize
22 it is with regard to the fundamental safety functions which
23 the plant must accomplish, and those are basically described
24 by shutdown systems.

25 JUDGE JOHNSON: Well, you're getting a little too

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1 general. The single failure criterion is applied to
2 specific systems and components. You don't apply it to the
3 general safety function, I don't believe.

4 MR. TURK: The way I have to answer you is that
5 single failure criterion still applies, but with regard to
6 certain fundamental requirements, the Staff went further and
7 said notwithstanding the existence of a single failure criterion,
8 we're going to require more for this reactor.

9 JUDGE JOHNSON: My original question, when you
10 went back to 1976, what is the basis for requiring two diverse
11 independent shutdown systems?

12 MR. TURK: The recognition by the Staff that there
13 is limited operating experience which could be drawn upon in
14 order to assess the reliability of shutdown systems for an
15 LMFBR, and that general description of the reasons is found
16 in Appendix I of Staff exhibit 7 to the 1977 FES.

17 JUDGE JOHNSON: If it had been determined that a
18 core disruptive accident or some form of that type of accident
19 should be included as a design basis event, the plant then
20 would still have to meet 10 CFR, Part 100, with respect to
21 offsite releases, would it not?

22 MR. TURK: Yes, it would. In this regard, the
23 Staff exhibit No. 8, which is the FES supplement at Appendix J,
24 states that although there's a probability stated of 10^{-4} for
25 the probability of occurrence of an HCA Class I, the likelihood

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1 that Part 100 would be exceeded is very, very low. It's not
2 included in the 10^{-4} figure. That statement appears at page
3 J-11 of the FES supplement.

4 JUDGE JOHNSON: How do you want me to interpret
5 this statement in your brief or in the Staff brief at page
6 37 discussing a sequence or a CDA sequence involving
7 multiple failures, that the probability for this sequence is
8 10^{-6} per year, or no more than 10^{-6} per year? So what?
9 Is that good or bad? Why is that statement included in
10 there?

11 MR. TURK: That is drawn, I believe, from an
12 analysis both of the --

13 JUDGE JOHNSON: I don't care where the numbers
14 come from. I want to know why this statement and that number,
15 10^{-6} , is of any relevance to me on this Board if it's not
16 used.

17 MR. TURK: That number provides a confirmatory
18 way of assessing the level of risk of a CDA which is followed
19 by a failure of containment to isolate. This number provides
20 a quantitative way of being assured that the systems are
21 reliable enough so that this type of an event would not
22 occur, but it's not the fundamental basis for judging.

23 JUDGE JOHNSON: But you're using that number to
24 help persuade me of something, I presume, or persuade this
25 Board of something. Why was it not fair for the Intervenor

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1 to challenge the basis of that number in the LWA proceeding?

2 MR. TURK: The Intervenors did have a basis to
3 challenge that number. In fact, numbers like that were very
4 much a part of the testimony introduced by Intervenors, as
5 well as Applicants and Staff.

6 JUDGE JOHNSON: It seems to me that number has
7 got to depend in some respect on the reliability of the
8 CRBR-P safety systems. And I thought that that was a question
9 that was put off to the CP hearing.

10 MR. TURK: What was put off, if I understand the
11 thrust of your question, was consideration of the PRA which
12 is to be conducted by Applicants and the reliability assurance
13 program which the Staff has required Applicants to conduct.
14 That was deferred entirely to the CP stage.

15 JUDGE JOHNSON: Well, the detailed reliability of
16 the safety system component, was that not put off until the
17 CP stage? A detailed look at the design and reliability of
18 the shutdown system, the redundant heat removal heat systems,
19 I thought these were things that the Board said would have to
20 go into -- would be explored at the CP stage.

21 MR. TURK: A detailed specific analysis was put
22 off to the CP stage.

23 JUDGE JOHNSON: Was not the Intervenor precluded
24 from discovery and cross examination of matters related to
25 these questions?

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1 MR. TURK: As far as I know, my understanding of
2 the record is that they were not precluded from challenging
3 those numbers, but they were not -- my understanding is they
4 were not able to do that with design-specific information
5 which they might have thought to obtain through discovery.
6 For instance, the 10^{-6} number which you're referring to
7 reflects two parts; its 10^{-4} probability of an HCDA, plus
8 a 10^{-2} probability that containment will fail to isolate,
9 but those numbers do not reflect a specific assessment for
10 each initiator sequence the probability of failure. Those
11 are bounding numbers.

12 JUDGE JOHNSON: My real problem with that number
13 is the Staff keeps saying that you do not use 10^{-6} just as
14 the Intervenors suggest might be used as a determinant as
15 to whether an event should be included in the design basis.
16 And yet you come and present me with that number as, apparently,
17 to make me determine that something is either acceptable or
18 not acceptable.

19 MR. TURK: No, we don't offer it for that purpose.
20 Neither the Staff nor Applicants relied upon the quantitative
21 assessments there to determine the level of risk for CDAs.
22 Those numbers --

23 JUDGE JOHNSON: This is a quantitative assessment --

24 MR. TURK: It's included by way of passing reference
25 to some sort of quantitative assessment which is more or less

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1 required by the Commission's statement of internal policy on
2 Class 9 considerations issued in 1980.

3 The Staff routinely, in its FES, attempts to provide
4 some kind of quantitative assessment of risk; however, for
5 LWR as well as for CRBR, the way to judge whether a CDA is
6 or is not incredible, is through the deterministic approach.

7 JUDGE EDLES: So you're saying we could, in our
8 decision, consider irrelevant the figure that you have served
9 up to us.

10 MR. TURK: I think it's properly a footnote in
11 the Appeal Board's decision.

12 JUDGE EDLES: But a footnote to which the Intervenors
13 were not entitled to talk.

14 MR. TURK: No, I can't agree with that. Those
15 numbers were the subject of testimony. There was no cutoff
16 of the right to dispute the general parameters that those
17 numbers reflect. But we did not get into initiation sequences
18 at the LWA-1 stage, and properly so. There was no need to
19 do that, once the Licensing Board understands the general
20 type of reactor that's being proposed and the characteristics
21 of the site. Those types of questions were properly left for
22 the CP stage, and Intervenors would have had a full opportunity
23 to litigate it then, had they stayed in the case.

24 End 7
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1 Incidentally, there has been reference made to the
2 ⁻⁶
3 Staff's use of a 10 number as being some sort of a safety
4 goal. That is inaccurate. Back in 1976 when the Staff
5 ⁻⁶
6 used the 10 number as an aiming goal, it did so without
7 the intention of establishing a firm safety commitment that
8 must be reached.

9 Since then the Staff has stepped back from the use
10 ⁻⁶
11 of a 10 number and has instead continued to use the LWR
12 approach which is the deterministic judgment.

13 I would point out, incidentally, that recently
14 in March of this year the Commission came out with a policy
15 ⁻⁴
16 statement on safety goals which adopts a 10 safety goal
17 ⁻⁶
18 value, which is quite different from 10 .

19 JUDGE JOHNSON: The Staff does. in fact, however,
20 ⁻⁶
21 use 10 as a value to determine whether external events
22 might affect the safety of a proposed nuclear power plant, do
23 they not?

24 MR. TURK: Again, even with respect to offsite
25 hazards, I believe you are referring to the St. Lucie decision --

26 JUDGE JOHNSON: No, I'm not referring to the
27 St. Lucie decision at all. I'm referring to the regulatory
28 guide, whose number escapes me right now, but when an offsite
29 hazard is to be considered in the design basis, I believe
30 the safety review plan or the standard review plan sets the
31 ⁻⁶
32 value 10 to determine whether or not that hazard should or

1 should not be included.

2 MR. TURK: In that regulatory guide which Judge
3 Johnson is referring to, 10⁻⁶ is used as one criterion. It
4 is explicitly stated there that 10⁻⁶ need not be complied
5 with in a particular case if there are good reasons to go
6 around that number and show reliability on some other basis.

7 JUDGE JOHNSON: All right, go ahead.

8 MR. TURK: I'd like to respond very briefly to
9 some questions that were raised on this point earlier today
10 in questioning of the Applicants and the Intervenors'
11 counsel.

12 It has been contended by the Intervenors that
13 the scope of the contentions which they would seek to
14 litigate at the LWA-1 stage are different than the scope
15 of contentions that they would seek to litigate at the CP
16 stage.

17 In our view, that is incorrect. What they
18 sought to litigate at the LWA-1 stage was precisely the
19 same issues which would be litigated at the CP stage, and
20 that is the safety of plant systems.

21 A statement was made also that the CRBR needs
22 to be treated differently from LWRs, and I would point out
23 that this has certainly been the approach adopted by the
24 Staff from the beginning of its review of the CRBR
25 application. The Staff fully recognized that a liquid cooled

1 sodium fast reactor is different from LWRs and that
2 consideration was fully taken into account in both
3 environmental and safety assessments. As has been pointed out,
4 the site suitability source term for this reactor is
5 different from that for LWRs. As is true for LWRs, a non-
6 mechanistic approach was utilized which used the same LWR
7 site suitability source term plus the inclusion of 1 percent
8 plutonium.

9 The 1 percent plutonium is a bounding number.
10 It is fully conservative. And in the safety hearings, which
11 is not part of the record before you, this was demonstrated
12 conclusively by Applicant and Staff testimony.

13 JUDGE JOHNSON: Is there a basis for the 1 percent
14 number or for your saying that it is a bounding number?

15 MR. TURK: It was chosen as a bounding number.

16 JUDGE JOHNSON: Is there a basis for that?

17 I realize it was chosen, but what was the basis for that
18 choice? Is there any sort of experimental evidence that in a
19 molten fuel situation 1 percent of the plutonium would be
20 airborne?

21 MR. TURK: My technical expertise is a little
22 limited on this.

23 JUDGE JOHNSON: The question is, though, really,
24 was there a basis or was this just a number pulled out of a
25 hat somewhere?

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MR. TURK: The hat included all applicable experience to date with LMFBRs as well as LWRs, and it was conservatively chosen. It was not simply picked out of a hat, and it does reflect experience with other reactors.

JUDGE JOHNSON: I think the proper question I should have asked is where in the record is the basis for the SSST to be found?

MR. TURK: I suppose the reference could be found in the site suitability report, which is Staff Exhibit 1, as well as in the FES Supplement, Staff Exhibit 8. I'd have to provide the page references for you.

Judge Edles earlier in questioning asked whether in fact what the Licensing Board did was simply say that a breeder reactor could be sited anywhere, and that that really constitutes the basis for its feasibility finding.

I think the Board was more specific than that. The Board utilized all of the information which had been provided as required by 50.10(e)(2) in order to assess the general design characteristics of this particular reactor. So it was the CRBR proposal, not just any LMFBR which was found to be acceptable for this particular site.

JUDGE EDLES: But it is clear that consequences from an accident would be greater because of the population density at the Clinch River site.

1 So what were the other overriding factors that
2 the Board looked at? Because otherwise, I think Dr. Johnson
3 discussed this earlier, all other things being equal, you
4 would be inclined to put it where there were fewer people
5 around. What were the other overriding considerations?

6 MR. TURK: As has been pointed out, the consideration
7 of population and meteorology was taken into account by the
8 Staff with respect in particular to accident analyses. Not
9 all the sites are better from that standpoint.

10 The sites in the TVA service area were found to
11 have roughly comparable meteorology. The sites out -- well,
12 the DOE site --

13 JUDGE JOHNSON: You don't separate meteorology
14 and population. I mean you multiply them together to get
15 the consequence.

16 MR. TURK: I think they have to be considered
17 both separately and together. It is conceivable that a
18 site --

19 JUDGE JOHNSON: The net result is the consequence
20 of a source released to a certain meteorology upon a certain
21 population.

22 MR. TURK: Accident consequences, that's correct.

23 JUDGE JOHNSON: That's what we are dealing with.

24 MR. TURK: Okay.

25 JUDGE EDLES: So you say it is more or less the same

1 at some of the other sites?

2 MR. TURK: That is correct.

3 JUDGE EDLES: Okay. But you still haven't told me
4 why the other sites are better. What are the other factors
5 that the Licensing Board relied on which makes Clinch
6 River better than the others?

7 MR. TURK: I think the Licensing Board relied
8 upon the Staff's total NEPA analysis which is contained in
9 the FES.

10 JUDGE EDLES: Tick them off for me.

11 MR. TURK: Different factors such as hydrology,
12 seismology, meteorology, population characteristics, location
13 of industrial facilities in the area. All of these things
14 are discussed fully in the Staff's Environmental Analysis.
15 In particular, Appendix L to the Staff's FES Supplement
16 contains a full description of each of the various sites
17 which were examined in detail.

18 While population density and meteorology
19 characteristics may be better at some other sites, those
20 are particularly relevant to the consequence analysis for
21 accidents. Since the probability of the severe accidents
22 is very low, then overall risk is low, when probability
23 and consequences are put together in the same equation.
24 And, therefore, if the consequences are insignificant, the
25 fact that meteorology or population may be somewhat better

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1 is even more insignificant. It can't affect the overall
2 balance of the picture.

3 I think the Staff analysis in its total
4 composition is what they relied upon in order to make their
5 judgment.

6 JUDGE EDLES: I have a question on a sort of
7 subsidiary and minor point, and that is:

8 Why didn't the Licensing Board let Dr. Cochran
9 cross-examine? I know what they said, but tell me what
10 was the real reason for it.

11 MR. TURK: I wasn't there. I can only read the
12 record and give you my view of the record.

13 JUDGE EDLES: That's what I'm asking.

14 MR. TURK: As I see it, the Intervenors waited
15 until the last minute to pose the idea that Dr. Cochran
16 should be the interrogator. They broached the subject right
17 there at the hearing on August 23rd. They had never filed a
18 motion in advance; they had never sought any kind of advance
19 ruling as to whether or not they should --

20 JUDGE EDLES: An advance ruling is required for
21 this type of thing ordinarily, in your experience?

22 MR. TURK: If an attorney wants to be sure of a
23 course in which he can proceed, he'd better have an advance
24 ruling and not wait until the last minute to say, oh, I
25 didn't realize that.

1 This is particularly true because there is no
2 right to use a technical interrogator, but only a privilege.
3 The Board's ruling recognized that it was a matter of its
4 own discretion, and found that given the pervasive --

5 JUDGE EDLES: But all of that goes to kind of
6 procedural niceties that I'm really not too concerned with.
7 I want to know what was the harm in letting him cross-
8 examine, that the Licensing Board articulated.

9 MR. TURK: As I understand the Board's perception
10 of the harm, it would be to have a single individual both
11 testify and advocate at the same time. And perhaps the
12 Board was disturbed that the testimony could not be quite as
13 objective where the person is also serving as the advocate.

14 JUDGE EDLES: You point out, I think, that
15 there is some general principle that we don't allow advocates
16 to be witnesses. I think that is in your brief; it may be
17 in the Applicants' brief.

18 Where does that principle come from and why is it
19 applicable to an administrative hearing before an expert
20 body?

21 MR. TURK: Well, the principle really has to do
22 with, as it is stated most clearly, with whether an
23 attorney should be allowed to be an witness and advocate.
24 That is a rule that is commonly followed in the courts of
25 the country. The administrative agencies, such as the NRC,

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1 in general follow the evidentiary rules and rules of
2 procedures used in court proceedings except where they are
3 not consistent with the agency rules and policies. So that
4 the Board was fully justified in relying upon the normal
5 judicial standards, unless there is something in NRC
6 standards --

7 JUDGE EDLES: What I'm getting at is what is
8 the logic behind that rule?

9 MR. TURK: As I stated before, as I see it, it's
10 in order to maintain the objectivity of expert witnesses,
11 or to provide a reliable basis for relying on their
12 testimony, which could not be done if the person was also
13 an advocate.

14 There's another procedural point that I would
15 make that concerns the ACRS letter and statements made before
16 the ACRS. Here, as in other areas, I think the Licensing
17 Board was correct. There is a clear standard that ACRS
18 letters cannot be introduced for the truth of their contents.

19 There is also an evidentiary standard, which is
20 not gone into in our brief, but the evidentiary standard is
21 that statements made by some other expert cannot be relied
22 upon by another party where that party doesn't understand
23 what may have been in the mind of the testifying expert.

24 Simply put, Dr. Cochran was not the proper
25 sponsor for statements made by other persons, whether that

1 would have been his employer, or with which he was familiar.

2 JUDGE EDLES: But this is an argument that
3 you're making now, and a good lawyer would have put it in his
4 brief so as not to surprise anybody at a later date.

5 MR. TURK: The Appeal Board is fully justified
6 in relying upon whatever bases it may choose to in affirming
7 the Licensing Board's decision.

8 JUDGE JOHNSON: I have a question with regard
9 to a matter that I asked the Applicant about. Intervenors'
10 Exceptions 84, 85, 97 and 98 involve limitations on discovery
11 and introduction of evidence, and they are dealt with at
12 pages 50 and 51 in the Staff brief. I'm not sure I understand
13 the argument there.

14 The first part of the paragraph sets out what I
15 just said. The second part or the second sentence says
16 the Intervenors claim this adversely and improperly limits
17 their ability to challenge the economic costs of the safeguards
18 system. But then the Staff goes on to discuss the fact that
19 the Staff had already presented issues related or matters
20 of evidence related to cost, but you never address the
21 argument that the Intervenors claim that they were improperly
22 limited.

23 Why were this Board's rulings not an improper
24 limitation on the ability of the Intervenor to challenge
25 the cost of the safeguards systems? I thought the cost of

1 the safeguards systems was one of the elements that was
2 preserved as something that could be litigated with respect
3 to the environmental aspects of the CRBR.

4 MR. TURK: There is a little bit of confusion
5 here.

6 First, let me point out that those exceptions
7 are referred to in two places in our brief, in addition to
8 the pages which Judge Johnson has just cited. We also
9 refer to them at pages 45 and 46.

10 There are two issues: One is the preclusion of
11 discovery and testimony dealing with safeguards, and the other
12 has to do with the programmatic objective of demonstrating
13 economic feasibility.

14 The costs of safeguards were gone into. The
15 Licensing Board took evidence and explicitly found that
16 the costs of safeguards, both CRBR and the fuel cycle
17 facilities which support the CRBR, are minimal, and there
18 was discovery and testimony on those issues.

19 JUDGE JOHNSON: By the Intervenor?

20 MR. TURK: I couldn't tell you precisely, but
21 it's my understanding --

22 JUDGE JOHNSON: Well, the thrust of my point here
23 is that you said that the Staff presented evidence in this,
24 but the question is not whether there was evidence; the
25 question is whether the Board improperly ruled out evidence

1 that the Intervenor was trying to put in.

2 MR. TURK: On cross, I think there was no limita-
3 tion of Intervenors' ability to introduce evidence. I can't
4 point to particular evidence, but I don't recall any limita-
5 tion on their ability to introduce that evidence. Where
6 the limitation actually came in had to do with their
7 attempts to discover on the safeguards in place and the
8 challenges to those safeguards at facilities around the
9 world.

10 And if you look at the discovery which the Board
11 rejected, you will find that most of it was totally unrelated
12 to the central question of what would be the safeguards
13 impacts, both economic and other, for the CRBR and fuel
14 cycle facilities that support it. They sought to go way
15 beyond that question.

16 What they were allowed to do was to get the
17 answers to their Interrogatory No. 1 framed in their
18 interrogatory sets of 23 to the Staff and 17 to the
19 Applicants which sought to know what are the systems that
20 will be used for the CRBR. And had they properly focused
21 their discovery, they could have gone into greater depth.
22 But instead, they really sought to go very far afield.

23 I think it's poor draftsmanship and poor argument
24 that was the cause of getting that discovery precluded.

25 My time, I see, is gone.

1 JUDGE EDLES: You can take a minute or so if you
2 want to summarize what you have said.

3 MR. TURK: I'd like to briefly touch upon some
4 areas that I haven't gone into.

5 JUDGE EDLES: Okay, if you can do it in a moment
6 or two.

7 MR. TURK: With respect to the site suitability
8 source term, it is the Staff's firm position that that
9 source term is adequate. It takes into account the effects
10 as required by 10 CFR Part 100.1102 of a core melt section.
11 It is a nonmechanistic approach, as is used for LWRs,
12 and adequately bounds all credible events which might be
13 expected for the CRBR.

14 CDAs, both at the LWA-1 stage and at the CP
15 stage, were judged in the first place to be feasible as
16 being excluded from the DBA spectrum, and at the CP stage
17 were then judged to be properly excluded on the basis of
18 design detail from the DBA spectrum.

19 JUDGE EDLES: As judged by the Staff and the
20 Applicant. We have not heard from the Licensing Board
21 on that question.

22 MR. TURK: That's correct. But judgment I
23 was referring to, a judgment by the proponents of that
24 position.

25 JUDGE EDLES: Not a shocker.

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MR. TURK: Briefly I would just simply state
'hat with respect to other areas of Intervenors' appeal,
the Staff is satisfied that the appeal does not raise
valid exceptions, and we believe that the PID is proper, it
is based on substantial, reliable and probative evidence;
it's consistent with Commission policy and law; and it
should be affirmed.

JUDGE EDLES: Thank you very much.

Ms. Finamore, you have 10 minutes for rebuttal.

end 8

1 REBUTTAL ARGUMENT BY BARBARA FINAMORE

2 MS. FINAMORE: I'd like to respond briefly to a
3 couple of questions posed by the Board to the other question.

4 And the first concern is the issue of the Staff's
5 use of probabilistic numbers in its testimony and what effect
6 they wish them to have on the Board. In terms of the 10^{-6}
7 safety objective, which the Staff characterized as an aiming
8 point, but now claims it is not using. That was not only
9 mentioned in the 1976 letter, it was mentioned in the
10 Environmental Impact Statement of the Staff in 1977 and was
11 carried over into the 1982 Environmental Impact Statement
12 of the Staff as well. So the Staff's claim that it does not
13 rely on that safety objective seems a little disingenuous to
14 me.

15 In terms of the probabilistic figures that they
16 used in the testimony, in April of '82, before the hearing,
17 the Board excluded our contentions on the reliability program
18 of the Applicants and any probabilistic risk assessment work
19 they had done, in large part because the Staff and the Appli-
20 cants said they were not going to rely on any probability
21 figures whatsoever in the LWA state. And for that reason,
22 even though Intervenors wished to use such information as
23 was available to date, the Board said that since Applicants
24 and the Staff were not going to use that information that
25 Intervenors could not use that information, could not get

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1 discovery on it and could not cross-examine on it.

2 JUDGE JOHNSON: Would you give me a reference to
3 ruling that you're just talking about?

4 MS. FINAMORE: That was the Board's order, April
5 22nd, 1982.

6 JUDGE JOHNSON: Okay. Was that the ruling that
7 did not exclude this consideration but deferred it to the
8 CP stage?

9 MS. FINAMORE: It excluded it from the LWA stage
10 completely, and deferred it to the CP stage. We were not
11 allowed to bring up this information in cross-examination. On
12 the Applicants reliability program, cross-examination was also
13 cut off. We were not given the ability to get discovery on
14 general issues regarding probability and reliability of these
15 systems, because the Applicants and the Staff -- and the Board
16 agreed with them -- that these matters were out completely.

17 However --

18 JUDGE JOHNSON: Well, now the numbers that I was
19 just referring to are numbers that, as I think they were
20 generated as part of the Applicant's treatment of Class 9
21 events and in the particular situation we're talking about,
22 HCDAs were considered to be Class 9 events.

23 MS. FINAMORE: The Applicants did not use probability
24 numbers at all. These were numbers generated by the Staff.

25 JUDGE JOHNSON: Excuse me. The Staff. The Staff

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1 is the one that provided Appendix J with a Class 9 evaluation.
2 Is that right?

3 MS. FINAMORE: Yes. They had said initially they
4 were not going to rely upon probabilistic analyses anywhere,
5 including in their Environmental Impact Statement. However,
6 three weeks before the hearing, they came out with a final
7 Environmental Impact Statement supplement, in which Appendix
8 J appeared for the first time. Intervenors then moved the
9 Board to reconsider the exclusion of Contention 1-B from
10 the LWA hearing since, in fact, unlike their earlier assertions,
11 Staff had come up with probabilistic figures.

12 And the Board said that it would not reconsider
13 it's decision to completely exclude our Contention 1-B and
14 Contention 3-A from the LWA proceeding. And the Staff has, in
15 fact, used these probabilistic numbers not only to discuss the
16 effects of Class 9 accidents at the CRBR, but also as you
17 noticed earlier to exclude any conclusion that alternatives
18 sites were substantially better. They're resting that
19 decision, in large part, on Appendix J because they say the
20 risks are so low from the CRBR Class 9 accidents that no other
21 site, no matter how much lower in risk, would ever be considered
22 substantially better.

23 JUDGE JOHNSON: But isn't that traditional, that
24 the plants subsequent to the Commission's policy statement on
25 Class 9 evaluation -- every FES has come out with a comparable

1 section to Appendix J in which following the style of WASH-1400
2 there is an assessment of beyond-DBA accidents associated with
3 probability and radiological consequences for every -- I
4 mean, it's not an unusual thing that this appeared in the FES
5 supplement for Clinch River?

6 MS. FINAMORE: No. In fact, the Commission Interim
7 Policy Statement requires that there be equal consideration
8 given to probability consequences. We argued to the Board, in
9 April, this Environmental Impact Statement supplement would
10 have to deal with probability since it was required. And
11 therefore, we should also be allowed to go into probabilities
12 in our discovery and testimony and cross-examination. But we
13 were not allowed to.

14 JUDGE JOHNSON: I guess my point was, why is there
15 anything wrong with using these values in discussing alternative
16 sites? The fact that one -- excuse me. Why is there anything
17 the matter with using values generated in Appendix J which show
18 low probability of the high consequences in determining that
19 these risks were not substantial, with respect to the suitability
20 of different sites for the environmental suitability of
21 different sites?

22 MS. FINAMORE: I think that the problem here is that
23 they are used to completely end the discussion on whether
24 alternative sites are substantially better. The Staff apparently
25 would believe that even if particular alternative site had no

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1 population at all, within the ten miles surrounding the site,
2 that it would still not be considered substantially better,
3 that no reduction in radiological risk would ever make an
4 alternative site substantially better.

5 If their own discussion of Class 9 accidents were
6 sufficient, we believe the alternative sites analysis is a
7 separate additional layer of safety. It is not subsumed into
8 the discussion of Class 9 accidents, such that no other
9 alternative site would be better. But even if a particular site
10 has low consequences of a Class 9 accident, if in fact you know
11 the site is so much lower as these other alternative sites seem
12 to be, that the Board should give that consideration great
13 weight in deciding the alternative sides.

14 JUDGE EDLES: You're suggesting that it gets
15 controlling weight, as opposed to something less than that,
16 aren't you?

17 MS FINAMORE: No. But I don't think it was given
18 sufficient weight by the Board at all because they cut off
19 the discussion when they reached the Appendix J analysis.

20 Another problem with the argument is because the
21 Staff was able to use probabilistic risk assessments in this
22 Appendix J, whereas Intervenors were not permitted to go into
23 this information, even in a superficial way, earlier in the
24 proceeding we believe that it was fair because we were not able
25 to challenge these findings sufficiently by the Board, because

1 of the Board's earlier rulings.

2 I'd also like to point out that Judge Johnson
3 had asked earlier whether or not the Board, in fact, found
4 that it was feasible to design the CDA in order to meet these
5 Part 100 dose guidelines. The fact is, the Board did not even
6 make that finding. If you look carefully at the partial
7 initial decision you'll note two things. First, when the
8 Board was discussing containment accidents, on page 22 of the
9 partial initial decision, it does say that the containment
10 system would function as designed for design basis accidents
11 and for some of the accidents more severe than a design basis.
12 But the Board could not and did not come to a decision as to
13 whether all the CDAs which might be considered credible at a
14 later time, could be feasibly protected against by the
15 containment. They simply did not reach even that much of a
16 feasibility determination.

17 JUDGE JOHNSON: But I thought the feasibility
18 argument was + to whether the CDA could be prevented, in which
19 case you don't have to reach whether the containment would
20 accept it, would you?

21 MS. FINAMORE: They didn't even make that finding,
22 if you notice in the partial initial decision, on page 19.
23 The only thing they say about these systems, which are alleged
24 to be sufficient to protect against CDAs happening -- all the
25 Board said is inclusion of such features can inhibit the

1 initiation of the CDA and does these features lend credibility
2 to the proposition that CDAs need not be included. That is
3 the furthest that the Board went, is that the testimony of
4 the Applicants and Staff lends credibility to a proposition.

5 This is a far cry from even a feasibility finding,
6 let alone a finding of reasonable assurance. And as we noted
7 earlier, the other thing the Board found was that Intervenors
8 had presented no threshold arguments. And I would hold that
9 that is not a feasibility finding either. That is just a
10 finding that, in itself, is flawed since we were not given an
11 opportunity to make many of the arguments that might be
12 considered a threshold point by the Board.

13 JUDGE JOHNSON: Did you attempt to show that the --
14 for instance, the safety systems were unreliable?

15 MS. FINAMORE: That is what we wanted to bring up
16 in our Contention 1-B. The Staff and the Applicant's testimony
17 on the safety systems merely shows that these systems will be
18 there. There will be two safety systems, that they are state
19 of the art, but they do not, in any way, go into a discussion
20 of what the reliabilities would be, except for an overall
21 judgment that the failure rates would be very low, which is
22 backed up by no actual probability estimates.

23 This is something that we did wish to bring up
24 because we felt that it was crucial to a determination of
25 whether or not a CDA will occur and what its consequences would

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1 be.

2 JUDGE JOHNSON: No. But did you attempt to raise
3 a contention, or to have included, a contention which said
4 the Applicant's design for control rod drive system A is
5 inadequate because the bearings on this type of system will
6 fail one chance out of every three times you try to use it?

7 In other words, did you attempt, or do you have any
8 evidence, or could you have any, that points to the reliability
9 of the system, other than simply the statement that they are
10 unreliable?

11 MS. FINAMORE: We were prevented from getting that
12 evidence from the Board's initial rulings. That kind of infor-
13 mation is contained in the Applicant's reliability program
14 and in the probabilistic risk assessments.

15 JUDGE JOHNSON: You did have the PSAR and FSAR and
16 the Safety Evaluation Reports, do you not?

17 MS. FINAMORE: We were not permitted any types of
18 discovery on those issues and we were not permitted to bring
19 this up in testimony or to cross-examine on them.

20 JUDGE JOHNSON: Okay.

21 MS. FINAMORE: If I could just respond to a couple
22 of other questions. The Applicant's counsel insist on saying
23 that we misunderstand the purpose and the function of the
24 vent-purge system in our arguments. That is far from the
25 case. Our main point is a very simply one and that is that as

1 the Applicants concede in the case of a core disruptive
2 accident, the vent-purge system would come into operation.
3 The site suitability source term is predicated upon a core
4 melt accident in which there would be substantial release of
5 fission products. Our only point is that if an SST occurred,
6 if you looked at it realistically, the vent-purge system would
7 have to operate. And for that reason, the SSST analysis itself
8 should include operation of the vent-purge system. It is not
9 enough that elsewhere in the analysis, even environmental
10 effects of accidents, the Applicants look at the effect of
11 the vent-purge system. Because, as you can see, the site
12 suitability source term dose consequences are lower than
13 the CDA dose consequences even though this SSST analysis is
14 supposed to be more conservative. Because if it doesn't
15 take that vent-purge operation into account, the doses are
16 going to be much lower.

17 And this points up, if I may, once again the fact
18 that we are arguing that even if the site suitability source
19 term is correct, there are a number of errors in the Staff's
20 and Applicant's analysis of it, which would make that in it-
21 self exceed the guidelines.

22 JUDGE JOHNSON: But the SST relates to an analysis,
23 under Part 100, which incorporates the design basis event. In
24 other words, there is nothing that says the Part 100 analyses
25 go beyond the design basis because that takes you to Class 9.

1 The environmental analysis, which is required to go beyond the
2 design basis and take into consideration Class 9 events,
3 obviously it would give you greater dose consequences. As long
4 as the HCDA is on a design basis event, there is no requirement
5 that I'm aware of that releases through the vent, should be
6 considered as a dose consequence under a Part 100 analysis.

7 MS. FINAMORE: If I could refer you to 10 CFR Part
8 100.1102, it describes what a site suitability source term
9 analysis should be, and it is not based upon a design basis
10 accident. It must be based upon a core meltdown and it must
11 have consequences that are greater than any design basis
12 accident. So even if the Staff and Applicants are correct,
13 that all core disruptive accidents are not credible, their
14 SST analysis -- which does include release of one percent of
15 the plutonium from the core -- could occur only in the event
16 of a core melt accident. And in fact, that is what it is
17 supposed to include.

18 JUDGE JOHNSON: But there is a great difference
19 between a core melt and a CDA.

20 MS. FINAMORE: Even with a core melt accident, you
21 can assume -- and we think you should assume -- that the vent-
22 purge operation would come into effect. And for that reason
23 we believe that --

24 JUDGE WILBER: Why is that? I don't understand
25 that. I thought it was there for the CDA accident.

1 MS. FINAMORE: This CDA includes core melt as well
2 as energetic CDA accidents. Our argument is even if there
3 were a core melt accident, there would be a large degree -- a
4 large amount of sodium from the column that would pour into
5 the reactor cavity, that could cause overpressurization and
6 thermal effects.

7 JUDGE WILBER: I don't follow. I don't see how
8 the sodium is getting into the cavity on a core melt accident,
9 as opposed to a CDA.

10 MS. FINAMORE: Well, that's the evidence that we
11 have presented in our testimony. And I don't think that was
12 disputed by the Applicants or the Staff. I'd have to, you
13 know, defer to the technical expertise. But that's the argu-
14 ment that we have made.

15 JUDGE EDLES: Why don't quickly pull everything
16 together.

17 MS. FINAMORE: Okay. I think the main problems here
18 are that, as I said before, the fact that we were not allowed
19 to bring in all the available information and review to date
20 meant that this proceeding is seriously flawed. And as Dr.
21 Johnson mentioned earlier, we were prevented from bringing
22 in, importing, information in the safeguards area as well as
23 in the safety area.

24 I could name several or three examples where discovery
25 was cut off as well. And for no other reason but that design

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1 details were beyond the scope of this proceeding, although
2 the Applicant and the Staff were able to use design details.
3 Given this fact, the Board's finding or supposed finding it's
4 feasible to design against these accidents is also fatally
5 flawed because the crucial information, what are the reliabili-
6 ties of this system, what happens when the two systems have
7 a common mode failure, is not addressed here because we were
8 prevented from addressing it.

9 And in any case, even if the feasibility finding --
10 even if the Board did make a feasibility finding, that is
11 not sufficient under the rules of the Commission, which require
12 reasonable assurance that the site is suitable for a reactor
13 such as the CRBR.

14 Thank you.

15 JUDGE EDLES: Thank you, very much.

16 Let me thank counsel for all parties to the case
17 and the case will not stand submitted.

18 (Whereupon, at 12:20 p.m., the hearing was adjourned.)
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CERTIFICATE OF PROCEEDINGS

1
2
3 This is to certify that the attached proceedings before the
4 NRC COMMISSION

5 In the matter of: Oral Argument - Clinch River Breeder
6 Reactor Plant

7 Date of Proceeding: 28 September 1983

8 Place of Proceeding: Bethesda, Md.

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

11 Ann Riley

12 Official Reporter - Typed

13 *Ann Riley*

14 Official Reporter - Signature