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**OFFICIAL TRANSCRIPT OF PROCEEDINGS  
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**Title:** MILLSTONE 3 LICENSE AMENDMENT  
PROCEEDING

**Case No.:** 50-423-LA-3

**Work Order No.:** NRC-1396

**LOCATION:** New London, CT

**DATE:** Wednesday, July 19, 2000

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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In the Matter of: :  
NORTHEAST NUCLEAR ENERGY : Docket No. 50-423-LA-3  
(Millstone Nuclear Power :  
Station, Unit No. 3 :

- - - - -X

Richard Martin Center Auditorium  
120 Broad Street  
New London, CT

Wednesday, July 19, 2000

The above-entitled matter came on for oral  
argument, pursuant to notice, at 9:01 a.m.

BEFORE:

THE HONORABLE CHARLES BECHHOEFER, Chairman  
THE HONORABLE RICHARD F. COLE, Judge  
THE HONORABLE CHARLES N. KELBER, Judge

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## 1 APPEARANCES:

2 On Behalf of the Licensee:

3 DAVID A. REPKA, Esquire  
4 Counsel for Northeast Nuclear Energy Company  
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6 1400 L Street, N.W.  
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8

9 On Behalf of the Nuclear Regulatory Commission:

10 ANN P. HODGDON, Esquire  
11 BROOKE POOLE, Esquire  
12 Office of General Counsel  
13 U.S. Nuclear Regulatory Commission  
14 Washington, DC 20555

15

16 On Behalf of Connecticut Coalition Against Millstone and the  
17 Long Island Coalition Against Millstone:

18 NANCY BURTON

19

20 On Behalf of Union of Concerned Scientists:

21 DAVID LOCHBAUM

22

23

24

25

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

1  
2 CHAIRMAN BECHHOEFER: Good morning, ladies and  
3 gentlemen. Let me know if you can't hear me. The  
4 amplification isn't very good around here.

5 We were told there was one microphone in here, but  
6 it's that one, and it's sort of hard to use.

7 So, this proceeding concerns the proposed increase  
8 in capacity through the addition of high-density storage  
9 racks of the spent fuel pool at the Millstone Nuclear Power  
10 Station, Unit 3 in New London County, Connecticut.

11 Today's hearing is an oral argument held according  
12 to the provisions of 10 CFR Part 2, Subpart K.

13 Let me introduce the members of the Board: To my  
14 left is Dr. Charles Kelber, a Nuclear Physicist; to my right  
15 is Dr. Richard Cole, an Environmental Engineer.

16 I am Charles Bechhoefer. I'm the Chairman of this  
17 Board, and I'm an Attorney besides.

18 We have set forth in an order we issued, tentative  
19 schedules which will have each party take about 30 minutes  
20 to present on each contention, and we'll do the contentions  
21 consecutively.

22 Although I might, in a moment -- it may -- one of  
23 them may be Contention 5, the one on boron, may take a lot  
24 less time. In fact, the parties, from the filing, seem to  
25 be in virtual agreement, so I may just see if we need to

1 schedule any significant time for Contention 5.

2 I believe -- but let's introduce the parties for  
3 the purpose of the Court Reporter and for the audience.  
4 Let's start with the licensee.

5 MR. REPKA: Yes, sir, I am David Repka, Counsel  
6 for Northeast Nuclear Energy Company. I want to introduce  
7 the rest of my team here with me today:

8 On my right is David Dodson, who is Nuclear  
9 Licensing Supervisor for Millstone Unit 2 and Unit 3 at  
10 Northeast Nuclear.

11 Behind me are my associates, Donald Ferraro, and  
12 Mr. James Petro. In addition to Mr. Dodson, who has filed  
13 an affidavit in this case, I have with me here today -- and  
14 I'll move from right to left -- all of the other individuals  
15 who have filed affidavits on behalf of Northeast Nuclear --  
16 Mr. Michael Jensen, Mr. Robert Perillo, Dr. Stanley Turner,  
17 and Mr. Robert MacDonald.

18 And then, lastly, to the left of Mr. MacDonald is  
19 Mr. Carl Whitaker, also of Northeast Nuclear, who is the  
20 Spent Fuel Pool Project Manager.

21 CHAIRMAN BECHHOEFER: Staff, Ms. Hodgdon?

22 [Discussion off the record.]

23 MS. HODGDON: I'm Ann P. Hodgdon for the NRC  
24 staff. And with me, on my right, is Susan Uttal, U-T-T-A-L.  
25 And also with me is Brook Poole.

1 All of us are counsel for the NRC Staff, and the  
2 other members of the NRC that are here, I will just turn  
3 around and see if I can identify them.

4 James -- if they could stand up so people can tell  
5 who they are, if they can, just to make some  
6 acknowledgement.

7 James Linville, who filed an affidavit, he was  
8 Acting Director of the Millstone Project in Region I; and  
9 sitting next to him is Antone Cerne, who is the Senior  
10 Resident Inspector at Millstone 3, who also filed an  
11 affidavit in this case.

12 And behind Mr. Linville is Jacob Zimmerman, and he  
13 is filling in for -- he's backup for Victor Nerses, who is  
14 the Project Manager in NRR for Millstone 3.

15 And behind him is Anthony Attard, who is one of  
16 the Criticality Reviewers in NRR; Dr. Kopp, who also  
17 participated with him in the filing of an affidavit, and who  
18 also does this review, is also no here today.

19 And John Boska, who has just joined the NRR  
20 Project Management in some way, who has been working for the  
21 NRC before. I'm not aware of all of his credentials.

22 CHAIRMAN BECHHOEFER: From Headquarters or Region  
23 I?

24 MS. HODGDON: He's from Headquarters.

25 CHAIRMAN BECHHOEFER: Okay.

1 MS. HODGDON: The Region I people are the people  
2 right here.

3 CHAIRMAN BECHHOEFER: Oh, okay.

4 MS. HODGDON: And also with me over on this side  
5 is Mauri Lemoncelli, L-E-M-O-N-C-E-L-L-I. She is our summer  
6 law clerk, and she's a law student, and she's helping us  
7 with documents.

8 And did I miss anybody? I think that's everybody.

9 CHAIRMAN BECHHOEFER: I might say that I didn't  
10 introduce, but I should have, Ed Stromberg, who is our law  
11 clerk until another month or so, and he's in the back there,  
12 on the side in the back. Stand up.

13 Well, now, for the Intervenors, Ms. Burton?

14 MS. BURTON: Good morning. I'm Nancy Burton, and  
15 I'm here representing the two intervening coalitions, the  
16 Connecticut Coalition Against Millstone and the Long Island  
17 Coalition Against Millstone. I'm joined here at the table.  
18 To my right is Dr. Gordon Thompson, Executive Director of  
19 the Institute for Resource and Security Studies in  
20 Cambridge, Massachusetts.

21 To my left is David A. Lochbaum, Nuclear Safety  
22 Engineer, with the Union of Concerned Scientists.

23 JUDGE KELBER: Ms. Burton, I have difficulty  
24 hearing you.

25 MS. BURTON: I didn't bring my megaphone today.

1 I'll try harder.

2 CHAIRMAN BECHHOEFER: Okay. Well, we have a  
3 couple of matters to deal with at the outset before we get  
4 into specific Contentions.

5 First, there was some questions raised about the  
6 timeliness of the Intervenors' filings, and we issued a  
7 memorandum and order. I have a copy here. It was dated  
8 July 14, titled Memorandum and Order Ruling on Various  
9 Motions and Procedure at Oral Argument.

10 We decided to accept, indeed, the latest filing of  
11 the Intervenors, which was, I think, dated July 5th or 6th;  
12 I'm not sure -- 6th.

13 And that was almost a week out of time, but were  
14 told there were various problems involved in getting it  
15 filed, mostly procedural problems.

16 And part of the delay was caused by a computer  
17 breakdown, we were told. In any event, we have decided to  
18 accept their filing, but we would like a statement for the  
19 record that by virtue of the late filings, they did not have  
20 an opportunity or did not review the other parties' filings  
21 prior to reviewing and making changes in their own filing  
22 prior to submission of the, say, the latest filing, the July  
23 6th filing, which I am told is the same as the other ones,  
24 except for the incorporation of Mr. Lochbaum's -- references  
25 to Mr. Lochbaum's expertise and declaration.

1           By the way, we decided that the declaration did  
2 amount to sworn testimony. We said that in -- sworn  
3 testimony is what's required, sworn filings.

4           We think the Commission always accepts oath or  
5 affirmation, and if you look up affirmation in the  
6 dictionary, which we did, it includes declaration.

7           And we think that the filings qualify in that  
8 sense, in any event, and we held that in our Memorandum and  
9 Order, the July 14 Memorandum and Order.

10           But Ms. Burton, could you either certify, perhaps  
11 that your later filings did not incorporate -- were not  
12 based in any way on the filings of the other parties, at  
13 least the filings of the licensee that were sent to you by  
14 e-mail. So you would have received those earlier. I don't  
15 know whether the Staff's were sent by e-mail or not, but if  
16 they were, then you would have sent both.

17           The Staff just hand-delivered their filings to us,  
18 so I don't know whether they came by e-mail to other parties  
19 or not, but in any event, we would like you and your  
20 consultants to state for the record, certify for the record,  
21 perhaps, that they did not, in submitting their own summary  
22 statements, did not rely on the filings of the other  
23 parties.

24           Subpart K does contemplate simultaneous filings,  
25 and we -- I guess we would like to uphold that to the extent

1 possible.

2 Ms. Burton?

3 MS. BURTON: Yes, thank you. Certainly, I'd be  
4 very happy to certify that our filings, even up to the last  
5 one that was filed with corrections, were all filed before  
6 either myself or Dr. Thompson or Mr. Lochbaum had an  
7 opportunity to view any filings, either by the licensee or  
8 by the Staff.

9 Mr. Repka did e-mail on the 30th of June, a  
10 filing, however, that was not opened by myself until after  
11 our papers were filed and certified to the NRC.

12 I did not forward the e-mail to either Dr.  
13 Thompson or Mr. Lochbaum, and they did not receive it  
14 independently from the licensee, so they certainly had no  
15 opportunity to even see it, let alone review it, consider  
16 it, and digest it, and provide input in any way to the  
17 summary that was filed.

18 With regard to the NRC Staff, their filing to us  
19 was not by e-mail; it was by regular mail, and we did not  
20 receive that until, I'm quite sure, after the papers were  
21 filed -- the summary was filed, and certainly it was not  
22 reviewed, either by myself, or certainly either Dr. Thompson  
23 or Mr. Lochbaum, because it has to be copied and mailed to  
24 them; they did not receive it for quite some time after the  
25 30th of June.

1 CHAIRMAN BECHHOEFER: I might say that we did not  
2 require filing by e-mail or by fax, but we certainly  
3 appreciated the filings we got that way. Of course, the  
4 Staff's was hand-delivered on the day it was supposed to be.

5 [Discussion off the record.]

6 CHAIRMAN BECHHOEFER: The Board believes that that  
7 certification or statement is satisfactory, and we will  
8 reaffirm our decision to look at the later filings of the  
9 Intervenors, or to refer to them. And when we talk about  
10 summary statements, it will be the statements filed as of  
11 the latter date, the July 6th date.

12 The next matter we would like to consider is an  
13 NRC Staff motion to file an additional affidavit. And while  
14 simultaneous filings are desired by Subpart K, this filing  
15 -- there was at least a reason set forth as to why there  
16 should be -- and, of course, it was based, in part, on what  
17 was in the filings of the other parties.

18 But I would like to hear whether there is any  
19 opposition to our accepting the -- well, the filing and the  
20 late-filed affidavit of Mr. Cherney. Did I get it right?

21 MS. BURTON: Cerne.

22 CHAIRMAN BECHHOEFER: Cerne, okay. Ms. Burton?

23 MS. BURTON: Yes, I did file, actually by fax, on  
24 July 18th, to the Board, and the Secretary, the licensee,  
25 and the NRC Staff, an objection to this untimely and

1 inappropriate motion.

2 I'm not aware, nor has the NRC Staff provided any  
3 legal authority that would empower this body to accept this  
4 material at this time, after the expiration of the deadline  
5 for filing summaries.

6 That's our primary objection; there's simply no  
7 legal authority for it, and it's absolutely improper. In  
8 addition, it would seem that this motion was filed simply  
9 because the NRC Staff neglected, for its own reasons, to  
0 obtain material available at the plant, made available by  
1 the licensee on June 22nd, 2000.

2 The NRC Staff acknowledged in its summary that it  
3 had not, as of June 30th, the date of filing, even chosen to  
4 look at the material that was disclosed by the licensee,  
5 which, of course, would always be available to the NRC  
6 Resident Inspector, I would think.

7 And, therefore, the explanation for the late  
8 submission really doesn't have good cause behind it.

9 It would also seem to be an effort on the part of  
0 the NRC Staff to, in effect, do some kind of an end run  
1 around this whole proceeding in order to have a factual  
2 determination made during these proceedings to obviate an  
3 evidentiary hearing where there's very clearly -- very  
4 clearly -- a substantial factual dispute as to issues set  
5 forth in Contention Number 4.

1           We would strenuously object to the Board accepting  
2 this late and patently improper filing. If the Board chose  
3 to permit it, the Board should perhaps consider suspending  
4 these proceedings to avail the other parties of an  
5 opportunity to do the same sort of late filing with a -- is  
6 it a 50-odd page affidavit, a very substantial affidavit  
7 packed with references.

8           That clearly is not what is contemplated in the  
9 Rules governing these proceedings, so we would object.

10           CHAIRMAN BECHHOEFER: Mr. Repka?

11           MR. REPKA: Northeast Nuclear supports the Staff's  
12 motion. Given the circumstances, we believe it's very  
13 important for the Board to receive this information, and  
14 that it's very appropriate, if not important.

15           We maintain that the information presented in Mr.  
16 Cerne's affidavit is not necessary to the Board's resolution  
17 of the issues before it today.

18           The Board can find that there is no genuine or  
19 substantial dispute of fact that meets the Subpart K  
20 standard on Contention 4, even without receiving Mr. Cerne's  
21 affidavit.

22           But nonetheless, in the spirit of a complete  
23 disclosure of the facts to allow an informed Board decision,  
24 we think it's very appropriate to receive that affidavit.

25           With respect to the Intervenors' specific

1 objections, number one, the argument that the Board does not  
2 have authority to accept an untimely submittal, is somewhat  
3 ironic, given that the Board has already accepted three  
4 untimely submittals from the Intervenors with respect to  
5 their Subpart K filing.

6 In addition, the Board has already accepted  
7 untimely discovery from the Intervenors, and other untimely  
8 documents. So that argument is patently nonsense.

9 Secondly, with respect to the Staff's articulated  
10 reason for the late filing, we think that that reason  
11 certainly constitutes good cause in these circumstances.

12 The Intervenors in this case filed their discovery  
13 requests very late. They were allowed an opportunity by the  
14 Board to review certain information at Millstone.

15 They didn't avail themselves of that opportunity  
16 until June 22nd, and the Staff did not come for that  
17 particular viewing. They did receive a copy of all the  
18 documents, but, quite frankly, never, as the Staff  
19 articulated, was never informed by the Intervenors as to  
20 what the Intervenors were going to rely upon.

21 Subpart K establishes a simultaneous filing  
22 requirement. In those circumstances, it's very important  
23 that the parties have complete disclosure from each other as  
24 to what they're going to rely upon in their Subpart K  
25 filings.

1 In this case, clearly, that didn't happen; the  
2 Coalitions didn't provide the kind of information that they  
3 argued in their Subpart K filing with respect to Refueling  
4 Outage 6.

5 And under those circumstances, if the Staff feels  
6 the need to submit additional information, I think it's very  
7 appropriate for the Board to receive that information.

8 Again, it's not an end run around any procedure  
9 whatsoever. It's simply an opportunity for the Board to  
10 have a full and complete record on which to make a decision  
11 on the technical merits of the issues before it.

12 MS. BURTON: May I be further heard?

13 CHAIRMAN BECHHOEFER: Yes, but I have one further  
14 question, and I was going to let the Staff conclude, but I  
15 did have some -- well, why doesn't the staff conclude --

16 MS. HODGDON: Excuse me, Judge. What I heard was  
17 that Ms. Burton interrupted when you were about to say  
18 something so I really didn't understand that Mr. Repka was  
19 finished, and, therefore, it would have been the Staff's  
20 opportunity to speak.

21 CHAIRMAN BECHHOEFER: Yes.

22 MS. HODGDON: And Judge Bechhoefer was about to  
23 ask a question of someone. I don't know.

24 CHAIRMAN BECHHOEFER: My question was for the  
25 Intervenor, but why don't you follow up and conclude the

1 presentations on this matter, at least, and then I'll ask  
2 questions then.

3 MS. HODGDON: I had not seen the Intervenor's  
4 opposition.

5 CHAIRMAN BECHHOEFER: We haven't either.

6 MS. HODGDON: And I got -- I borrowed a copy from  
7 Mr. Repka just now. And I must say, that like Mr. Repka,  
8 and perhaps even more so, I am absolutely overwhelmed that  
9 anybody could make that argument in view of the fact that  
10 they got three extensions from the simultaneous filing  
11 requirement, and that their documents are totally unmatched,  
12 so that they have Mr. Lochbaum and Dr. Thompson affirming on  
13 June 30th matters that weren't even filed until the 3rd,  
14 4th, and 5th.

15 I mean, if Subpart K is not offended by this, I  
16 don't see how it can possibly be offended by the Board's  
17 accepting material that's merely offered to fill out what  
18 the Intervenor's left out of their filing regarding this  
19 RFO-6 matter, which they want to get in here.

20 I mean, we could argue that it's not relevant; we  
21 could say that it's parked in the statement of the case,  
22 which, in fact, it is, even though it's argument. We could  
23 say that you can't tell where it's going, that you can't  
24 understand it.

25 However, you can -- I mean, that would be a good

1 argument, but if you look at their Exhibit 5, you can maybe  
2 supply some of these things, but not all of them, because  
3 the very procedure that they seem to be criticizing, they  
4 don't provide.

5 And so, Mr. Cerne, who is well acquainted with  
6 this, and who was at the plant during this outage and well  
7 understands all these materials, it would seem to me that  
8 his affidavit addresses a number of these matters.

9 As the Board has heard, the licensee supports our  
0 motion. They may well have opposed it on the basis that  
1 they would have wanted to provide something. They decided  
2 not to, because they decided that this information wasn't  
3 going anywhere.

4 So, the Board -- the Staff would suggest that if  
5 the -- the Board has already ruled that it will accept all  
6 of Intervenors' brief, including the matters relating to  
7 RFO-6, and, therefore, it would be only fair to accept the  
8 Staff's filing.

9 As regards the visit to the plant on June 22nd,  
0 Intervenors say here that -- whatever -- that it's  
1 disingenuous because the Staff had a full opportunity to  
2 join the Intervenors in the discovery process at the  
3 Millstone Station conducted on June 22nd.

4 We were planning to go. Ms. Poole had decided to  
5 go. She tried to make reservations, and every day she got

1 an indication -- first of all, I mean, the Board's order was  
2 that the licensee should make that stuff available on the  
3 2nd and the 9th, so we naturally expected that the visit to  
4 the plan would be in the next week, but it got deferred and  
5 deferred and deferred.

6 And so finally we were not able to go. And it  
7 does seem to me that the 22nd is a rather late date for  
8 discovery on a matter on which a filing was to take place on  
9 the 30th, and we did not see it.

10 And I think that in view of the fact that Subpart  
11 K has already not been honored, and even if the Board  
12 accepted the filing, the 3rd, the filing, accepting the  
13 filing of the 6th is really quite extraordinary.

14 And so under those circumstances, it seems to me  
15 that it's totally appropriate that the Board should accept  
16 the Staff's filing of Mr. Cerne's affidavit.

17 CHAIRMAN BECHHOEFER: The question I had before  
18 was for Ms. Burton. Were you aware of your obligation to  
19 update your discovery responses? I understand that this  
20 matter was not -- this matter was not included in your  
21 response to -- I guess it was the Staff's discovery. It may  
22 have been the licensee's discovery as well, but about what  
23 you were going to rely on in your written summaries?

24 I'm not stating specifically what it was, but the  
25 general area of questions, I think.

1 MS. BURTON: I think that this particular  
2 controversy doesn't quite fall within the parameters of how  
3 the NRC Staff has put it, but let me just proceed my further  
4 response by apologizing that you don't seem to have a copy  
5 of what I did file yesterday.

6 I didn't receive this motion until the evening of  
7 the 17th, and made haste to object on the following morning.

8 CHAIRMAN BECHHOEFER: Oh.

9 MS. BURTON: I see attorney Hodgdon is approaching  
10 the Board. I have a copy of the objection.

11 CHAIRMAN BECHHOEFER: As I say, we haven't seen  
12 it. I think you probably orally said what was in it, but --

13 MS. BURTON: But the evolution of the discovery  
14 visit to the plant on June 22nd, hasn't been quite correctly  
15 explained.

16 The Board will recall that it was only after there  
17 was a lengthy telephone conference call with the Board and  
18 the licensee and the NRC Staff and myself, that over its  
19 strenuous objection, the licensee was required to release  
20 the information, including the reactor engineering logs and  
21 other materials.

22 As the Board will recall, at the time of that  
23 teleconference call, the licensee maintained that it did not  
24 know at that time, what it would be able to produce in terms  
25 of the logs; whether they were the actual hard-copy,

1 original logs, or whether they were kept in some other  
2 format that would be more difficult for them to produce.

3 There were other questions and discussions as to  
4 when the licensee would be required to produce the  
5 information. Ultimately, as the Board will recall, it left  
6 it to the parties to arrange, in a civil fashion, hopefully,  
7 when the materials would be made available for them to see.

8 These arrangements were made between myself and  
9 Mr. Repka, but not until quite far long into June.

10 Some of the materials were made available  
11 immediately, others were not ready, so the two Coalitions  
12 decided not to make two trips, but to combine the effort in  
13 one trip, and the date of June 22nd was settled upon, only  
14 after a call was made by myself, or some sort of  
15 communication to the NRC Staff, to make sure that that would  
16 be a convenient day for the Staff as well, to go to the  
17 plant, because the Staff had expressed an interest in being  
18 contacted with respect to the date.

19 I had understood from that conversation that Staff  
20 would be present at the plant on June 22nd, and I was  
21 somewhat surprised that nobody from the Staff was there.

22 However, as I said before, these are reactor  
23 engineering logs which are available to the Resident  
24 Inspector, who has now provided an affidavit which might  
25 have been provided, had the Staff followed through and

1 expressed an appropriate level of curiosity and interest in  
2 these original records of difficulties at Millstone, which  
3 it chose not to.

4 There is a strong distinction also to be made in  
5 the Staff's motion, and the Coalitions' applications for  
6 late filings.

7 When there is a computer lockout, that has nothing  
8 to do with the merits or the substance of the issues before  
9 the Board. I think the Board recognized that.

0 Conforming exhibit numbers doesn't go to substance  
1 or merits. But when a party before the Board seeks to  
2 substantially influence the Board on the facts, on the  
3 merits of the issues which are hotly contested, late, that  
4 is simply not permissible under the rules, and puts the  
5 Coalitions to a very significant disadvantage.

6 And the only explanation offered here is the NRC's  
7 lack of curiosity and follow-through, to go to the plant to  
8 see what was available.

9 The NRC Staff here relied upon Northeast Utilities  
0 to expend its own resources, to copy very substantial  
1 amounts of material and get them to the Staff to review, and  
2 the Staff didn't even review it, according to the Staff's  
3 own statement, until after it filed its summary, although it  
4 had very opportunity to learn, at least by June 22nd, what  
5 information was available.

1           So I think that, given this great lack of  
2 interest, the fact that the reactor engineering logs are  
3 available to the Resident Inspector, apparently Mr. Cerne,  
4 who himself is the one who has provided this untimely  
5 affidavit, this motion is very disingenuous, improper.

6           We strenuously object.

7           [Discussion off the record.]

8           CHAIRMAN BECHHOEFER: The Board has decided to  
9 grant the Staff's motion. We think basically that it's  
10 important to get all the facts on the record, and at the  
11 very least, the document, the extra document is part of the  
12 factual basis for the -- relevant to the claim.

13           And we would much prefer to rule on the basis of  
14 substance rather than on procedural matters. We've bent  
15 over backwards not to keep out other material for procedural  
16 reasons, for asserted procedural deficiencies, and we think  
17 we will -- the Staff may not have been entirely blameless in  
18 not being aware of the information earlier, but we think we  
19 will permit this particular affidavit and documents to be  
20 filed.

21           I think our consideration of the entire question,  
22 whether it clears up all of the factual questions or not, we  
23 won't say that, because there may still be outstanding  
24 questions, but we think the parties should be able to  
25 present their arguments on the basis of this material being

1 in the record.

2 So we will grant the Staff's motion.

3 MS BURTON: And, of course, an exception will be  
4 noted in the record?

5 CHAIRMAN BECHHOEFER: Of course.

6 MS. BURTON: Thank you.

7 [Discussion off the record.]

8 MS. BURTON: Pardon me, Judge Bechhoefer. Might I  
9 just add one note for purposes of the record at this point?

10 CHAIRMAN BECHHOEFER: Yes.

11 MS. BURTON: And that is, I thought it should have  
12 been apparent, but I just want to make it very clear that  
13 this material was only faxed to me, this motion that we've  
14 been addressing, by the NRC Staff. It bears a time on it  
15 18:28, when the first of it came through on July 17th.

16 And I just want to make it known that given this  
17 short filing, neither of the experts who have been  
18 consulting for the two Coalitions has had an opportunity to  
19 even read this material, let alone verify references and so  
20 forth, and so we are at a very -- will be at a very  
21 significant disadvantage in the event that the Staff or the  
22 licensee may choose to rely upon the motion during their  
23 argument in these proceedings.

24 [Discussion off the record.]

25 CHAIRMAN BECHHOEFER: Although the Board in its

1 earlier order has said that the Contentions would be  
2 considered consecutively, upon reading the filings of all  
3 the parties on Contention 5, it appears that there is no  
4 disagreement, as long as the condition, the tech spec on  
5 boron is actually made a tech spec and made a requirement.

6 That's how I read the Intervenors' summary. Let's  
7 see.

8 I wanted to check if that was accurate, because  
9 then if we could get rid of Contention 5 very quickly, we  
10 could take perhaps an extended or slightly extended break so  
11 that the Intervenors could look over the additional material  
12 which relates to Contention 4.

13 But am I not correct, Ms. Burton, that you --  
14 there was something in your filing here. Let me find the  
15 page.

16 [Pause.]

17 JUDGE KELBER: While Judge Bechhoefer is looking  
18 for the reference he wants, let me review the situation for  
19 people who are not conversant with what has happened.

20 During the proceedings, I think it was in April  
21 that we started sometime shortly after that, the licensee  
22 revised its technical specification on boron to provide for  
23 surveillance of the boron concentrations every seven days.

24 For operational reasons, the boron concentration  
25 would be maintained at approximately the level of boron in

1 the reactor itself, which is somewhere about 2,000 parts per  
2 million, but that the technical specification of 800 parts  
3 per million for the spent fuel pool would remain simply as a  
4 technical specification.

5 The surveillance level was changed -- the  
6 surveillance interval was changed from the surveillance  
7 during refueling to surveillance every seven days.

8 Is that an accurate summary?

9 MR. REPKA: Yes, Judge Kelber, that is, and it's  
10 our position that we have provided exactly the relief  
11 requested.

12 CHAIRMAN BECHHOEFER: Okay, it's on page 52.  
13 Well, page numbers are mine. They start with one as the  
14 first page of the summary, not any of the -- it's what I  
15 come up with as 52, but I'm not sure that everybody's  
16 numbers will be the same, because there were no numbers on  
17 the pages that we got.

18 But it says the Intervenors request that the Board  
19 order that no amendment be issued unless it contains a  
20 requirement to verify the spent fuel pool's boron  
21 concentration at least once every seven days.

22 And it's my understanding that that's what the  
23 proposed technical specification would do, and if that were  
24 imposed, I would then ask if you're -- if the Intervenors'  
25 positions would not have been upheld, and we could just

1 dispose of this particular contention without the two hours  
2 that we nominally had scheduled to consider it, which would  
3 give us somewhat more time for the other Contentions, and it  
4 would also permit the Intervenor's' experts to look over the  
5 additional document which we have authorized to be included  
6 in the record.

7 MS. BURTON: Yes, your recitation is essentially  
8 correct. There has been some concern, however, on the part  
9 of the Coalitions that since the NRC Staff, in its initial  
10 response to our filing, found no merit to this Contention.

11 There is some concern as to, in the absence of an  
12 order, whether or not this surveillance would actually be  
13 put into effect, and hence our request for an order to that  
14 effect.

15 But we also want to call attention to our  
16 qualifier that acceptance of this proposed revised amendment  
17 does not constitute an acceptance that the presence of  
18 soluble boron in pool water can be relied upon as a  
19 criticality prevention measure, either under normal or  
20 accident conditions. Such reliance is prohibited by GDC-62.

21 Any benefit that soluble boron provides by way of  
22 criticality prevention can only be supplemental to a primary  
23 and sufficient set of criticality prevention measures that  
24 rely on physical systems or processes which do not require  
25 support by ongoing administrative controls.

1 CHAIRMAN BECHHOEFER: Our consideration of  
2 Contention 6 will bring that part of the discussion up, so  
3 all we would do, if we could say that Contention 5 should be  
4 resolved by a license condition, a technical specification,  
5 requiring the seven-day surveillance and the --

6 [Discussion off the record.]

7 CHAIRMAN BECHHOEFER: Including the 800 parts per  
8 million of boron. That would be a technical specification,  
9 and it's essentially a license condition.

10 And as I say, the other matter about whether boron  
11 is even permissible to be taken into account, will be  
12 discussed in connection with Contention 6 because that's  
13 specifically raised there.

14 But would the parties -- would there be any  
15 objection to our ordering a condition -- and we would put it  
16 in as an order -- that there be the surveillance requirement  
17 on the concentration, minimum concentration, I guess, sorry.  
18 We're not stopping you from going higher.

19 JUDGE COLE: Let me state the reason why I said  
20 minimum.

21 CHAIRMAN BECHHOEFER: I should have said it. He  
22 said it because I should have said it.

23 JUDGE COLE: It's my understanding that whenever  
24 fuel is being transferred in the pool, that the  
25 concentration of boron is required to be at 2600 parts per

1 million; is that correct?

2 MR. REPKA: When the reactor cavity is open to the  
3 spent fuel pool, the tech specs already require 2600 ppm,  
4 that's correct, Judge Cole.

5 JUDGE COLE: Could it be said that any time that  
6 we're moving fuel into or out of the spent fuel pool, the  
7 likely concentration of boron would be 2600 parts per  
8 million?

9 MR. REPKA: That's true at all times, irrespective  
10 of the tech specs.

11 JUDGE COLE: So the 800 is merely a minimum for  
12 tech spec purposes?

13 MR. REPKA: That's correct; by administrative  
14 limit, it's 260 ppm at all times. With respect to Judge  
15 Bechhoefer's question of whether there's any objection,  
16 there is no objection here.

17 I just want to clarify that we certainly don't  
18 object to the Board conditioning its finding on the Staff  
19 adopting or requiring the tech spec as proposed. I'm not  
20 sure it needs to be a separate license condition.

21 The tech spec itself is already a license  
22 condition, so I don't know if I'm hearing something that's  
23 not really there.

24 CHAIRMAN BECHHOEFER: I think you are.

25 MR. REPKA: We would have no objection to the

1 Board conditioning its finding on adopting the tech spec as  
2 proposed.

3 CHAIRMAN BECHHOEFER: And would the Staff have any  
4 objection?

5 MS. POOLE: Just a couple of things: The Staff  
6 has no objection to conditioning the license on this, but we  
7 would point out, as the licensee has stated, the tech spec  
8 is a license condition, if the amendment is approved as a  
9 whole.

10 It would be part of the license, so a separate  
11 order wouldn't really be necessary. I would point out also  
12 that the intervenors are concerned that the Staff may find  
13 no reason to approve this portion of the license application  
14 for the amendment because the Staff opposed admission of the  
15 Contention at the outset.

16 I would point out that the Staff reviews what it  
17 is presented to it in a completed license application as a  
18 whole. The April 17th amendment is considered along with  
19 the rest of the application.

20 Just for information, I brought along a copy of  
21 Office Letter 803. It's an NRR internal document governing  
22 the Staff's review of license amendment packages, which  
23 requires that the Staff include in its safety evaluation, an  
24 assessment of all amendments to the application.

25 So the Staff would not disregard a piece of a

1 license application, such as the later amendment to the  
2 application.

3 JUDGE COLE: What's the document you mentioned?

4 MS. POOLE: I provided it for everyone. May I  
5 approach and give you copies?

6 JUDGE COLE: Sure.

7 MS. POOLE: It's NRR Office Letter 803, License  
8 Amendment Review Procedures, and just states that the Staff,  
9 in essence, just review all parts.

10 [Pause.]

11 If you will look to page 3-2, it contains the  
12 requirements.

13 CHAIRMAN BECHHOEFER: What page?

14 MS. POOLE: 3-2. It's about in the middle.  
15 Pardon me. it's 3.2.

16 CHAIRMAN BECHHOEFER: Okay.

17 MS. POOLE: I'll read the pertinent two sentences:  
18 Licensees will often supplement submittals with additional  
19 information and changes to the original proposed amendment.  
20 The SEE should include a discussion of any changes submitted  
21 by the licensee.

22 I don't want to make a mountain of a mole hill; I  
23 just wanted to indicate that the Staff will review the whole  
24 thing, and we would not disregard any portion of a license  
25 amendment application.

1 CHAIRMAN BECHHOEFER: And, I take it, the Staff  
2 considers the amended tech spec as what's currently part of  
3 the license amendment request?

4 MS. POOLE: That's correct.

5 [Discussion off the record.]

6 CHAIRMAN BECHHOEFER: Well, Ms. Burton, we will  
7 conclude by saying that we will order that the tech spec, as  
8 revised, as set forth, be incorporated into the license,  
9 into the amended license.

10 So, with that, I think we will have resolved  
11 Contention 5.

12 [Discussion off the record.]

13 CHAIRMAN BECHHOEFER: Well, I think the Board will  
14 now, as we said before, take a break before we get into  
15 Contention 4. Would 20 minutes be sufficient for parties to  
16 look at the documents, or would you need a little more than  
17 that? I'm trying to fix it, like, if we came back at 10:15  
18 or 10:20? Say, 10:15, would that give your experts enough  
19 time to look over the additional documents?

20 MS. BURTON: Without disregarding our objection  
21 that we haven't had a full and adequate opportunity to  
22 review it, and I don't think we can in 20 minutes, we're  
23 certainly willing to accept those terms for purposes of the  
24 proceedings going forward, given that the Board entered the  
25 order that it did.

1 [Discussion off the record.]

2 CHAIRMAN BECHHOEFER: Yes, I think the Board will  
3 actually break a little longer than that, about a half an  
4 hour, about 10:25, we'll back, and hopefully that will give  
5 a little more time for you to discuss, for the Intervenors  
6 to discuss the additional material, and see how it blends in  
7 with the remainder of their argument on Contention 4.

8 I think that's fairly crucial, so we'll have a  
9 half-hour break here and be back at 10:25.

10 [Recess.]

11 CHAIRMAN BECHHOEFER: Back on the record. We'll  
12 proceed now to Contention 4.

13 Ms. Burton, you lead off on that.

14 MS. BURTON: Yes, thank you very much, Judge  
15 Bechhoefer.

16 I'd like to lead off by first of all thanking the  
17 Board for its great courtesy last evening in hearing the  
18 comments and the statements of members of the community here  
19 in Southeastern Connecticut, because of the concern that we  
20 raise in Contention 4, that this community has already  
21 suffered quite enough undue risk from the operations of  
22 Millstone.

23 In Contention 4, we posit that new administrative  
24 controls pose an undue and unnecessary risk of a criticality  
25 accident. This licensee is proposing to double the storage

1 capacity of the spent fuel pool, and it should have a good  
2 reason to do that, because of the enhanced risk to the  
3 public.

4 But in my comments to follow, I would ask the  
5 Board to keep in mind, the prospect of the licensee  
6 divesting itself of this plant, shortly, and the facts and  
7 information which have come forward regarding the relative  
8 cost of this temporary solution to highly-radioactive waste,  
9 as opposed to other safer, perhaps somewhat more costly  
10 solutions.

11 CHAIRMAN BECHHOEFER: Ms. Burton, pardon me for  
12 interrupting, but I'm not sure that we legally may take into  
13 account, any impending transfers of ownership which have not  
14 occurred, and which have not even been finally approved.

15 I would think that any transfer of ownership would  
16 be subject to some sort of a hearing requirement, probably  
17 not before a Licensing Board, but at least before the  
18 Commission. I'm not sure about that, but I think so.

19 And I don't think we can take into account, any  
20 impending transfers. We have to assume that the licensee  
21 will be in control of its processes and procedures, and that  
22 it will carry out whatever type of condition we may impose.

23 MS. BURTON: With all respect, I do believe that  
24 there are proceedings pending before the NRC and other  
25 agencies concerning the pending divestiture of these plants

1 by Northeast Utilities.

2 That is a matter of public record before your  
3 Agency, if I'm not mistaken, and I do believe it is an issue  
4 here. There are questions that are posed by the licensee  
5 itself -- these are just prefatory remarks, by the way --  
6 concerning the need for expansion of the spent fuel pool at  
7 Unit 3.

8 As we have illustrated in the very first exhibit  
9 appended to our summary, there may be some thought on the  
10 part of this utility to store spent waste from Unit 2 at  
11 Unit 3.

12 That is information that came out very late in the  
13 discovery process, and, if I'm not mistaken, does not appear  
14 anywhere in the application materials.

15 So we have questions about the motivating factors  
16 that have brought this application to double the storage  
17 capacity of Unit 3 before the NRC at this time.

18 But those were just introductory remarks, and I'll  
19 go now into the body of what we have to say, which I think  
20 can be summarized by saying that this community that is  
21 represented by the two Coalitions in Connecticut and Long  
22 Island, is simply not prepared to accept the imposition of  
23 new administrative controls which will increase the risk,  
24 unnecessarily, of criticality at Millstone.

25 I'm going to be proceeding essentially through the

1 outline set forth in the summary, with the overriding  
2 thought that there are no concrete standards that have been  
3 adopted that are followed by the NRC in reviewing  
4 applications for re-racking spent fuel pools at the 102  
5 commercial nuclear reactors presently operating in this  
6 country.

7 And I will argue more about that later, but our  
8 overriding concern here is that without standards, without  
9 criteria, there is the need for these proceedings to follow  
10 the course to a full evidentiary hearing so that we can  
11 reach the proper resolution that needs to be reached on that  
12 issue.

13 I'd like to begin with the first prong of our  
14 challenge here in Contention Number 4, relating to the  
15 significant increase in the probability of a criticality  
16 accident:

17 We assert that there are five factors interacting  
18 which will significantly increase the probability of a  
19 criticality accident at Millstone.

20 Each of the points I'm about to raise, we posit,  
21 qualifies under 10 CFR 2.1115, for designation as issues  
22 which require an adjudicatory hearing, because they are  
23 material issues that are in substantial dispute, and can  
24 only be resolved through that process.

25 The first of these issues is that the amendment

1 would lead to increased complexity of the administrative  
2 controls upon which the licensee will rely to prevent a  
3 criticality accident.

4 We have summarized the new administrative controls  
5 as follows: The proposed amendment would increase the  
6 number of fuel storage regions within the Millstone Unit 3  
7 spent fuel pool by 100 percent; the current pool has two  
8 regions, while the proposed pool configuration would feature  
9 four regions.

10 The proposed amendment would increase the number  
11 of parameters affecting storage in the Millstone Unit 3  
12 spent fuel pool by 50 percent.

13 The current pool storage options are dependent on  
14 two parameters, enrichment and burnup, while the proposed  
15 pool storage options would rely on three parameters:  
16 enrichment, burnup, and decay time.

17 It is clear from the application of the licensee,  
18 therefore, that this application proposes to increase the  
19 complexity of administrative controls upon which the  
20 licensee will rely to prevent a criticality accident.

21 Accordingly, there will be significantly more  
22 opportunities for a fuel mispositioning event. As we have  
23 brought out in our summary papers and in the submission of  
24 the materials that we have, this utility has a history of  
25 problems with administrative controls. At this point in the

1 proceedings, apparently that issue is not even contested.  
2 The NRC staff has asserted, and we do not argue with its  
3 conclusion that this particular licensee has a pronounced  
4 history of failure to abide by administrative controls.

5 This issue extends to the spent fuel pool where  
6 the licensee, preliminary, in discovery, released incident  
7 after incident of errors in its spent fuel pools at Units 1,  
8 2 and 3. As discovery proceeded and we got deeper into  
9 information that was not readily disclosed by the utility,  
10 we found more and more instances of difficulties and errors  
11 in the operation through administrative controls of the  
12 activities involving fuel movement and transfer at Unit 3.

13 Our second issue here is the failure of  
14 administrative controls can lead to a criticality accident.  
15 We have shown in Exhibit C that a variety of failures of  
16 administrative controls will lead to a criticality accident  
17 or a violation of criticality limits. Failures of this type  
18 have occurred and are more likely, if administrative  
19 controls are more complex. Greater complexity of  
20 administrative controls creates more opportunities for their  
21 failure.

22 We have had --

23 JUDGE KELBER: Excuse me, Ms. Burton.

24 MS. BURTON: Pardon me.

25 JUDGE KELBER: Do you contemplate that violation

1 of a technical specification of a regulatory limit on  
2 reactivity is equivalent to a criticality accident?

3 MS. BURTON: I'm sorry, I did not hear the first  
4 part of your question, sir.

5 JUDGE KELBER: Do you, in making this last  
6 statement that increased -- well, administrative -- failure  
7 of adhering to administrative controls can lead to a  
8 violation of a criticality limit, is that the same in your  
9 mind as a criticality accident?

10 MS. BURTON: If I said that, I didn't mean to say  
11 that. I don't think I did say that.

12 JUDGE KELBER: I am referring -- well, you did say  
13 it in footnote 41 in your brief, and you just repeated it  
14 here. You said it could lead to a criticality accident or a  
15 violation of criticality limits. Are the two the same in  
16 your mind?

17 MS. BURTON: No, certainly, they are not.

18 JUDGE KELBER: Okay.

19 MS. BURTON: Greater complexity of administrative  
20 controls creates more opportunities for their failure.

21 At this point I will briefly make reference to  
22 this recently submitted material with the affidavit of Mr.  
23 Cerne, who has identified himself as having been, for a  
24 significant period of time, chief resident inspector at  
25 Millstone Unit 3, as he has responded to the submission of

1 information that we obtained from the licensee, namely,  
2 reactor engineering logs of the refueling outage that  
3 occurred in 1999.

4 As I have mentioned, this is information that was  
5 at hand at the plant, presumably available to Mr. Cerne. He  
6 has, in his affidavit, set forth various statements  
7 concerning the various incidents that occurred during that  
8 outage. We can't dispute his statements, but we can say  
9 that, in verifying that these activities have occurred, we  
10 believe that the cases -- that the potential for criticality  
11 has been increased when there are so many breakdowns in  
12 equipment and so much reliance on emergency bypass  
13 procedures. A single one of those is serious, but an  
14 avalanche of them, for instance, seven within a four period,  
15 of the invocation, necessary invocation of emergency bypass  
16 procedures, while it may not be technically incorrect,  
17 creates a situation where human error is subject to greater  
18 -- there is greater risk of human error.

19 CHAIRMAN BECHHOEFER: Are you referring to the  
20 refueling outage 6?

21 MS. BURTON: Yes, specifically, I am.

22 CHAIRMAN BECHHOEFER: Right. Right.

23 JUDGE KELBER: Now that is a conclusion based  
24 essentially on what is called human factors. Is any one of  
25 your experts an expert in human factors analysis?

1 MS. BURTON: I am glad you asked that question. I  
2 know that specifically the staff has used that issue or that  
3 term with regard to our esteemed expert, David A. Lochbaum.  
4 I was very surprised to see that in the summary, given that  
5 Mr. Lochbaum's curriculum vitae was appended to his original  
6 declaration in this matter, in which he set forth his very  
7 extensive background in operations at nuclear reactors for  
8 many, many years, at many locations in the country,  
9 including --

10 JUDGE KELBER: But is he an expert in human  
11 factors analysis, that is what I am asking? You are making  
12 a contention, which is very important, and what you are  
13 stating is that when there is an increased amount of trouble  
14 in carrying out an operation, there is an increased  
15 likelihood of error. And this may sound very common sense,  
16 but what we have found in risk analysis is that, really,  
17 this is a matter for human factors analysis, and an awful  
18 lot depends upon what the nature of the procedures is. And  
19 I wanted to know whether you have someone who is skilled in  
20 human factors analysis, qualified as an expert in that  
21 field. And I don't think, with all due respect to Mr.  
22 Lochbaum, that he is qualified as an expert in human factors  
23 analysis, but maybe you have someone else who is.

24 MS. BURTON: Well, this may very well present the  
25 case that --

1 JUDGE KELBER: This is -- if we were to go to an  
2 evidentiary hearing, that is the person I would like to hear  
3 from.

4 MS. BURTON: That is just about what I was about  
5 to say, that your question seems to suggest yet another  
6 reason why there is a need --

7 JUDGE KELBER: I wasn't making a reason. I was  
8 just saying that if we go there, that is the type of  
9 evidence that we would have to hear.

10 MS. BURTON: I understand. But, again, with  
11 respect to Mr. Lochbaum, he is a nuclear safety engineer,  
12 and I think that his own curriculum vitae establishes  
13 significant experience in this area which you mentioned.

14 JUDGE KELBER: Don't try it, Ms. Burton. I have  
15 got lots of experience. I would never claim to be a human  
16 factors expert.

17 [Discussion off the record.]

18 CHAIRMAN BECHHOEFER: Okay. Sorry for the  
19 interruption.

20 MS. BURTON: I just wanted to further point out  
21 that we are familiar with the individuals designated by the  
22 NRC to review this application, Dr. Kopp and Dr. Atard, and  
23 I am not familiar with their having set forth special  
24 expertise in human factors, but I stand to be corrected.

25 CHAIRMAN BECHHOEFER: Well, they are going to be

1 asked.

2 MS. BURTON: Pardon me?

3 CHAIRMAN BECHHOEFER: We are going to ask the  
4 staff and the licensee when we get to them.

5 JUDGE KELBER: You are not the only one.

6 MS. BURTON: Thank you. Our third point here is  
7 that criticality calculations can contain errors and, in  
8 fact, we have recited numerous instances, including at  
9 Millstone Unit 2, where there have been acknowledged errors  
10 in calculations.

11 JUDGE KELBER: Do you contend that there are  
12 errors in the criticality calculations for the current  
13 application?

14 MS. BURTON: Our position there is that we are  
15 assuming, for purposes of this hearing, at this stage, that  
16 the calculations are correct.

17 JUDGE KELBER: Thank you.

18 MS. BURTON: And our point with regard to  
19 calculation errors is that reliance on administrative  
20 controls of increased complexity requires the performance of  
21 additional criticality calculations involving a greater  
22 number of parameters.

23 The number of criticality calculations can  
24 increase more than proportionally with a number of regions  
25 and parameters, for example, an increase in the number of

1 regions in a pool, as the licensee proposes at Unit 3,  
2 requires no criticality calculations, not only for each  
3 individual region, but also for all combinations of  
4 interfacing zones where regions are adjacent. And so,  
5 accordingly, there is an increased potential that  
6 calculational errors will lead to a criticality accident in  
7 the pool. I will be addressing criticality calculations  
8 shortly in another context.

9 Our fourth point here is that fuel can be  
10 mispositioned. And we have brought forth in our summary  
11 materials a wide-ranging history of fuel mispositionings at  
12 reactors across the country, well documented. They do  
13 happen and, in fact, we take the position that they are not  
14 unlikely events at all, but that they are likely events.

15 Millstone has not been excepted from this group,  
16 and, in fact, there was an incident on April 26, 1994, that  
17 we have cited to you, at Millstone Unit 3 involving a  
18 lowering of fuel assembly into spent fuel pool number N-7  
19 instead of N-6. We have supporting information with regard  
20 to that particular incident and it was the subject of  
21 deposition involving one of the licensees' employees. And  
22 it came out in that particular incident at Millstone Unit 3  
23 that the crane operator responsible for -- apparently  
24 responsible for that mispositioning incident reported poor  
25 lighting conditions and said in his report, quote, "Due to

1 the poor lighting in that area, I did not see the fuel  
2 assembly. The PEO also checked but he apparently did not  
3 see it either.

4 I bring that issue up because we also learned  
5 during discovery that this licensee has a cost cutting  
6 pattern, including one that has led to a situation where  
7 they don't change light bulbs routinely when they go out and  
8 that is partly because of the expense, \$2,000. That is what  
9 Mr. Jensen said under oath. And he said that years can go  
10 by before bulbs are replaced at the spent fuel pool.

11 We could forgive somebody in another instance of  
12 not replacing light bulbs, but when we have a crane operator  
13 who can't see where to put a spent fuel rod because of poor  
14 lighting, that is something we cannot accept.

15 The crane operator also attributed the mistake to  
16 fatigue due to overwork. He had been up since 1:30 and came  
17 into work at 5:00. This was apparently because the licensee  
18 was in a rush to get the refueling outage done, put the  
19 workforce on overtime, and this was a consequence of it -- a  
20 schedule-driven, cost-driven mistake.

21 The crane operator admitted to a distraction. He  
22 was holding a conversation with somebody at the time and  
23 that led him to forget to cross out the cell we had just  
24 loaded. He said he also felt unburdened by inadequate  
25 procedures according to the papers he filed. And he said

1 this, quote, "The engineer should have a better way of  
2 keeping track of fuel assemblies."

3 He was also confused and we can respect that this  
4 was a conscientious devoted worker. We have no reason to  
5 believe otherwise. He was confused, quote, "Some confusion  
6 may be created by the number of procedures in use."

7 He also acknowledged another mistake, that he  
8 should have notified the shift supervisor when the  
9 misplacement occurred and fuel movement should have been  
10 halted.

11 This is just one incident that happened to be  
12 uncovered during the discovery proceedings in this matter.  
13 However, it is symptomatic of the issues that we bring forth  
14 in this contention, that although a procedure may, in  
15 isolation, seem simple, if something goes wrong and other  
16 procedures that people aren't used to dealing with have to  
17 be used, and then they have to do it again, and they have to  
18 do it again, and repeatedly, and other things are going  
19 wrong, and they can't see what they are doing, and they are  
20 tired, and they are distracted because things aren't going  
21 the way they are expected to be, then we have a recipe for  
22 disaster. And the last thing we need is to inject more  
23 elements that will give rise to more of these difficulties.

24 Our fifth issue is that dilution of solution boron  
25 can occur. And we have given examples of nuclear industry

1 experience. We are aware, from a visit to the spent fuel  
2 pool, that there is a fire hose inside the building. We  
3 would expect that that would be there because somebody  
4 determined that it might be necessary to use a fire hose to  
5 fill up the pool should there be a problem, should there be  
6 leakage, should the water go down.

7 If the water goes down and it is not noticed, and  
8 some things aren't noticed for a long time, we know that  
9 happened at Unit 2 when there was a loss of two inches in  
10 the level of the spent fuel pool, because nobody noticed for  
11 a long time. And if one were to point the fire hose with  
12 unborated water into the pool, there could be a problem, and  
13 that is a credible scenario here.

14 The second aspect of our Contention 4 has to do  
15 with the undue increase in the burden of risk that is  
16 presented by this application.

17 CHAIRMAN BECHHOEFER: Ms. Burton, one interruption  
18 again. Are not so many of the calculations before us done  
19 with the assumption of unborated water? The K effective  
20 calculations?

21 MS. BURTON: We do agree with that. However, in  
22 discovery we sought to obtain information concerning the  
23 licensee's analysis of events that could take place for  
24 which the maintenance of the level of boron wouldn't suffice  
25 to protect against a criticality accident, and that

1 information was not produced. Apparently it does not exist.  
2 It was not submitted in support of the application. In  
3 fact, we believe that that is one aspect of why the  
4 application eventually should be denied because the licensee  
5 has not been able to maintain and meet its burden of proving  
6 why the license application meets safety standards.

7 CHAIRMAN BECHHOEFER: Thank you.

8 JUDGE KELBER: If the pool is full or within two  
9 inches of its 11 feet of depth over the fuel, and it was at,  
10 say, 800 parts per million, which is the tech spec limit,  
11 let's forget the 2600, and one would try to dilute it to  
12 somewhere down around 10 percent of that, how much water  
13 would be needed and where would you put it?

14 [Discussion off the record.]

15 MS. BURTON: Judge Kelber, your question was very  
16 thoughtful and we appreciate your raising it because it  
17 coincides with our concern that the licensee has failed to  
18 provide calculations that show the full and complete  
19 envelope of potential criticality.

20 JUDGE KELBER: That doesn't address my question.  
21 I asked a very straightforward question. You are proposing  
22 that someone can dilute the boron in the pool by adding  
23 unborated water. What I want to know is how much unborated  
24 water and where does the -- if the pool is reasonably full,  
25 is there room for this unborated water to mix in the pool or

1 does surplus water have to go somewhere? If so, where does  
2 it go?

3 [Discussion off the record.]

4 MS. BURTON: Judge Kelber, I am very sorry, but at  
5 the spur of the moment, we are not able to provide you with  
6 a calculation that would specifically answer your question,  
7 but I will say that we have not obtained the information,  
8 although we attempted to in discovery, which would provide  
9 us with a full range of understanding the full envelope of  
10 criticality.

11 JUDGE KELBER: My question is very specific, it  
12 doesn't go to criticality, it goes to dilution of the boron.  
13 I don't really -- we will bring the envelope, so-called  
14 envelope of criticality at a later stage if it is pertinent,  
15 but right now I was just interested in your point 5, which  
16 is that dilution can occur. And I wanted to know, if it can  
17 occur, what are the immediate consequences of that in terms  
18 of where does all the water go, how much is needed?

19 MS. BURTON: Well, we know at the very least that  
20 there are exit ways for water from the pool. We also know  
21 that there are plumbing fixtures within the pool room. We  
22 know from discovery that there have been incidents at  
23 Millstone involving failures of valves through  
24 mispositioning and, also, failure of seals. In fact, maybe  
25 I could refer to one incident that was cited last evening at

1 Connecticut Yankee involving a failure of a seal that led to  
2 a major loss of water in the cavity or the channel of the  
3 fuel pool area in Haddam, not so far away from here.

4 JUDGE KELBER: Did criticality result from that?

5 MS. BURTON: Not that I am aware of.

6 JUDGE KELBER: Was any fuel uncovered in that  
7 accident?

8 MS. BURTON: We were very fortunate in Connecticut  
9 that at that particular time, through nobody's prescience,  
10 there was apparently no fuel there at that time. Had there  
11 been fuel it would be a very different story.

12 JUDGE KELBER: Would it have been uncovered?

13 MS. BURTON: Pardon me?

14 JUDGE KELBER: Would the fuel have been uncovered  
15 if it had been there?

16 MS. BURTON: Certainly.

17 [Discussion off the record.]

18 MS. BURTON: If it was in transit and it had been  
19 raised, it could have been uncovered, yes.

20 JUDGE KELBER: If it were in transit and if it  
21 were raised, it would have been uncovered. But if it were  
22 in the spent fuel pool, it would not have been, is that  
23 right?

24 MS. BURTON: That is correct.

25 JUDGE KELBER: Thank you. That clears it up for

1 me.

2 MS. BURTON: With regard to our issue of the undue  
3 increase in the burden of risk, we believe and we have set  
4 forth in our summary that operation of the Millstone Unit 3  
5 fuel pool places a burden of risk on members of the  
6 workforce and the surrounding public which is unacceptable,  
7 had not been properly characterized by either the licensee  
8 or the staff, either for present conditions or for the  
9 conditions that would arise after the proposed license  
10 amendment. That the lack of proper characterization is  
11 itself a part of the burden of risk because it promotes  
12 uncertainty and concern on the part of the potentially  
13 affected people.

14 Our first point under this issue is that the  
15 license amendment poses the increased probability of a  
16 criticality accident, increasing the burden of risk from  
17 pool operations.

18 And our second point is that neither the applicant  
19 nor the NRC staff has what appears to be a proper  
20 understanding of the increased burden of risk. We have set  
21 out how we believe that the licensee has failed to provide  
22 an analysis that is necessary to address the issues that we  
23 have raised.

24 We have also appended to our summary various  
25 transcripts of depositions that were taken in this process

1 in which we sought to understand what the staff had to say  
2 in terms of its standards, its understanding of this  
3 application, its understanding of the context of its  
4 application, as well as the broad-based base of information  
5 from which it would judge this particular application. And  
6 as the attachments might suggest, there was a less than  
7 satisfying response from the individuals designated by the  
8 NRC staff to address these issues.

9 In fact, the information that we learned led us to  
10 have far greater concern than we did when we initially filed  
11 these contentions, because we learned that individuals  
12 assigned to review the application, or one of them had  
13 never, in his past extensive history, been assigned to  
14 review another application for spent fuel pool rerack,  
15 although there have been many such applications over the  
16 years in the industry, as we know.

17 We learned through this discovery process that the  
18 NRC does not maintain a database, it doesn't have a  
19 statistical analysis of the various events and incidents  
20 which we have set forth to illustrate our concerns here. We  
21 learned that, really, there is no bedrock, concrete standard  
22 that the NRC employs to address issues that need to be  
23 addressed in terms of protecting the public health and  
24 safety in this process.

25 In fact, we were shocked to hear from one of the

1 NRC staff members that led us to believe that he simply  
2 accepted whatever the licensee was telling him in terms of  
3 what standards he needed to employ. That fell far short of  
4 what would be required to establish that there is an  
5 adequate level of concern, sensitivity and awareness on the  
6 part of the reviewing body with regard to this application.

7 CHAIRMAN BECHHOEFER: Dr. Cole has a question.  
8 You said you did.

9 JUDGE COLE: Well, she is not finished yet.

10 CHAIRMAN BECHHOEFER: Oh, I am sorry.

11 JUDGE COLE: I have one question then.

12 CHAIRMAN BECHHOEFER: Well, I thought you wanted  
13 to interrupt at this time.

14 [Discussion off the record.]

15 JUDGE COLE: Let her finish.

16 CHAIRMAN BECHHOEFER: Oh, okay. Go ahead. Sorry  
17 for the interrupt, Ms. Burton, go on.

18 MS. BURTON: Thank you. On this point as well,  
19 particularly, the Coalition sought, through discovery, to  
20 obtain information concerning the analysis that the licensee  
21 has conducted with regard to criticalities, and also  
22 dilution of soluble boron.

23 We maintain that a complete analysis of boron  
24 dilution scenarios requires the consideration not only of  
25 seismic loading, as was done by the licensee, but of factors

1 that include operation and maintenance errors, heat  
2 exchanger tube failures, seal failures and leakage due to  
3 corrosion. Each of these factors must be considered for  
4 each system that could remove water from the fuel pool or  
5 add water to the fuel.

6 It became clear in these proceedings that the  
7 licensee has not performed a boron dilution analysis that  
8 considers each of these factors and systems, and has not  
9 provided sufficient information to allow such an analysis to  
10 be performed independently.

11 Well, in light of that major shortcoming, it  
12 appears that there has been a lack of adherence to standards  
13 required of the licensee to establish that this is a safe  
14 plan and that there will not be criticality.

15 Each of these issues that I have brought up  
16 presents, on its own, a case where there are disputed issues  
17 of fact. They are in genuine and substantial dispute, and  
18 can only be resolved through the evidentiary hearing process  
19 before the Board.

20 The Coalitions contend that the application poses  
21 a significant increase in the probability of a criticality  
22 accident. We have set forth facts to verify that. We also  
23 charge the application will increase the complexity of  
24 administrative controls, enhancing the likelihood of  
25 criticality.

1           We have shown how a failure of administrative  
2 controls can lead to a criticality accident. We have shown  
3 how criticality calculations can contain errors leading to  
4 incorrect analysis of criticality. We have shown how fuel  
5 can be mispositioned. We have shown how dilution of soluble  
6 boron can occur. We have presented facts. They are in  
7 dispute in this proceeding, as you will hear, and this  
8 dispute can only be resolved properly through the process of  
9 the full evidentiary hearing. That concludes my remarks.

10           JUDGE COLE: Excuse me, Ms. Burton, I just have  
11 one question. You are alleging that these new  
12 administrative controls pose an undue and unnecessary risk  
13 of a criticality accident. We have been operating spent  
14 fuel pools all around the world for many years. Do you or  
15 your colleagues know of any incident where the lack of  
16 adherence to administrative controls has led to a  
17 criticality accident anywhere in the world, anytime in the  
18 history of nuclear power and spent fuel pools? Do you know  
19 of any?

20           MS. BURTON: Unfortunately, we do.

21           JUDGE COLE: Can you tell me about?

22           MS. BURTON: We have cited the criticality  
23 accident which occurred in Japan not so long ago.

24           JUDGE COLE: That was not a spent fuel pool,  
25 ma'am.

1 MS. BURTON: I'm sorry.

2 JUDGE COLE: Spent fuel pools is what we are  
3 discussing here today.

4 [Discussion off the record.]

5 MS. BURTON: I'm sorry, I apologize for not  
6 listening carefully enough. We are not aware of any  
7 reported incident of criticality in the spent fuel pool.  
8 However, --

9 JUDGE COLE: Criticality accident.

10 MS. BURTON: Pardon me?

11 JUDGE COLE: Criticality accident.

12 MS. BURTON: Criticality accident. However,  
13 although there have been spent fuel pools in existence for  
14 quite some period of time, the administrative controls that  
15 we are talking about today haven't enjoyed the same  
16 longevity and many of them are only very recently -- have  
17 only very recently been employed, and so the experience  
18 can't be said to be very lengthy.

19 JUDGE COLE: I understand your point, ma'am. It  
20 is changing and so the past history might not reflect what  
21 the current risks might be, but I was just asking for a  
22 single incident of a criticality in a spent fuel pool  
23 anywhere in the world associated with lack of adherence to  
24 administrative controls. And I did not know of any.

25 MS. BURTON: We have been lucky.

1 JUDGE KELBER: Once again, you have stated, just a  
2 few minutes ago, that a failure of administrative controls  
3 can lead to a criticality accident. Did you mean  
4 criticality accident or did you mean violation of a  
5 regulatory limit on reactivity?

6 MS. BURTON: I'm sorry we haven't been clear about  
7 that, but it is our position that either one is possible.

8 JUDGE KELBER: Either one. Okay. Thank you. I  
9 have some questions on your brief. Some of them have been  
10 answered already, but let me go through some of them. On  
11 pages 13 through 16 of your July 6th brief, it discusses the  
12 incidence at the refueling outage 6. Were any fuel  
13 assemblies mispositioned as a result of these problems?

14 MS. BURTON: Not from what we have gleaned from  
15 the logs themselves.

16 JUDGE KELBER: Okay. Did the equipment fail in  
17 such a manner -- this is page 24 -- did the equipment fail  
18 in such a manner as to challenge the safe handling of the  
19 fuel?

20 MS. BURTON: I'm sorry, would you please repeat  
21 that?

22 JUDGE KELBER: Did the equipment fail in such a  
23 manner as to challenge the safe handling of the fuel?

24 MS. BURTON: Well, for that, I would have to  
25 refer --

1 JUDGE KELBER: I am looking at page 24.

2 MS. BURTON: Yes. I would have to refer to the  
3 audits and the analysis that were done by the licensee's own  
4 employees and engineers. And we have cited how they  
5 themselves called attention to the fact that -- and let me  
6 quote, "These malfunctions affected the efficiency of the  
7 refueling operations and potentially challenged the safe  
8 handling of the fuel. Had the equipment failed in a manner  
9 such that a fuel assembly could have been damaged or been  
10 unable to be moved to a safe location, severe challenges to  
11 nuclear fuel safety could have occurred." And that is a  
12 statement from Northeast Utilities own condition report.

13 JUDGE KELBER: All right. Thank you. Page 29,  
14 you use the term "credible" and I want to know what you mean  
15 by credible. Some people mean credible is something that  
16 physically is possible. Other people mean by credible that  
17 it is something which is highly likely. And I would like to  
18 know the sense in which you are using it.

19 [Discussion off the record.]

20 JUDGE KELBER: It is in the middle paragraph on  
21 the page, it begins, "If the technical specifications for  
22 Millstone Unit 3 are changed as requested, it is credible  
23 that a human error could result." And then you go on that  
24 such an error is credible, so on. In what sense are you  
25 using the term "credible" there?

1 JUDGE COLE: I think Dr. Kelber has a different  
2 page 29 than I have.

3 CHAIRMAN BECHHOEFER: Yes.

4 JUDGE KELBER: I stripped off the declaration and  
5 just took the paginated.

6 JUDGE COLE: Well, so did I. So did I.

7 JUDGE KELBER: Well, I used the magic of  
8 WordPerfect to get it.

9 JUDGE COLE: Well, I used the magic of my writing.

10 MS. BURTON: We are in the section on Contention  
11 Number 6?

12 JUDGE KELBER: Well, let me put it this way,  
13 footnote 16 -- wait a minute, footnote 20. Well, let me  
14 read the sentence and that may help. "If the technical  
15 specifications for Millstone Unit 3 are changed as requested  
16 by NNECO, it is a credible that a human error could result  
17 in the wrong fuel assembly being loaded into a Region 3  
18 rack. That such an error is credible is implicitly conceded  
19 by NNECO's evaluation of such an event."

20 Now, what I wanted to know was in what sense are  
21 using the word "credible" there?

22 [Discussion off the record.]

23 MS. BURTON: We would say that it means that it is  
24 possible without saying anything about its relative  
25 likelihood.

1 JUDGE KELBER: It does not imply likelihood.  
2 Thank you. Okay. Let's go on. A couple of pages further  
3 on, you refer to experience at U.S. nuclear power plants,  
4 failure of administrative controls, and I have omitted some  
5 words, is a likely occurrence. What do you mean by "likely"  
6 and how do you propose to show this case, this is the case?  
7 Was Mr. Parillo's estimate of 1 error in 3,000 moves at  
8 Millstone 3 gravely in error?

9 MS. BURTON: You have raised a very good point,  
10 Judge Kelber, and, in fact, we believe that the meaning of  
11 likely is something that can only be properly determined  
12 after a full evidentiary hearing here. There is a factual  
13 dispute as to what that means in this context.

14 JUDGE KELBER: I'm sorry, but how can evidence of  
15 any sort define what one means by "likely"? This is a  
16 qualitative term, and if you go out into the street, are you  
17 likely to be hit by an automobile, let's say? People say,  
18 well, I have one chance in 100, one chance in 1,000. Other  
19 people say I have one chance in 10. When I walk to work, I  
20 calculate it is one chance in 5, but that is a different  
21 matter.

22 So, again, what do mean here by "likely"? Does  
23 Mr. Parillo's estimate of 1 in 3,000 qualify as likely?

24 [Discussion off the record.]

25 MS. BURTON: I can respond as follows, first of

1 all, I think we can look at the history in the industry, as  
2 well as Millstone, and see that we have provided many  
3 examples to show that incidents, particular incidents are  
4 likely, as opposed to unlikely.

5 I would also like to point out that the NRC staff  
6 has conceded that the NRC has never done a statistical  
7 analysis, and doesn't have a database.

8 JUDGE KELBER: I understand that. I just wanted  
9 to know whether you mean that 1 in 1,000 or 1 in 3,000 is  
10 likely or not.

11 MS. BURTON: Well, I think until that information  
12 can properly be --

13 JUDGE KELBER: I am not endorsing Mr. Parillo's  
14 estimate, I am trying to get an understanding of what you  
15 mean by "likely." I have done my own estimate, by the way,  
16 it is different from his, but that is beside the point.  
17 What I want to know is what do you mean by likely? If we  
18 were in an evidentiary hearing, what would you be trying to  
19 establish as the relative frequency of this event?

20 MS. BURTON: There has never been an analysis  
21 either by the licensee or the NRC of a criticality accident  
22 in a spent fuel pool or its consequences.

23 JUDGE KELBER: No, that is not -- again, that is  
24 not what I asked you. Maybe we had better drop that.

25 CHAIRMAN BECHHOEFER: Well, I think the answer

1 could be is 1 in 10 likely, is 1 in 100 likely, one chance  
2 in a hundred? Is one chance in 10,000 likely? One chance  
3 in 10 million? Where do we --

4 JUDGE KELBER: That is really what I am trying to  
5 get at, yes.

6 CHAIRMAN BECHHOEFER: Yes. And I think it is  
7 important --

8 JUDGE KELBER: It is independent of what kind of  
9 event we are talking about.

10 CHAIRMAN BECHHOEFER: Right.

11 JUDGE KELBER: All of this would be much better if  
12 the staff would speed its risk-informing of regulations.  
13 They have been dragging their heels for 25 years.

14 CHAIRMAN BECHHOEFER: Not the staff members  
15 sitting in front of us, but the staff generically -- or  
16 generally, I should say.

17 JUDGE KELBER: Go ahead.

18 MS. BURTON: If I could say, it is very difficult  
19 to address this question, 1 in 100, 1 in a million, without  
20 having a context. In a certain case, 1 in a million, if you  
21 have done 2 million things, might be something that might  
22 seem likely. Or in another context, it could be different.  
23 It is very difficult to take it out of context.

24 JUDGE KELBER: I think Blaise Pascal, who,  
25 unfortunately, is no longer with us, would have differed

1 considerably with your response, but let's go on.

2 Are you going to -- when are you going to be  
3 discussing criticality analysis? Is that in the context of  
4 GDC 62?

5 MS. BURTON: That's right.

6 JUDGE KELBER: Okay. We will get to that then.  
7 Let me get back to this question, once again, can a failure  
8 of administrative controls, given that the boron is in the  
9 spent fuel pool -- I am not talking about cases where there  
10 is boron dilution now -- but can a failure of administrative  
11 controls, by itself, lead to a case of K effective equals 1?

12 [Discussion off the record.]

13 MS. BURTON: To respond, if the boron level were  
14 maintained at 2600 parts per million, we would agree.  
15 However, if the dilution were to go to as low as 800 parts  
16 per million, should there be the right, or the wrong, shall  
17 we say, circumstances, including, for instance, a  
18 mispositioning, then it is our position that there could be  
19 potentially a criticality.

20 JUDGE KELBER: Okay. We will ask the applicant to  
21 discuss that question. Do you include in administrative  
22 controls the question of the cooling of the spent fuel pool?  
23 Because we are aware that, of the materials presented, that  
24 there is a positive temperature coefficient of reactivity in  
25 Unit 3 -- rack 3, and that is there were a mispositioning

1 error or the right type, that if there were a failure of  
2 cooling, the reactivity could increase. I don't know  
3 whether it could increase to 1, but it could increase. Do  
4 you include within the scope of administrative controls a  
5 failure of the cooling system, or is that an independent  
6 failure?

7 [Discussion off the record.]

8 MS. BURTON: On that point, Judge Kelber, it is  
9 our position that the element here of potential failure of  
10 cooling in the spent fuel pool is not something subject to  
11 administrative controls.

12 JUDGE KELBER: Thank you. Now, later on in your  
13 brief, in my pages 60-61, nobody seems to have the  
14 pagination that I have, you use the phrase complete  
15 reliability, then you use cumulative opportunities for error  
16 and cumulative probability. And I am particularly puzzled  
17 by the phrase cumulative probability, and I want to know  
18 what is meant by that.

19 MS. BURTON: Are we in the area now of Contention  
20 6?

21 JUDGE KELBER: Apparently this is in the context  
22 of GDC 62. The only reason I bring it up here is you have  
23 been talking also here about the likelihood of -- increased  
24 likelihood of error. If you wish, we can postpone that till  
25 the discussion of Contention 6.

1 MS. BURTON: Certainly.

2 JUDGE KELBER: Well, I am done.

3 CHAIRMAN BECHHOEFER: Well, somewhat along the  
4 line of questions that Dr. Kelber posed, there are  
5 criticality calculations for Region 3 which, to a person is  
6 not technically trained, would appear that if the water  
7 temperature would reach as high as 160 degrees that the K  
8 effective of 1 or higher might be reached. And I don't know  
9 if I am misreading some of this material. It occurs in  
10 Stanley Turner's affidavit as one of the tables, but it is  
11 an expansion of the tables set forth. But at least as an  
12 untrained observer for -- untechnically trained observer, I  
13 would wonder whether if the water temperature were 160  
14 degrees or higher, could there then be criticality or a  
15 criticality incident.

16 JUDGE KELBER: I think Judge Bechhoefer is  
17 referring to Dr. Turner's Table 3, and make no mistake about  
18 the pagination here, because it is a bound document, page 28  
19 in his affidavit, and it is the footnote with the double  
20 star. And he is referring to a single misplaced assembly of  
21 the maximum reactivity, whatever that means, with concurrent  
22 loss of all soluble boron.

23 [Discussion off the record.]

24 MS. BURTON: Judge Bechhoefer, if I understand  
25 your question related to this heating of the water to 160

1 degrees -- 150 degrees.

2 CHAIRMAN BECHHOEFER: Right.

3 MS. BURTON: Could there be a criticality,  
4 depending on the boron level?

5 CHAIRMAN BECHHOEFER: Yes.

6 MS. BURTON: And we agree that there could be. If  
7 that was your question.

8 CHAIRMAN BECHHOEFER: Well, my position is, would  
9 that be within the envelope of conditions in the spent fuel  
10 pool that where a criticality accident or incident might  
11 result, might occur? And you are welcome to consult your  
12 experts.

13 [Discussion off the record.]

14 MS. BURTON: I guess what I have to say is that  
15 this issue is not something that we brought up as a matter  
16 of dispute, but we don't dispute that it could occur.

17 CHAIRMAN BECHHOEFER: Right. Well, the licensee  
18 is going to be asked a similar question. And, of course, it  
19 is the licensee who did the calculations.

20 I have another question which relates to -- I  
21 think it is your Exhibit 12, but it is the so-called Bopre  
22 memorandum. Do you believe -- I am just reading from the  
23 summary paragraph right now -- where it says second sentence  
24 of the summary, although these equipment -- and this, by the  
25 way, is an internal memo, from what I understand, for

1 Northeast Utilities, but it says, although these equipment  
2 failures did not result in actual fuel damage, the number  
3 and variety of failures demonstrated that the fuel handling  
4 system was not adequately prepared to support refueling  
5 operations. Well, does this performance, in terms of  
6 carrying out administrative controls, do you believe this  
7 would reflect on their ability to successfully carry out  
8 administrative controls? That is the way I should have  
9 worded the question.

10 MS. BURTON: Yes. I would go beyond that, as the  
11 memo seems to document, that many of the problems that  
12 manifested themselves during that particular refueling  
13 outage involved problems with equipment which had been  
14 previously identified in earlier outages. Some were put on  
15 lists to be taken care of and in actual fact, were not  
16 addressed, even though they were noted as being necessary.  
17 And I think the memo does document how, if problems had been  
18 properly addressed when they arose, it would have obviated  
19 many of the errors and the potential safety issues that were  
20 brought up, brought to light.

21 JUDGE KELBER: But following Judge Bechhoefer's  
22 question, which is, does that illustrate a failure to adhere  
23 to administrative controls, does the memorandum substantiate  
24 a case of failure to adhere to administrative controls?

25 [Discussion off the record.]

1 MS. BURTON: Dr. Kelber, I believe that there are  
2 administrative controls that call for the utility to be  
3 fully ready to address refueling and that this memo  
4 certainly demonstrates that there was a failure of  
5 administrative controls to properly prepare for this  
6 refueling outage.

7 JUDGE KELBER: Thank you.

8 [Discussion off the record.]

9 CHAIRMAN BECHHOEFER: I might note there are seven  
10 apparent problems listed. I expect to ask both the Licensee  
11 and Staff about these but am I correct that the seven  
12 problems go to your analysis of the ability to carry out  
13 administrative controls?

14 Do you know if any of these seven listed items in  
15 this memorandum are subject to administrative controls?

16 The seven items start on the first page and they  
17 carry over to the second.

18 [Discussion off the record.]

19 MS. BURTON: I'm sorry, are we looking here, Judge  
20 Bechhoefer, at the section under what is titled Equipment  
21 Failures and Repairs?

22 CHAIRMAN BECHHOEFER: Yes, and I just wondered  
23 whether any of those would be the subject of administrative  
24 controls.

25 [Discussion off the record.]

1 CHAIRMAN BECHHOEFER: Or whether any of the  
2 failures may have occurred because administrative controls  
3 were not properly followed.

4 [Discussion off the record.]

5 MS. BURTON: Judge Bechhoefer?

6 CHAIRMAN BECHHOEFER: Yes?

7 MS. BURTON: I would say at the very least  
8 certainly Number 6 and Number 7 would qualify.

9 [Discussion off the record.]

10 CHAIRMAN BECHHOEFER: Ms. Burton, my next question  
11 relates to what I number your summary as page 43, but it is  
12 in Footnote 56, where there is a reference to an incident at  
13 Unit 2 but is the incident where it says hydraulic fluid  
14 entered the spent fuel pool, is that an example of the  
15 failure of some sort of administrative control?

16 MS. BURTON: Let me be sure we are talking about  
17 the same thing.

18 CHAIRMAN BECHHOEFER: It is in your Footnote 56 --

19 MS. BURTON: Right, concerning --

20 CHAIRMAN BECHHOEFER: It is on my page 43 --

21 MS. BURTON: Right.

22 CHAIRMAN BECHHOEFER: -- starting one, your first  
23 page of your summary.

24 MS. BURTON: This was the incident involving  
25 hydraulic fluid entering the spent fuel pool?

1 CHAIRMAN BECHHOEFER: Yes, yes.

2 [Discussion off the record.]

3 MS. BURTON: Judge Bechhoefer?

4 CHAIRMAN BECHHOEFER: Yes.

5 MS. BURTON: On that point, we would say that this  
6 would seem to fall within the realm of maintenance of the  
7 spent fuel pool, which necessarily brings it into the realm  
8 of being subject to administrative controls so we would say  
9 yes.

10 [Discussion off the record.]

11 CHAIRMAN BECHHOEFER: Ms. Burton -- well, I won't  
12 say it because it's on page 50, but I don't know if that  
13 will lead you to the right page or not.

14 I would like to know, I am not sure I understand  
15 everything that is in the paragraph. The one that starts  
16 "The technical analysis provided by NEECO" -- I would like  
17 you to elaborate a little bit on that. I am having trouble  
18 determining exactly what you mean to say by that.

19 JUDGE KELBER: That's under the heading --

20 CHAIRMAN BECHHOEFER: Technical Analysis is  
21 Insufficient is the heading that is just before the  
22 paragraph.

23 I just really want -- perhaps you can elaborate on  
24 what that several sentences mean. I found it a little  
25 confusing.

1 JUDGE KELBER: Yes, I had the same question  
2 actually, but I held off.

3 CHAIRMAN BECHHOEFER: It's our time to ask.

4 [Discussion off the record.]

5 MS. BURTON: Judge Bechhoefer, there are a few  
6 issues here. The first is that the Licensee has not  
7 provided a risk analysis that is qualitative and in the  
8 absence of that we have asserted an opinion. The Licensee  
9 has asserted an opinion as to the risk and we are at odds,  
10 and therefore the need to proceed to a full evidentiary  
11 hearing on that issue.

12 We also again -- I have mentioned this before --  
13 but the Licensee has not covered the full spectrum of  
14 possibilities and I am now at page 51. There has been no  
15 analysis of factors that would include operation and  
16 maintenance errors, heat exchanger tube failures, seal  
17 failures, and leakage due to corrosion with respect to  
18 scenarios of boron dilution.

19 There is also the area where we sought certain  
20 information in discovery that is referenced in the third  
21 paragraph of page 50 and the Board there ruled to sustain  
22 Northeast Utilities' objections to that information, but our  
23 position is that without that information there are factual  
24 issues which are in dispute that can only be resolved  
25 through a full evidentiary hearing.

1 JUDGE KELBER: Is it your position that the  
2 Licensee should submit a full-scale risk analysis?

3 [Discussion off the record.]

4 JUDGE KELBER: A simple yes or no will suffice.

5 MS. BURTON: I misspoke before when I responded to  
6 the earlier question, and that is that the Licensee -- well,  
7 it may have provided a certain level of qualitative analysis  
8 has not provided the quantitative analysis. That requires  
9 us therefore to go to a full evidentiary hearing.

10 As far as whether the Licensee is required to  
11 submit a risk analysis, well, it appears that there never  
12 has been a risk analysis, that this is a generic issue in  
13 the industry and without a database, an analysis, a  
14 statistical source to draw from, in that factual background  
15 we therefore need to go to a full evidentiary proceeding to  
16 develop --

17 JUDGE KELBER: I don't understand. Wait a minute.  
18 Wait a minute.

19 CHAIRMAN BECHHOEFER: Well, let her finish.

20 JUDGE KELBER: I just asked a simple yes or no.  
21 Should the Applicant be prepared to present a risk analysis  
22 in your view?

23 [Discussion off the record.]

24 MS. BURTON: Judge Kelber, the short answer is  
25 that that would be obviated by a hearing.

1 JUDGE KELBER: A what?

2 MS. BURTON: By a hearing, a full evidentiary  
3 hearing.

4 JUDGE KELBER: Well, you are putting an awful lot  
5 of burden on our shoulders when you say that. Okay.

6 CHAIRMAN BECHHOEFER: Well, do you think that the  
7 analysis should be part of the record -- should be performed  
8 by somebody at some point?

9 [Discussion off the record.]

10 MS. BURTON: In this proceeding, in this license  
11 amendment application, certainly there is a burden on the  
12 part of the Licensee to meet its burden to establish why it  
13 is entitled to the license application, and one way to  
14 address that issue would be for the Licensee to submit a  
15 quantitative risk analysis.

16 They haven't done that and so there is nothing for  
17 us to review.

18 JUDGE KELBER: Excuse me. I am not a lawyer but I  
19 think that the rules clearly state that the burden of proof  
20 lies with you.

21 CHAIRMAN BECHHOEFER: No. No, they don't. In the  
22 overall proceeding the burden of proof lies with the  
23 Licensee.

24 To convince us whether or not we should go to an  
25 evidentiary hearing, the burden does fall on the

1 Intervenor, but not the burden of proof -- not a burden of  
2 proof as such.

3 JUDGE KELBER: Your argument would be better if  
4 you were to perhaps after the lunch break give someone a  
5 list of the additional calculations you think would be  
6 beneficial.

7 Simply stating that the Licensee hasn't done  
8 enough technical analysis doesn't really help matters. One  
9 doesn't know what one is looking for.

10 Would you be prepared after the lunch break to  
11 furnish a brief list of the types of calculations you think  
12 would be necessary.

13 MS. BURTON: We would be happy to.

14 JUDGE KELBER: Okay. That will kind of clear it  
15 up, that question.

16 [Discussion off the record.]

17 JUDGE COLE: While Judge Bechhoefer is reviewing  
18 his notes, just one question.

19 CHAIRMAN BECHHOEFER: Okay, go ahead.

20 JUDGE COLE: On page 11 of your statement you say,  
21 "In recent years a number of Licensees have further  
22 increased the density of their spent fuel pool rack  
23 storage."

24 Do you have concrete numbers as to how many have  
25 actually increased the capacity of their spent fuel pool, of

1 the 102 reactors we have in the United States?

2 [Discussion off the record.]

3 MS. BURTON: Judge Cole, we do not have the  
4 specific numbers and in fact the NRC does not keep a  
5 systematic record of this information and a full answer  
6 couldn't be given without an exhaustive search of the public  
7 document room, but we believe that probably more than half  
8 of the reactors.

9 JUDGE COLE: It is a figure that I remembered too.  
10 It is probably someplace in the record, because I believe  
11 the NRC has issued more than 50 spent fuel pool expansion  
12 licenses for amendments so that would mean it's at least  
13 half of the plants in the United States have --

14 JUDGE KELBER: Perhaps when the Staff has their  
15 turn, they can address that.

16 JUDGE COLE: And then there might be multiple  
17 plants involved so it is certainly more than 50.

18 MR. LOCHBAUM: Some of the plants have the same  
19 Licensee because they have reracked twice.

20 JUDGE COLE: Okay, so it might be less.

21 MR. LOCHBAUM: That may not be the right measure.

22 JUDGE COLE: Okay. I was trying to get a ball  
23 park estimate of this, so I think this would be sufficient,  
24 thank you.

25 CHAIRMAN BECHHOEFER: I've got one final question.

1 I'll wait until she's through writing.

2 I have got one final question, at least for the  
3 moment and before we -- I think we will break for lunch  
4 after this, but on page -- what I number as 28 --

5 JUDGE KELBER: It's the last paragraph --

6 CHAIRMAN BECHHOEFER: It is the last paragraph of  
7 your presentation on Contention --

8 JUDGE KELBER: 4.

9 CHAIRMAN BECHHOEFER: No, it is probably 5.

10 JUDGE KELBER: The last paragraph of your  
11 discussion of Contention 5.

12 CHAIRMAN BECHHOEFER: It is of Contention 5 but it  
13 bears on Contention 4 as well.

14 You seem to wish for a surveillance requirement to  
15 check for misloaded fuel assemblies at the termination of  
16 fuel movements, and do you think that a condition of that  
17 sort should be imposed?

18 If the amendment were to be granted, would a  
19 condition like that be appropriate in your view?

20 [Discussion off the record.]

21 MS. BURTON: Judge Bechhoefer, if the amendment  
22 requiring surveillance at all times were to be imposed, that  
23 would make this unnecessary because it would be assumed that  
24 there would be surveillance at that time as well.

25 CHAIRMAN BECHHOEFER: Well, would the purpose of a

1 requirement -- should the purpose be spelled out, even if  
2 the requirement were an overall requirement?

3 A specific check for misloaded assemblies at the  
4 termination of fuel movement, would that be desirable -- not  
5 saying that it would replace anything else but it would  
6 supplement whatever else there would be.

7 MS. BURTON: Do you mean at the very moment of the  
8 completion of the fuel movements?

9 CHAIRMAN BECHHOEFER: Yes. Yes.

10 MS. BURTON: As opposed to if it were every seven  
11 days, whenever that happens?

12 CHAIRMAN BECHHOEFER: No, no, no --

13 JUDGE KELBER: Separate this from --

14 CHAIRMAN BECHHOEFER: Separate this from the seven  
15 day rule that will -- it has been, I guess, imposed.

16 JUDGE COLE: The seven day rule pertains to just  
17 measuring the boron.

18 CHAIRMAN BECHHOEFER: Right. Right.

19 MS. BURTON: I'm sorry --

20 CHAIRMAN BECHHOEFER: And this seemed to be  
21 checking for something beyond the boron.

22 [Discussion off the record.]

23 MS. BURTON: Judge Bechhoefer, point of  
24 clarification. Was your question directed to this sentence,  
25 "Only within the context of the Contention Number 5" --

1 CHAIRMAN BECHHOEFER: No, 4.

2 MS. BURTON: 4 -- oh, I see.

3 CHAIRMAN BECHHOEFER: I thought it applied more to  
4 4 than to 5.

5 JUDGE KELBER: The question is --

6 CHAIRMAN BECHHOEFER: I am not talking about the  
7 boron dilution or content or whatever, which surveillance  
8 will take place, but the surveillance requirement to check  
9 for misloaded fuel assemblies at the termination of fuel  
10 movements.

11 [Discussion off the record.]

12 MS. BURTON: Judge Bechhoefer, we would not object  
13 to such a requirement. However, it is our position that  
14 that would be no substitute for physical control. It might  
15 provide some potential level of comfort but to us it is no  
16 substitute for what is required, which is physical control.

17 JUDGE KELBER: For a failsafe system.

18 MS. BURTON: That is what is called for, a  
19 failsafe system.

20 [Discussion off the record.]

21 CHAIRMAN BECHHOEFER: I think at this point we  
22 will break for lunch.

23 Do any of the parties or people here know how long  
24 it is likely to take or how close restaurants are to this  
25 area? I mean would an hour be sufficient or do we need a

1 little more than an hour?

2 I mean I don't know where anything is around here.

3 MR. REPKA: We are kind of anxious to get on with  
4 the discussion and enter this discussion so we are content  
5 with an hour; but I have no idea what that leaves for lunch  
6 options.

7 CHAIRMAN BECHHOEFER: Let's break now and be back  
8 at 1:15. It's a couple minutes more than an hour. I hope  
9 that is enough time.

10 [Whereupon, at 12:08 p.m., the hearing was  
11 recessed, to reconvene at 1:15 p.m., this same day.]

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## AFTERNOON SESSION

[1:24 p.m.]

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3 CHAIRMAN BECHHOEFER: Back on the record.

4 By the way, I heard some people were having  
5 trouble hearing me this morning. I will try to speak  
6 loudly.

7 These microphones are only connected to the  
8 reporter, not to the room itself so we don't have  
9 microphones that would amplify whatever I say and the Board  
10 says. The one over there is supposed to, but there is no  
11 way to get it here easily so if you can't understand me,  
12 blame my voice and tell me to speak louder.

13 JUDGE COLE: Speak louder.

14 CHAIRMAN BECHHOEFER: They already told me. Okay,  
15 back on the record.

16 [Discussion off the record.]

17 CHAIRMAN BECHHOEFER: Ms. Burton, do you have that  
18 list that we referenced?

19 MS. BURTON: We have a hand-drawn list which I  
20 could show you or perhaps I should read it?

21 JUDGE KELBER: Read it.

22 CHAIRMAN BECHHOEFER: Read it in the record. It  
23 will be in the record then.

24 MS. BURTON: The first is in the Intervenors'  
25 interrogatories dated May 18th, 2000, this was the third set

1 of interrogatories and request for production directed to  
2 the Licensee, the Coalition sought in Question A(4) the  
3 performance of calculations by the Licensee of K-effective,  
4 and I will read that request.

5           Given the implementation of the proposed reracking  
6 of the Millstone 3 pool and assuming an absence of soluble  
7 boron, what would be the calculated K-effective in each of  
8 the regions of the pool if various combinations of fresh  
9 fuel assemblies were placed in the racks? For this purpose  
10 various combinations of fresh fuel assemblies would include  
11 one assembly, two adjacent assemblies, four adjacent  
12 assemblies, and a full rack where in each case the  
13 surrounding cells would be occupied by assemblies of the  
14 highest reactivity allowed by the technical specifications.

15           As stated in section 4(b)(3) of the Coalitions'  
16 brief, Question A(4) was intended to obtain an indication of  
17 the shape of the envelope of criticality for the pool.  
18 Section 2.4 of Appendix C of the Coalition's brief describes  
19 how the envelope of criticality should be determined for a  
20 fuel pool.

21           The Coalitions seek the determination by the  
22 Applicant of the envelope of criticality for the proposed  
23 Millstone 3 pool. Calculations provided by the Licensee do  
24 not determine the envelope of criticality.

25           Therefore, that is the first of our requests for

1 further analysis.

2 The second, referring again to the same set of  
3 interrogatories, as the Board will recall, in Section A.2,  
4 boron dilution, certain of those requests were granted.  
5 However, the Board denied and overruled -- granted a  
6 protective order with respect to subsections 3, 4, 5, 6 and  
7 7. I will read those.

8 The Intervenors seek to identify and characterize  
9 scenarios in which the concentration of soluble boron in the  
10 Millstone 3 spent fuel pool is reduced through dilution. To  
11 that end, the Intervenors seek information about all systems  
12 and mechanisms that could add water to the pool or remove  
13 water from the pool. Specific questions follow.

14 Going to Number 3, please identify and describe in  
15 detail all piping and systems that could remove water from  
16 this pool and from the pool cooling and purification  
17 systems. For the purposes of this question, include all  
18 water removal pathways, not only those pathways allowed by  
19 present procedures. Please provide diagrams, drawings and  
20 specifications of relevant piping and systems.

21 Number 4 -- Please identify and describe the  
22 potential effect on the pool water inventory of ruptured or  
23 broken tubes in a pool cooling heat exchanger. Please  
24 provide relevant documents.

25 Number 5 -- Please identify and describe the

1 potential effect on the pool water inventory of pipe leaks,  
2 pump seal leaks, inadvertent opening of drain valves or  
3 other water loss pathways from the pool cooling and  
4 purification systems. Please provide relevant documents.

5           Number 6 -- Please identify and describe in detail  
6 all piping and systems that could add water to this pool and  
7 to the pool cooling and purification systems. For the  
8 purposes of this section, include all water addition  
9 pathways, not only those pathways allowed by present  
10 procedures. Please provide diagrams, drawings and  
11 specifications of relevant piping and systems.

12           Number 7 -- Please identify and describe in detail  
13 all piping that passes through the pool building that could,  
14 through leakage, opening of a valve or flange, or addition  
15 of couplings, hoses, or spool pieces cause the flow of water  
16 into the pool. Please provide diagrams, drawings, and  
17 specifications of relevant pipings and systems.

18           The Coalition seeks a full response to these  
19 requests. Given that response, the Coalition will present  
20 boron dilution analyses in an evidentiary proceeding.

21           Third, the Coalitions reiterate their basic  
22 position that the criticality prevention here should not  
23 rely on ongoing administrative measures -- burnup, fuel age,  
24 soluble boron. If that position were upheld, the Coalitions  
25 would not call for an assessment of the probability and

1 consequences of a criticality accident in the pool. The  
2 Licensee with Staff complicity is reducing the criticality  
3 safety and margins in the pool. Therefore, it is incumbent  
4 on the Licensee to conduct a full assessment of the  
5 probability and consequences of a criticality accident in  
6 the Millstone 3 pool.

7 This assessment would be in some respects  
8 analogous to the individual plant examination which is  
9 required for each reactor and for your further reference we  
10 might suggest that Appendix C, which we have provided,  
11 provides background as to how this analysis might be  
12 addressed. Thank you.

13 CHAIRMAN BECHHOEFER: With that, we will go on to  
14 Mr. Repka's presentation.

15 MR. REPKA: Thank you, Judge Bechhoefer.

16 As I mentioned before the break, Northeast Nuclear  
17 is anxious to get into this discussion here today. I had to  
18 exercise a substantial amount of internal restraint this  
19 morning to listen to the Coalition's arguments, which are  
20 essentially in our view filled with a lot of untruth,  
21 inaccuracy, half-truth, and other things that we just don't  
22 agree with.

23 I think there may be a lot of sound and fury  
24 there, and a lot of smoke, but there certainly is no genuine  
25 and substantial issue of fact on this Contention 4 that

1 would meet the subpart (k) threshold.

2 The proposal to increase the storage capacity in  
3 the Unit 3 spent fuel pool is one that involves adding racks  
4 to an open space in the spent fuel pool. It is not a  
5 proposal involving jamming more assemblies in the same  
6 amount of space. It is a proposal that is perfectly safe.  
7 It's been thoroughly analyzed. It meets all NRC  
8 requirements that apply. It meets the standards of NRC  
9 guidance documents that apply.

10 The proposal uses a proven technology. It uses  
11 proven procedures and it is overall consistent with 20 years  
12 of experience in the nuclear industry.

13 The proposal is no different, not fundamentally  
14 different in kind or in implementation from the present  
15 storage in Millstone 3.

16 Lastly, as a threshold matter, I want to emphasize  
17 that the proposal is also consistent with the mandate of the  
18 Nuclear Waste Policy Act. The idea that high density wet  
19 storate should not be allowed was one specifically  
20 considered by Congress in the context of the Nuclear Waste  
21 Policy Act, and was specifically rejected.

22 Congress directed in the Act that Licensees were  
23 to maximize onsite storage capacity. The Act directed the  
24 NRC to facilitate new onsite storage and it specifically  
25 referred to technologies like onsite high density storage,

1 such as what Northeast Nuclear currently employs and what  
2 Northeast Nuclear would be employing through this proposal.

3 JUDGE KELBER: Can you supply a citation for that?

4 MR. REPKA: Yes, I can. Those are cited in fact  
5 in our summary paper.

6 JUDGE KELBER: Okay, that's fine.

7 MR. REPKA: Having said that, Contention 4 argues  
8 very simply that the proposal is too complex, that it  
9 involved administrative controls and that the failure of  
10 administrative controls will lead to a criticality accident.

11 The company has put together a team of experts  
12 that responded to those issues in the written summary. In  
13 fact, we have provided a substantial record that shows that  
14 that is simply not true. I am very proud of what the  
15 company put forward in our written statements. I think it  
16 gives the Board substantial evidence to conclude that there  
17 is no genuine and substantial issue here, no issue that  
18 would affect the Commission's decision on the amendment, and  
19 none that certainly requires any further evidentiary  
20 hearing.

21 The issues that the Coalitions have raised are  
22 ones that we have heard their positions. You have seen what  
23 Northeast Nuclear has filed. You have seen what the NRC  
24 Staff has prepared, and that bears ample evidence there to  
25 move to a decision and resolve the issues.

1           Contention 4 again states the failure of  
2 administrative controls will lead to a criticality analysis.  
3 I believe Judge Kelber asked before lunch, can a failure of  
4 administrative controls lead to a criticality analysis, and  
5 the answer to that from Northeast Nuclear's perspective is  
6 no.

7           There is no basis to conclude that a failure, no  
8 credible basis to conclude that a failure of administrative  
9 controls such as those that would be employed here would  
10 lead to a criticality accident.

11           There is no more compelling evidence on that point  
12 than the beyond design basis criticality calculations that  
13 the company has offered prepared by Dr. Stanley Turner, one  
14 of the acknowledged experts in this area in the nuclear  
15 industry.

16           There was some discussion before lunch of Table 3,  
17 Case 3, which is a beyond design basis scenario, and those  
18 criticality analyses show that with 2000 parts per million  
19 soluble boron, and by administrative procedure there will be  
20 2600 ppm soluble boron, the entire spent fuel pool as  
21 proposed could be loaded with fresh fuel, and of course  
22 there would be no reason to load the entire spent fuel pool  
23 with fresh fuel, and there would be no criticality accident.

24           That is the kind of defense-in-depth, the kind of  
25 margin in safety that is involved in this proposal.

1           CHAIRMAN BECHHOEFER: Well, what about the  
2 hypothetical that I raised where the temperature would be  
3 elevated to, say, 160?

4           MR. REPKA: I wanted to respond to that, because  
5 the analysis does show that in that case, and there is the  
6 footnote that you referred to --

7           CHAIRMAN BECHHOEFER: That's correct.

8           MR. REPKA: -- that if you had a misload of a  
9 fresh fuel assembly into Region 3 and you take a number of  
10 failures far beyond design basis, you could mathematically  
11 calculate a K-effective of 1.0, but what that would  
12 involve -- what that would involve is (a) a placement of a  
13 fresh fuel assembly into Region 3, which as the testimony of  
14 Mr. Parillo shows, is something that is very unlikely to  
15 occur in the first place; (b) you would have to have no  
16 soluble boron in the spent fuel pool, because as the  
17 footnote states it would take only 30 ppm soluble boron as  
18 compared to the administrative limit of 2600 to prevent that  
19 K-effective from exceeding 1.0; (c) you have a spent fuel  
20 pool that's nominal operating temperature is 95 degrees.  
21 There are alarms at 135 degrees. There are redundant trains  
22 of spent fuel pool cooling. You would have to fail both  
23 trains of spent fuel pool cooling in order for the  
24 temperature -- and have no mitigating actions taken -- in  
25 order for the temperature to go to the 160 degrees, so those

1 are -- we are now assuming three or four different failures  
2 that are beyond design basis.

3 In addition to that, since it involves a misload  
4 into Region 3, you would have to have -- I know we are not  
5 crediting the Boraflex neutron absorbers that are presently  
6 in those racks, but the fact remains that they are there, so  
7 you would have to postulate additionally the design basis  
8 earthquake would come along at exactly that time, fail the  
9 Boraflex, and you would have to have this incredible  
10 combination of events far beyond what the company is  
11 required to assume, far beyond what could reasonably happen,  
12 in order for that type of event to occur.

13 So we do believe that the analyses that Dr. Turner  
14 has presented more than amply demonstrate what Dr. Thompson  
15 is looking for in terms of an envelope of criticality.

16 There are several cases illustrated and each one  
17 of those cases, again beyond design basis, shows no  
18 criticality can result even with multiple failures of  
19 administrative controls, assuming multiple misloads of fuel,  
20 assuming losses of soluble boron that won't occur, and I  
21 will get to both of those in a little more detail, but those  
22 criticality analyses more than anything else show that this  
23 contention simply has no merit.

24 Having responded to those issues initially I want  
25 to walk through some of what really are the company's

1 principal points we made in our summary paper, try to  
2 respond to a few of the issues we have heard this morning,  
3 and then I would be happy to entertain Board questions.

4 But first -- several points, but the first point  
5 is that the contention is based on a faulty premise. The  
6 proposal does involve increasing the number of regions of  
7 storage in the spent fuel pool from two to three, and it  
8 does involve the addition of decay time to the burnup,  
9 enrichment and decay curve in one region, Region 3, but this  
10 is, as I said before, not a rerack.

11 It doesn't involve capacity beyond the original  
12 design of the Millstone spent fuel pool. It is adding racks  
13 into open space. The spent fuel pool was originally  
14 designed for approximately 2000 fuel assemblies. Its heat  
15 load capacity was premised upon that kind of capacity, so it  
16 doesn't involve storage beyond the initial design. Again,  
17 there is no change in the nature of the criticality controls  
18 that would be employed.

19 It is a combination of geometric spacing, fixed  
20 neutron absorbers, soluble neutron absorbers, and burnup and  
21 enrichment limits. No fundamental change in the nature of  
22 the criticality controls. There are no new administrative  
23 controls employed. Fuel loading procedures would be exactly  
24 as they have been in the past.

25 There is no trade-off. There is no added

1 complexity. The number of fuel moves involved in a  
2 refueling is not changing in any way.

3 CHAIRMAN BECHHOEFER: Well, doesn't the addition  
4 of a region as alleged, maybe an addition of two different  
5 regions I have heard, doesn't that perforce constitute an  
6 additional complexity, just by virtue of numbers?

7 MR. REPKA: I think the answer to that is no,  
8 because the analysis and the steps they go through to  
9 analyze that are essentially the same, and as both Mr.  
10 Parillo and I believe the Staff's witness Mr. Cerne have  
11 observed, the procedures involved in actually moving fuel  
12 into the regions are fairly simple procedures. They are  
13 proven procedures, so I would not agree that perforce just  
14 because you are adding a new region you are adding  
15 complexity, but be that as it may, the complexity that the  
16 Intervenors have talked about is the potential for misload  
17 the potential for boron dilution, and I want to address each  
18 one of those in turn.

19 First, with respect to the potential for misloads,  
20 human errors can and do occur. Procedures are designed,  
21 training is designed, all are designed to prevent human  
22 errors, but they do occur. Therefore, the proposal involves  
23 defense-in-depth and engineering consistent with years and  
24 years of nuclear regulatory guiding philosophy.

25 The procedure involves validated codes for

1 calculating burnups. It involves QA burnup calculations.  
2 It involves dual verification of fuel moves and also there  
3 has been a past successful implementation of those  
4 procedures here at Millstone.

5 The Intervenors have not pointed out one specific  
6 flaw in the procedures.

7 Mr. Parillo in addition in his affidavit goes to  
8 great pains to show how the layout of the spent fuel pool as  
9 proposed actually works to greatly minimize even the  
10 potential for a spent fuel pool misload.

11 In a nutshell, most of the fuel moves during a  
12 refuelling outage are going to be between the transfer canal  
13 and Region 1, which is aligned right in front of the  
14 transfer canal. There is no reason for fresh fuel to travel  
15 over Region 2 or Region 3 and all of the limiting case  
16 analyses in the criticality calculations involved fresh fuel  
17 being loaded into Region 2, Region 3, which are situations  
18 that simply one wouldn't expect to occur.

19 JUDGE KELBER: I am going to interrupt. What is  
20 the actual distance between the front of Region 1 and Region  
21 3? Is it a matter of feet, of yards?

22 MR. REPKA: It is a matter of yards. It is  
23 something you will see when you visit the site tomorrow. My  
24 guess is it's on the order of, Region 2 itself, the width of  
25 Region 2 itself is probably 15 yards.

1 MR. DODSON: I am not sure I understand the  
2 question necessarily.

3 The racks will abut each other, so --

4 JUDGE KELBER: From the front of Region 1 to the  
5 front of Region 3, what is the total distance? In other  
6 words, what distance do you have to travel by mistake in  
7 order to load something in Region 3 that should be in Region  
8 1?

9 MR. REPKA: One moment.

10 [Discussion off the record.]

11 MR. DODSON: Eight to nine feet.

12 JUDGE KELBER: Thank you.

13 MR. REPKA: There's been some talk about operating  
14 experience at Millstone 3. A lot of pejoratives have been  
15 used. I think that that is really not at all warranted, and  
16 there is no substantial issue there.

17 The facts are that there has never been a  
18 criticality event in the spent fuel pool in this country and  
19 there has been no event identified at Millstone 3 in which  
20 fuel, fresh or otherwise, was moved into a region for which  
21 it wasn't qualified.

22 This morning the Coalitions discussed a 1994 event  
23 in which there was a potential for misloading. There was in  
24 fact no misloading. That was addressed by Mr. Parillo in  
25 his affidavit and in the matrix of operating experience that

1 the company submitted with its written summary.

2           What happened there was a spent fuel assembly was  
3 moved to a location, an incorrect location. There was an  
4 assembly already there. It was observed and the error was  
5 detected and corrected.

6           The fact is had there been no assembly there, and  
7 the spent fuel assembly been misloaded, it was still in a  
8 region for which it was qualified and that highlights very  
9 much the fact that a misload in and of itself will not even  
10 lead to a reactivity effect, much less a criticality  
11 accident -- two very different things.

12           Ms. Burton this morning read the condition report  
13 that the company prepared related to the 1994 event. She  
14 cited a number of causal factors that were pointed out in  
15 the analysis of the issue. What this was was an example of  
16 a corrective action process working exactly as it was  
17 supposed to.

18           There was a thorough evaluation of the event --  
19 many, many causes, potential causes, contributing factors  
20 and others were identified.

21           One item Ms. Burton picked up on was that the  
22 individual who wrote the condition report thought that  
23 lighting may have contributed to the event. What she  
24 neglected to point out, if she had read a little further  
25 into the condition report, was that there was a specific

1 corrective action addressed to lighting. A procedure was  
2 added. A step was added to the procedure to require that  
3 the lighting be verified prior to moving fuel. That step, a  
4 correction from the 1994 incident, still remains in the  
5 procedures today.

6 It specifically requires that the operators verify  
7 that there is enough lighting to see the tops of fuel  
8 assemblies prior to moving fuel. If they can't, they need  
9 to go move more lights to the area.

10 JUDGE KELBER: How do they identify the fuel  
11 elements that are in the pool? Do they have a camera, a  
12 telescope? How do they view the fuel?

13 MR. REPKA: For what purpose?

14 JUDGE KELBER: To identify the fuel element  
15 itself. The fuel element is where --

16 MR. REPKA: The identification of the fuel element  
17 occurs at several stations. It occurs in the reactor core.  
18 That is done by camera, and then when it gets to the spent  
19 fuel pool it is dual verified by -- it is moved there.

20 There is a digital readout on the spent fuel pool  
21 hoist that says which location it is and it is moved there.  
22 It is a visual observation at that point.

23 JUDGE KELBER: Okay.

24 MR. REPKA: The serial number verification then  
25 occurs when an assembly is moved back to the core.

1 JUDGE KELBER: So all that is done in the core?

2 MR. REPKA: That is done by camera in the core, so  
3 to the extent you would ever need to do a serial number  
4 verification in the spent fuel pool, and it has been done,  
5 and that is referenced in the testimony of Mr. Parillo and  
6 Mr. Jensen I believe -- that would be done by camera, on a  
7 camera inserted down into the spent fuel pool --

8 JUDGE KELBER: Okay.

9 MR. REPKA: And that was done during, I believe  
10 Mr. Parillo's testimony or Mr. Jensen's talked about how  
11 that was benchmarked during the 1999 outage.

12 CHAIRMAN BECHHOEFER: Do you have the cameras or  
13 does the facility now have the cameras?

14 MR. REPKA: Excuse me, I didn't hear that.

15 JUDGE COLE: He asked do you have the cameras.

16 CHAIRMAN BECHHOEFER: Does the facility now have  
17 the cameras?

18 MR. REPKA: The question is does the company own  
19 the cameras or what do you mean?

20 CHAIRMAN BECHHOEFER: Do they have them onsite,  
21 ready to use?

22 JUDGE KELBER: Are the cameras ready to use for  
23 the next refueling outage? They are available?

24 MR. REPKA: The answer is yes.

25 CHAIRMAN BECHHOEFER: Thank you.

1 MR. REPKA: With respect to lighting, there has  
2 been other discussion of the fact that Mr. Jensen in his  
3 deposition talked about how spent fuel lamps are not  
4 routinely replaced necessarily when they are burned out.

5 What was neglected to be pointed out was that Mr.  
6 Jensen also explained that the lamps are replaced when they  
7 are needed, which is prior to a refueling.

8 If there is no reason to replace the lamps, they  
9 are not replaced. The fact remains that these lamps are  
10 moveable lamps on polished rods inserted down into the spent  
11 fuel pool. To change the light bulb involves retracting it,  
12 decontaminating the rod, and there's ALARA implications  
13 associated with doing that, so the light bulbs are changed  
14 when and if they are needed.

15 They may not be changed for an outage if in fact  
16 the lights can be moved where they are needed -- the other  
17 lights can be moved where they are needed to be moved, so  
18 the fact is the procedures require verification of adequate  
19 lighting and the experience has been there has been no  
20 misloads.

21 With respect to this morning's discussion, an  
22 unrelated discussion came up regarding the 1999 refueling  
23 outage, RFO-6. There were a number of questions raised  
24 about equipment issues that arose during that outage.

25 The facts are that the issues that arose during

1 the 1999 outage were equipment, operational reliability  
2 issues. Mr. Jensen testifies to this in his sworn  
3 affidavit. They were not related to misload. No link has  
4 ever been established or could be established between the  
5 kinds of issues that were raised and the potential for  
6 misload.

7 For example, a reference is made to the condition  
8 report and the so-called Beaupre analysis of those issues.

9 One of the issues relates to the reliability of  
10 the Sigma machine. The Sigma machine is a fuel machine, a  
11 fuel-handling machine on the reactor vessel side of  
12 containment. It has absolutely nothing to do with spent  
13 fuel handling.

14 The fuel is moved from the Sigma machine to the  
15 transfer canal. There's an upender on the containment side,  
16 the vessel side of the transfer canal. It moves the fuel  
17 from a vertical position to a horizontal position. One  
18 assembly at a time moves through the transfer canal. There  
19 is another upender on the other side, the spent fuel pool  
20 side of the transfer canal. The upender there moves the  
21 assembly back to vertical where the spent fuel handling  
22 bridge takes that assembly and moves it to the correct  
23 location.

24 A second problem identified during the 1999 outage  
25 was a problem related to moving the upender on the spent

1 fuel pool side, the fuel transfer basket associated with  
2 that upender.

3           There was never an issue with respect to the  
4 performance of the upender with fuel in it, and in any event  
5 it could not affect the location where the fuel goes. The  
6 issue there was a torque switch which was stopping the  
7 transfer basket from moving back down after the assembly is  
8 loaded to the spent fuel handling bridge, moving it back to  
9 the transfer canal. The problem was delay in the outage  
10 schedule, not the potential for misloading fuel.

11           It is a reliability issue. Corrective actions  
12 have been taken and will be in place for the next refueling  
13 outage.

14           JUDGE KELBER: That applies to the entire fuel  
15 transfer equipment, the Sigma machine, the --

16           MR. REPKA: In fact, there will be corrective  
17 actions in place for all of the items. With respect to the  
18 Sigma machine, that machine is in fact being replaced  
19 because of reliability issues, but again there can be no  
20 link between those issues and misloading fuel.

21           Another issue raised in that report is the issue  
22 of communications. Communications are established during a  
23 refueling between the reactor side of containment, the spent  
24 fuel side, and the control room -- three-way communications.

25           There are problems in the condition report talked

1 about -- the Erickson phones, portable phones that were used  
2 to establish three-way communications. It turned out it was  
3 difficult to do that on what are essentially cell phones.  
4 Batteries would run out. Three-way communications were not  
5 easy to set up. So there are problems.

6 What was the effect of that? If communications is  
7 lost, fuel movement is suspended. There's no issue with  
8 respect to misloading potential.

9 What that does is it delays the outage.  
10 Corrective actions would be taken for simple operational and  
11 business reasons.

12 All of the other issues identified during that  
13 report are of similar nature.

14 There is an issue raised with respect to bypassing  
15 an interlock. This relates to the transfer basket returning  
16 back to the upender back to the horizontal position to  
17 return to the spent fuel building.

18 Procedures were followed. There's nothing  
19 inappropriate about bypassing the interlock. The  
20 Westinghouse technical manual specifically talks about the  
21 emergency interlock capability. It defines it as a  
22 capability that is to be exercised whenever it is needed,  
23 that the word "emergency" was never intended to convey any  
24 particular circumstances. It's just the point was the  
25 torque switch was malfunctioning and in order to get on with

1 it, the emergency override needed to be exercised.

2 That is (a) not an issue with respect to placement  
3 of fuel, and (b) has no bearing whatsoever on administrative  
4 controls.

5 I mentioned early this morning when we had the  
6 discussion of whether the board would admit Mr. Cerne's  
7 affidavit on this subject. Mr. Cerne's affidavit is, I  
8 think, actually a very excellent addition to the record  
9 because it explains some of these issues and shows exactly  
10 what is involved as opposed to some of the misleading  
11 information that is presented.

12 But the fact remains we don't believe that that  
13 affidavit is required for a decision on this issue, because  
14 the burden relies upon the interveners to show that there is  
15 some link between the issues they raise and misloading of  
16 fuel and after that a criticality event which in fact is the  
17 nature of the contention. And the interveners have not  
18 shown, and could not show such a link here because a) these  
19 issues have nothing to do with placement of fuel, and b)  
20 even if there were misloadings, as we previously, discussed  
21 the analysis show they will not, will not and cannot lead to  
22 a criticality accident.

23 The next substantive point I want to address is  
24 the so-called potential Boron dilution. Boron dilution is  
25 something that was raised during discovery. It is something

1 that is addressed very fully in Northeast Nuclear's sub-part  
2 K written summary and in the sworn testimony but the fact  
3 remains this was never a basis for the contention originally  
4 proposed. Boron dilution is not a complexity issue at all,  
5 and in any event, Boron dilution has been analyzed. It is a  
6 required licensing bases analysis to assume that you have a  
7 lost of Boron event. That is included in the licensing  
8 basis analysis discussed by Mr. Parillo and Dr. Turner. In  
9 addition, the beyond design basis analysis, again, address  
10 various dilutions scenarios and these show conclusively that  
11 there is no potential for dilution leading to a criticality  
12 accident. But again, having said all of that, let's take it  
13 to the next level. Can a Boron dilution event ever really  
14 occur?

15 The interveners have not identified any specific  
16 pathway by which a Boron dilution could occur. But in fact,  
17 it is whether or not a pathway is identified as irrelevant.  
18 The testimony that we have submitted shows the huge volumes  
19 of water that would be required, 500,000 gallons is  
20 mentioned by Mr. Parillo as being what is required to reduce  
21 Boron concentration from 2600 ppm to 800 ppm, which just  
22 gets you to the text spec limit. It doesn't matter what the  
23 pathway might be. You can't get that kind of volume of  
24 water to create that kind of dilution effect without it  
25 being observed and abated.

1           MR. LOCHBAUM:   Excuse me.  Where would the  
2 500,000 gallons go?

3           MR. REPKA:    I suppose it would depend on where it  
4 comes from.  But it would go a) into the new fuel vault.

5           CHAIRMAN BECHHOEFER:    Pardon?

6           MR. REPKA:    Into THE new fuel vault.  And you  
7 will see this on the tour.  The piping that's been referred  
8 to that flows through the spent fuel pool building is  
9 physically removed from the pool.  It is in a corner, either  
10 side removed, with the exception with the overhead drains  
11 that have also been discussed, but the piping is removed.  
12 And in this space, between where those pipes are and the  
13 spent fuel pool, there is a grading above the new fuel vault  
14 so water would flow into the new fuel vault.  Additionally,  
15 there is a stairwell that brings you up onto the floor of  
16 the spent fuel pool handling building water would  
17 conceivable flow down there and obviously would be  
18 identified by anybody walking into the area.

19                   In addition, there is a curb around the spent fuel  
20 pool and that would prevent any water flow into the pool  
21 itself.  And with all of that, with other alarms that exist,  
22 pool level alarms etcetera, there is no credible way to get  
23 that kind of volume of water into the spent fuel pool.

24                   So contrary to everything that has been said this  
25 morning, the Boron dilution is an analyzed event.  It has

1 been analyzed determineistically as to whether it could  
2 occur; it has been analyzed from the perspective of the  
3 seismic structural capability of the pipes, and that is  
4 addressed in our testimony; and, it has been analyzed from a  
5 critically perspective. A Boron dilution scenario has been  
6 very substantially addressed.

7 JUDGE COLE: Mr. Repka, what levels are the  
8 alarms for low-level or high-level set in the spent fuel  
9 pool?

10 MR. REPKA: I am told it is a very narrow LEP  
11 band for between normal level, high and low, about four  
12 inches separating low and high level. Now one operational  
13 experience with respect to Boron dilution that was sighted,  
14 and again, it is addressed in our sworn testimony, is a Unit  
15 2 incident. And that incident involved basically a two inch  
16 drop in the level and it was identified by a plant equipment  
17 operator even before the alarm level was reached.

18 JUDGE COLE: Would y say it was close to the  
19 alarm level before it was detected?

20 MR. REPKA: Correct. And the other thing that  
21 calls to mind one additional factor on Boron dilution is,  
22 there has also been talk of leakage paths and other things  
23 that are going to lead to drains of the spent fuel pool.  
24 The fact remains that a) the board has ruled out various  
25 contentions originally proposed related to lost of inventory

1 but beyond that a loss of inventory, in and of itself,  
2 doesn't lead to a Boron dilution. It just -- the  
3 concentration of Boron remains the same.

4 An addendum to what I said earlier about the  
5 low-level alarm, that alarm is based upon maintaining  
6 twenty-three feet above the top of the spent fuel pool --  
7 spent fuel assembly. Twenty-three feet by technical  
8 specification.

9 JUDGE COLE: Above the top of the fuel from the  
10 --

11 MR. REPKA: Correct. Fuel in storage.

12 JUDGE COLE: So how deep is the pool?

13 MR. DODSON: Approximately thirty-five feet.

14 MR. REPKA: And again, going to the issue of the  
15 volumes of water, it is a very large pool by industry  
16 standards.

17 The coalition has also previously raised the issue  
18 of past performance of Millstone related to administrative  
19 controls. That is something that has come up; it was not a  
20 center piece of their sub-part K filing; we have addressed  
21 it substantially on the papers, I won't repeat it here.

22 We believe, absolutely, that Northeast Nuclear is  
23 capable of implementing administrative controls. The plant  
24 would not now be operating if it weren't capable of doing  
25 that. The NRC will be exercising oversight throughout the

1 operating life of the plant. And beyond that, the types of  
2 administrative controls that we are talking about here,  
3 soluble Boron surveillances, dual verification of a spent  
4 fuel assembly move are not complicated controls. They are  
5 very prescriptive simple controls and there is no basis that  
6 they won't be followed.

7 I am going to wrap-up by a few conclusions. First,  
8 the coalitions argue that neither the applicant nor the NRE  
9 staff has a proper understanding of the increase burden of  
10 risk as a result of this proposal. That simply is not true.  
11 The risk has been analyzed; the proposal has been analyzed;  
12 it meets NRC regatory standards; it meets NRC regatory  
13 guidance. We heard this morning the argument that this --

14 CHAIRMAN BECHHOEFER: Pardon me. Are there any  
15 standards for degree of risk for this purpose?

16 MR. REPKA: There is not a probabilistic risk type  
17 standard if that is what you mean. You heard this morning  
18 that the NRC has no concrete standards to assess a spent  
19 fuel expansion or capacity increase proposal, and that  
20 simply is not true. There are standard review plans, there  
21 is the all the regatory guidance that we have referred to in  
22 our papers and in particularly in the context of this  
23 contention, which is a criticality contention, there  
24 couldn't be more plain regatory guidance and standards with  
25 respect to the required analysis.

1           The most recent, and therefore, the analysis that  
2 the standards that the NRC would be applying in this case  
3 would be the 1998 criticality guidance authored by Dr. Kopp.  
4 It tells the licensees and the NRC staff exactly what needs  
5 to analyzed, what can be credited and the argument that  
6 there is no concrete standards it simply escapes me.

7           The second center piece of the coalition's  
8 sub-part K filing is that the technical analysis that the  
9 company has prepared is insufficient. For all the reasons I  
10 have just stated that is, again, simply not true. We heard  
11 a list here in the last hour about various things that need  
12 to be done in their view. Number one, was calculations  
13 responding to Interrogatory A-4. It is our position that  
14 the company has done, not only, design basis calculations  
15 that are required, but gone far beyond what is required.  
16 There is absolutely no bases to require further criticality  
17 calculations.

18           Second, there is the complaint that further  
19 analysis needs to be done with respect to piping and Boron  
20 dilution pathways. Again, for all the reasons I have  
21 stated, Boron dilution is an issue that has gotten more than  
22 it is due.

23           Third, the coalitions argue the criticality  
24 prevention should generally not rely upon administrative  
25 measures, and that assessment of probability and

1 consequences of criticality accidents needs to be done and  
2 they analogize that to the IPE.

3 There is simply no regulatory basis to require  
4 such an analysis. Again, the board has already ruled out  
5 contentions related to analysis of design beyond design  
6 basis events and consequences of lose of inventory. There  
7 is no reason to require that now. It has not been required  
8 for any other licensee, and we simply disagree, as a  
9 matter-of-fact in law, with that particular conclusion.

10 CHAIRMAN BECHHOEFER: Well, did Millstone's IPE  
11 include spent fuel pool assessments calculation?

12 MR. Repka: No.

13 CHAIRMAN BECHHOEFER: Do you know whether any of  
14 the other IPEs --

15 MR. REPKA: The answer is, no. It was not  
16 required to and no IPEs address that. None that I know of or  
17 we know of.

18 CHAIRMAN BECHHOEFER: Well, I just wanted to see  
19 what you had to say.

20 MR. REPKA: That is really all I have to say on  
21 contention four. I would be happy, if there are any  
22 additional questions, to try to answer those.

23 MR. LOCHBAUM: I have a few questions regarding  
24 the merits criticality analysis done to decide what burn-up  
25 the fuel actually has.

1 First is, do the computer codes use to -- and this  
2 is on page 20 -- use to generate measured individual fuel  
3 assembly burn-ups -- that's the quote. Yield estimates of  
4 the axial variation of the burn-up?

5 MR. REPKA: The question is do they use estimates?

6 MR. LOCHBAUM: Of the axial variation of the  
7 burn-up? In other words the burn-up varies from top to  
8 bottom depending on whether the --

9 MR. REPKA: The answer from my experts is yes,  
10 very definitely.

11 MR. LOCHBAUM: Very good. In that preceding  
12 description it said, "generate measured individual fuel  
13 assembly burns". What actually is measured?

14 MR. REPKA: I am sorry. Can you help me out where  
15 you are reading from?

16 MR. LOCHBAUM: On page 20. The phrase is  
17 "generate measured individual fuel assembly burn-ups".

18 MR. REPKA: And the question is what is actually  
19 --

20 MR. LOCHBAUM: What is measured?

21 MR. REPKA: What is measured?

22 [Pause.]

23 MR. REPKA: The answer is you are measuring power  
24 distribution.

25 MR. LOCHBAUM: Okay, fine. And finally, this

1 relates both to contention four and contention six; how is  
2 the reactivity worth, and I am interpellating the word  
3 "worth", of fuel assemblies of different axial distribution  
4 estimated? Because if you look at, say, Rack 2, you have  
5 fuel assembly of different reactivity worth because their  
6 axial variation is different.

7 MR. REPKA: It is the question then --

8 MR. LOCHBAUM: How do you estimate it?

9 MR. REPKA: -- even if there is different  
10 reactivity worth how do you assume it in the analysis?

11 MR. LOCHBAUM: Yes.

12 [Pause.]

13 MR. REPKA: The answer is we take a very  
14 conservative bounding burn-up -- axial burn-up.

15 MR. LOCHBAUM: Bounding axial burn-up. Thank you.  
16 That can be a penalty, can't it?

17 MR. REPKA: Yes.

18 MR. LOCHBAUM: Yeah.

19 Now with the reference to the description of the  
20 three procedures that is on page 21, for moving and storing  
21 fuel, what type of training do you plan when the new racks  
22 are installed. I am sorry, I should say if the new racks  
23 are installed.

24 [Pause.]

25 MR. REPKA: Essentially, the proposal doesn't

1 involve any additional training because the procedures are  
2 the same. And the training, I believe that is described in  
3 -- or mentioned in the affidavit of Mr. Jansen would be the  
4 same.

5 MR. LOCHBAUM: And finally, just something we will  
6 see tomorrow but I would like to have it on the record, are  
7 the racks clearly defined by symbols or other means in  
8 addition to their relative location?

9 MR. REPKA: Within the procedures there are maps.  
10 Inside the spent fuel pool there are not symbols but the  
11 regions are visually distinct. Region 1 includes  
12 cell-blockers which make the region visually distinct;  
13 Region 2 does not; Region 3 is the existing racks which are  
14 very different in visual characteristic.

15 MR. LOCHBAUM: Okay, that does it for me.

16 JUDGE COLE: Just a few questions, Mr. Repka.

17 For refueling outages, some utilities have  
18 utilized a specialized team to come in and execute the  
19 refueling and they saved time using those procedures. Does  
20 your utility utilize such procedures?

21 [Pause.]

22 MR. REPKA: Yes. Northeast Nuclear has utilized  
23 specialized teams for refueling and has utilized vendors  
24 that have experience on this kind of equipment.

25 JUDGE COLE: Is this a complete team that comes in

1 and takes over, or are they under the supervision of your  
2 people?

3 MR. REPKA: They are under the supervision of  
4 Northeast Nuclear people.

5 JUDGE COLE: The reason why I asked is with a more  
6 complicated spent fuel pool bringing in outsiders to come in  
7 and operate in that environment, how do you intend to make  
8 sure that they know exactly what is going on there?

9 [Pause.]

10 MR. REPKA: Well, three reasons a) the proposal is  
11 not complex by industry standards. The three complete  
12 regions is actual fairly simply compared to a lot of plants,  
13 b) any individuals that come in will go through the exact  
14 same training that a Northeast Nuclear employee would with  
15 respect to the procedures to be employed, and c) the second  
16 verification is always performed by a Northeast employee.

17 JUDGE COLE: So the second part of the dual  
18 verification?

19 MR. REPKA: Correct.

20 JUDGE COLE: Exactly what do you mean by that;  
21 could you tell me; describe that process to me?

22 MR. REPKA: The dual verification process?

23 JUDGE COLE: Yes.

24 MR. REPKA: What you have is you have two  
25 different people in two different locations that the

1 individual executing the spent fuel assembly move and the  
2 spent fuel checker. Two different people each with their  
3 separate move sheet showing what the move should be.

4 JUDGE COLE: Physically identifying it by fuel  
5 number, or how?

6 MR. REPKA: Again, moving into the spent fuel pool  
7 they don't, at that side, don't verify the number. When  
8 they take it out of the reactor vessel or it is verified by  
9 number when it goes into the reactor vessel. When they take  
10 it out of the vessel there is a dual verification that the  
11 correct assembly, not by number but by location, is being  
12 selected. It goes through the transfer canal, and again,  
13 there is dual verification that it is going into the proper  
14 place as shown on the move sheet.

15 JUDGE COLE: Okay, so there is one person that  
16 checks to see where it came from and another person to check  
17 to see where it is going?

18 MR. REPKA: No. There is one person to see where  
19 it came from; a second to verify that the correct assembly  
20 was taken from where it came from.

21 JUDGE COLE: That that is where it came from?

22 MR. REPKA: Right. It goes through the transfer  
23 canal. Dual verification there. One person to say it is  
24 going to the right place, second person to verify that, yes,  
25 it has gone to the right place.

1 JUDGE COLE: All right. So then you have log  
2 sheets that identify location and the numbers -- a fuel  
3 number is assigned to that, right?

4 MR. REPKA: Correct.

5 JUDGE COLE: How often to you check that that  
6 number is in fact the number you think it is?

7 MR. REPKA: Every time it goes back to the reactor  
8 vessel. So it is initially checked when it comes in as new  
9 fuel; goes through the reactor vessel; it is checked by  
10 serial number by camera. So for a normal assembly that  
11 means three times it is checked as it goes through its life  
12 in the vessel.

13 In addition, as we talked about, there have been  
14 periodic verifications, reassessments of the fuel in the  
15 spent fuel pool and a misload has never been identified.

16 JUDGE COLE: So how big are these numbers that  
17 identify the fuel assemblies?

18 [Pause.]

19 MR. REPKA: The serial number actually appears in  
20 two places. On the top, looking straight down on the fuel  
21 assembly, it is about 3/4 of an inch and on the side it is  
22 about two inches high. And again, they are verified by  
23 camera which is dropped down in.

24 JUDGE COLE: So it has to be a pretty good camera?

25 MR. REPKA: Yes. It is not necessarily a simple

1 thing to do but it certainly is done.

2 JUDGE COLE: That is fine. Thank you.

3 MR. LOCHBAUM: After talking with Judge  
4 Bechhoefer, there are two more questions that I have. One  
5 is, when you have an unexpected core off load, as sometimes  
6 happens unfortunately, you have some fuel with more than  
7 twelve full power months, but less than eighteen; where do  
8 you put it?

9 MR. REPKA: With that kind of unexpected off let,  
10 I do not believe there has ever been one at Millstone Unit  
11 3, but in that case they would go to Region 1, because that  
12 would be the region they would be qualified for and again,  
13 that is the one right adjacent to the transfer canal.

14 MR. LOCHBAUM: So Region 2 is really for fuel that  
15 you are getting rid of?

16 MR. REPKA: No, Region 2 fuel is at least twice  
17 burned; and Region 3 is for fuel that has been at least  
18 three times burned and therefore, permanent storage.

19 MR. LOCHBAUM: That brings up another question  
20 with respect to Region 3. Was there any consideration given  
21 to inserting something like a one out of nine flux trap  
22 controlled in Region 3; did not? And it would sacrifice  
23 about eleven percent of the space but would give Beaucoup  
24 control.

25 MR. REPKA: The answer is no. It was not

1 necessary to meet the requirements.

2 MR. LOCHBAUM: No. I see. Thank you.

3 CHAIRMAN BECHHOEFER: Mr. Repka, to follow-up a  
4 little more about the contents of the Beaupre Memorandum,  
5 which is exhibit -- Intervener Exhibit 12, right?

6 MR. REPKA: Yes, I have it.

7 CHAIRMAN BECHHOEFER: Under the discussion of --  
8 not the seven events but -- not the seven listing of  
9 equipment failures etcetera, but under, where it says  
10 "apparent causes", it seems to a lay reader now, like  
11 myself, or a non-technical reader, that some of the  
12 technical corrections that had been recommended earlier than  
13 this refuels are -- had not been carried through. Well, I  
14 could read the apparent cause number three, where it is  
15 talking about preventive maintenance which is scheduled in  
16 sufficient time but isn't carried through until the last  
17 minute and therefore, may be done hurriedly and without as  
18 much effectiveness. It says,

19 "Consequences of delaying certain things is that  
20 problems identified must be corrected quickly and this  
21 sometime results in the ineffective corrective actions  
22 previously identified."

23 Now is this a -- if this were a pervasive  
24 situation, I would be somewhat concerned about the effective  
25 implementation of the various controls. Could you at least

1 comment on that?

2 MR. REPKA: Sure.

3 CHAIRMAN BECHHOEFER: That aspect of this.

4 MR. REPKA: This is talking about the timing of  
5 preventive maintenance. It doesn't have anything to do with  
6 fuel handling controls, number one. But even beyond that  
7 the issue -- the writer is writing a very self-critical  
8 analysis here -- a critical self-evaluation which is what a  
9 corrective action process evaluation is supposed to be, but  
10 --

11 CHAIRMAN BECHHOEFER: I am not faulting the  
12 writer.

13 MR. REPKA: -- beyond that what they are talking  
14 about is delaying preventive maintenance. He didn't say it  
15 wasn't done; he thought it was delayed and that may have  
16 created a time pressure.  
17 I think if he -- I guess the question is would that lead to  
18 a problem with the preventive maintenance program? I  
19 suppose hypothetically that could be a problem, but I don't  
20 think that is what he is trying to convey here at all. I  
21 think he is trying to convey, in this particular incidence,  
22 it was his impression and the writers, the system engineer  
23 whose job is to take ownership and fight for his system, he  
24 is feeling like the preventive maintenance was delayed  
25 unnecessarily.

1 CHAIRMAN BECHHOEFER: Right, but he also concluded  
2 that this might lead to ineffective corrective actions  
3 because of time pressures that result.

4 MR. REPKA: And again the ineffective --

5 CHAIRMAN BECHHOEFER: That is the part that would  
6 worry me a little bit.

7 MR. REPKA: I suppose that is a true statement.  
8 If preventive maintenance is not done thoroughly it could  
9 lead to not good preventive maintenance, but what would be  
10 the effect of that? Equipment reliability problems. Again,  
11 that would be a problem for the efficiency of the outage and  
12 not where the spent fuel is going to go to.

13 It is pointed out to me what the writer is really  
14 doing is making a recommendation in the cause statement of a  
15 corrective action and that, of course, is a legitimate thing  
16 he should be doing is thinking about actions to prevent  
17 reoccurrence. It doesn't make it necessarily true, but it  
18 makes it a recommendation for something that could be done  
19 to improve reliability in the future.

20 CHAIRMAN BECHHOEFER: What I am worried about is  
21 if a qualified individual recommends something that it be  
22 done, maintenance be done or whatever, and it isn't done  
23 then I see some problems.

24 MR. REPKA: I suppose you could say that about  
25 anything you took out of the corrective action program and

1 the corrective action system at the power plant. If there  
2 was a problem with the corrective actions and the corrective  
3 action program that would be a problem and certainly that is  
4 not the case. A big part of the Millstone recovery was to  
5 improve the corrective action process, corrective action  
6 process is what leads to a reliable efficient operation and  
7 that is something that the company believes strongly that  
8 they have improved dramatically.

9 [Pause.]

10 CHAIRMAN BECHHOEFER: I was just checking. I  
11 think you answered all the other ones I had marked here.  
12 So, I think we know will go to the staff.

13 I said now we will go to the staff.

14 MS. HODGDON: Can we take a break before we go  
15 with the staff?

16 JUDGE COLE: A short break.

17 CHAIRMAN BECHHOEFER: Short break. 10 minutes will  
18 be fine.

19 [Recess.]

20 CHAIRMAN BECHHOEFER: Okay, back on the record.

21 MS. HODGDON: In view of time factors. I am going  
22 to do much less than I had originally planed and in view of  
23 Mr. Repka having taken a large part of my argument, I won't  
24 address those things. And so the staff, also, won't address  
25 anything in its brief that does not need and will address

1 only those things in the intervener's filing that it thinks  
2 that the staff believes there is need for some light to be  
3 shed on.

4 CHAIRMAN BECHHOEFER: Are you saying that the  
5 staff is following the licensee's lead?

6 MS. HODGDON: No, I am saying --

7 CHAIRMAN BECHHOEFER: In resolving issues.

8 MS. HODGDON: Excuse me?

9 CHAIRMAN BECHHOEFER: In resolving issues. Are you  
10 saying that the staff is just rubber stamping what the  
11 licensee just said?

12 MS. HODGDON: No, I am not saying that at all.

13 CHAIRMAN BECHHOEFER: That is what I heard, but  
14 anyway.

15 MS. HODGDON: I am saying that some of the issues  
16 that were raised this morning, I wrote down notes on and I  
17 was going to address them, but Mr. Repka addressed them in  
18 ways that I would merely repeat if I addressed them. That  
19 is with regard to the staff's review and things like that.  
20 So I decided that I would not do that.

21 CHAIRMAN BECHHOEFER: Okay, that is fine.

22 MS. HODGDON: Because I would only address the  
23 things that were that in which the staff would feel some  
24 real need to address. So I may as well start, since I have  
25 these people with me, with RFO-6, because we filed a motion,

1 which was granted, to file Mr. Cerne's affidavit.

2 This was really a close call, but we felt the need  
3 to do that because we weren't really sure of how people  
4 would take that discussion in the intervener's filing where  
5 it comes -- regarding RFO-6. And we thought particularly,  
6 since although they did put in all of the RFO-6 logs,  
7 apparently, as their exhibit, I believe it is thirteen.  
8 It's in here somewhere, anyway. You have to go back in look  
9 it up in order to figure what is going on because it so of  
10 what they've given here in excerpts is just so selective,  
11 and that is where we saw the problem because we didn't think  
12 it was entirely clear that there was no fuel in the cart as  
13 it is called, at the time that their pointing up here.

14 So just looking then at page of their brief where  
15 you have "upender will not lower" -- upender will not lower  
16 and so forth. There are several places where it says where  
17 there is material information that has been left out of that  
18 is in the log, where it might have been helpful to put it  
19 in. For example, I am on page 14 by my numbering of their  
20 brief.

21 CHAIRMAN BECHHOEFER: is that the one that start  
22 1917, the first --

23 Just identify pages if you are on the same page.

24 MS. HODGDON: Okay. It starts 917 -- 1917 that  
25 would be 1917, right.

1 "Upender will not lower." Then going to 2245, it  
2 says, "spent fuel pool upender will not lower." "SM," which  
3 is station manager, "granted permission to by-pass  
4 interlock". Then it says in the log, if you look it up,  
5 "IAWOP 3303 See precaution 3.22."

6 And so one might want to know what that is.

7 If you look at Mr. Cerne's affidavit, it has an  
8 attachment that puts that whole document, or not the whole  
9 document, but everything up to their end and it says --  
10 because the allegation that seems to be made here is that,  
11 if you looked to the bottom of that -- "given that the  
12 interlock by-passes are described as providing emergency  
13 override capability, it would appear that Millstone Unit 3  
14 suffered seven emergencies during their four hour and  
15 seventeen minute period on May 15th."

16 It could be that NECO personnel were abusing the  
17 interlock bypass capability, instead of fixing the problem  
18 they returned the bypass the emergency override of safety  
19 interlocks.

20 Well, if you look on page 5 of 23 of the third of  
21 Attachment 3 to Mr. Cerne's affidavit which is fuel transfer  
22 system OP3(o)(3)(c) which is also provided, as I just  
23 pointed out, in this log here. You will see 3.2 says, "Key  
24 bypass locks provide an emergency override of safety  
25 interlocks and must be controlled with a PORC approved"

1 that -- tell me what that means, I know -- "a plant  
2 operations review committee approve bypass jumper unless  
3 performing one of the actions. 3.2.2 no fuel is loaded in  
4 the cart."

5 Well, it may be obvious to a lot of people that  
6 there was no fuel in the cart there because, as we have  
7 shown and the figure that we have provided from the training  
8 manual, the cart had been upended and the hoist had removed  
9 the assembly and put it in the pool, and therefore, the cart  
10 had to go back to the reactor to pick up another assembly  
11 and it was at that time empty.

12 It might be obvious to a lot of people. But I  
13 think the way it is presented here, it is not transparently  
14 obvious and maybe some little teach-in is required which is  
15 really basically what we were trying to do here.

16 Also, as Mr. Cerne's affidavit says, in their  
17 footnote 20, they really don't address what the interlock  
18 was that is being talked about here which is that one that I  
19 just identified. It is the lift interlock and that is  
20 another one of my --

21 The training manual, which is said to be the  
22 subject of this, was not provided by interveners. We  
23 provided the part that deals with pages 20-30, the part that  
24 deals with the fuel transfer system. And you find there at  
25 page 23 of 89, lift interlock bypass switch key operated

1 provides an emergency override of the safety interlock for  
2 raising or lowering the fuel container other than the  
3 extreme limits of the transfer car. And actually, if you  
4 read that section you will see that it provides all the  
5 orientation that one might need.

6 And I really didn't want to say much more than  
7 that, except that having done that and Mr. Cerne having  
8 provided this affidavit, together with these pictures which  
9 I am sure people who read this, the figures and the section  
10 from the FSAR, that it just isn't clear. I mean the point  
11 that was trying to be made here by the interveners that some  
12 how or other some administrative control had been violated,  
13 but that doesn't appear to be the case. We can't identify  
14 an administrative control that was violated here. Beyond  
15 that, as Mr. Repka has pointed out, these administrative  
16 controls don't have really to do with the storage of fuel  
17 and the spent fuel pool, and particularly they don't have to  
18 do with any changes that might be made with regard to the  
19 implementation of the license amendment proposal. If that  
20 proposal is granted.

21 Did anybody have any questions about that or shall  
22 I go on to something else?

23 MR. LOCHBAUM: I am happy with what you presented  
24 so far.

25 CHAIRMAN BECHHOEFER: I am not.

1 MR. LOCHBAUM: You have questions, yet?

2 CHAIRMAN BECHHOEFER: Yes, I do have a question.

3 MS. HODGDON: A layman [laughter].

4 CHAIRMAN BECHHOEFER: As to your comments about no  
5 changes, at least in my view, if you apply procedures, even  
6 if they are the same, to a more complex or detailed  
7 situation, even if they are the same procedures, do you have  
8 at least a different application of the procedures? And  
9 that is, to me, something new and different. And that seems  
10 to at least conflict with your comment, perhaps, that there  
11 were not changes.

12 MS. HODGDON: I think actually there will be  
13 changes here in RFO-7, there will be new equipment. And the  
14 new equipment they will get because they had so many  
15 problems or they had problems with this equipment, and so  
16 there will be changes in the equipment. I am saying there  
17 won't be any changes, I guess, in the administrative  
18 procedures with regard to the use of the equipment or with  
19 regard to changes that are made because of the  
20 reconfiguration of the pool. Because there still will be  
21 unloading one assembly at a time, and it will, you know, be  
22 upended and done horizontal and go across through the  
23 containment wall and to a fuel building and be upended  
24 again, and unloaded, and lowered back down and so forth. So  
25 that is what I meant that that is -- there won't be any

1 changes with regard to that except for corrective actions.

2 And that the, of course, the machine that they get  
3 will have its own procedures. But that is not the kind of  
4 thing we were talking about here with regard to these  
5 administrative controls that are involved with the  
6 prevention of criticality in the spent fuel pool. That is  
7 what I meant.

8 Does that answer your question?

9 CHAIRMAN BECHHOEFER: Mostly, but to follow-up a  
10 little bit. Whatever the machinery that is in place, if the  
11 intent is to aim the fuel at a particular location and the  
12 locations get to be somewhat more complex, there are at  
13 least more regions, at least one additional region, and even  
14 if they all go into Region 1, which is maybe the way I  
15 understand it, isn't it basically more complex even though  
16 the written procedures may be identical?

17 MS. HODGDON: No, as a matter of fact, since you  
18 asked me the question, I shouldn't volunteer this, but I  
19 think it is easier as anybody can see by looking at the  
20 diagram of the pool, that it really is a much better  
21 configuration than the one that is presently there with  
22 regard to unloading the fuel. When you look at the A-racks  
23 and they are arranged along the transfer canal, and there  
24 are five big ones as opposed to three little ones, and the  
25 old, I think it is fairly obvious, it is easier it is not

1 harder.

2 But actually with regard to getting the assembly  
3 in the right place, there is no change. It continues to go  
4 through that transfer canal. It continues to be upended in  
5 the same place. The hoist takes it and this RFO-6 issue  
6 that the interveners are trying to raise is just not related  
7 to that. I mean it is related to lowering of the upender  
8 after the fuel has been taken out of it. So it really  
9 doesn't have anything to do with getting the right assembly  
10 in the right place.

11 CHAIRMAN BECHHOEFER: Okay.

12 MS. HODGDON: Anybody else?

13 MR. LOCHBAUM: I do have one question as it turns  
14 out. Has a commitment been made, or is a commitment  
15 necessary to do this corrective action before the next  
16 refueling outage? I mean there are licensing commitments  
17 and then there are licensee's plants.

18 MS. HODGDON: And they are always changing the  
19 rules regarding them, so I am not quite clear where they are  
20 today. I don't know. The answer is I do not know.

21 [Pause.]

22 Okay. Thank you. Mr. Cerne has corrected me on  
23 this. The issue was not an issue of their having violated  
24 NRC regulatory requirements. That they had not done. So it  
25 is not as if the NRC has been after them about this.

1 Actually, this is something they are doing on their own.

2 MR. LOCHBAUM: Just the money that is at stake.

3 MS. HODGDON: Excuse me?

4 MR. LOCHBAUM: Just money at the stake. If they  
5 don't do it, they are going to --

6 MS. HODGDON: I was going to say. As Mr. Repka  
7 said, the thing about the long outage it is expensive and  
8 eventually you get the message. And they appear to have got  
9 the message. I didn't really mean eventually, but it seems  
10 that this machine, you hate to dump your Sigma machine, I'm  
11 sure it is very expensive but apparently it was obvious that  
12 is was not saving them money, it is costing them money so it  
13 is being replaced.

14 So, no, there is no commitment but we believe they  
15 will do it.

16 [Interruption.]

17 MS. HODGDON: What is this?

18 MS. LOCHBAUM: Did you have more to discuss beyond  
19 RFO-6?

20 MS. HODGDON: Yes. What I really want to know is  
21 what is going on downstairs.

22 MR. LOCHBAUM: If we end up downstairs then we  
23 will know.

24 CHAIRMAN BECHHOEFER: A seismic event.

25 [Laughter]

1 MS. HODGDON: Oh, it's a seismic event.

2 JUDGE COLE: They are chewing away at the  
3 foundation.

4 MS. HODGDON: It is fairly unsettling. It is  
5 probably even worst where you are. [laughter]. So, I can  
6 speak about that. I don't have any problem with that. So I  
7 will proceed to such other things as I have here.

8 Another thing that I wanted to talk about, and I  
9 don't know that it makes a great deal of difference, but I  
10 have very little on -- as I say, my notes from this morning  
11 that wasn't already addressed. With regard to -- I'll turn  
12 to the brief, to the intervener's brief at -- the  
13 interveners' brief at page 45 where the interveners discuss  
14 the depositions of the staff's expert criticality witnesses.

15 The interveners say that the staff showed a mark  
16 lack of technical curiosity and independent investigation.  
17 And although -- that certainly is not so, that is just a  
18 judgment and it doesn't really go to any genuine and  
19 significant fact that needs to be or that can't be resolved  
20 except in an evidentiary hearing, but nevertheless, I will  
21 get there in a minute if I take this route.

22 Dr. Attard was asked about whether he had finished  
23 his review and he said that he had not. And that is correct,  
24 he had not. So, I am not going to dwell on that. I am going  
25 to go to the questions to Dr. Kopp which are on page 47,

1 where there seems to be some misunderstanding.

2 The point is made in the brief that the staff's  
3 response to interveners' interrogatory G-1, please identify  
4 all analysis related to the probability and consequences of  
5 potential criticality incident and accidents in the fuel  
6 pool, that his answer was as follows,

7 "None to the staff's knowledge." "Probability  
8 analysis are

9 not part of the spent fuel criticality review  
10 process."

11 And of course, that is true. I mean, there is  
12 nothing strange about that in that the staff has not  
13 reviewed the probability of potential criticality incidents,  
14 but instead, assumes it. That's just the way it is. Dr.  
15 Kelber says maybe we ought not do it that way. But the fact  
16 is if we would go to risk inform in this area, we wouldn't  
17 be here today as Dr. Kelber well knows.

18 It said the interveners state on page 48, that Dr.  
19 Kopp testified in his deposition that the NRC has no data  
20 base of incidents involving Boron dilution and fuel  
21 mishandlings. Nevertheless, he conceded the importance of  
22 the existence of such a data base of scientific inquiry.

23 The fact is, if you look at footnote 67, that is  
24 page 26. You look it up in the deposition, I'll read it to  
25 you, that is not what he said. He said, maybe he was -- it

1 says, "The question was in order to scientifically analyze  
2 these issues you have to have a proper data base as the  
3 industry evolves, wouldn't you think?"

4 And he says, "Yes, and I am aware of only one reported  
5 incident of Boron dilution which is very minor. And so there  
6 is a data base. It is a data base of one."

7 So he did admit to the importance of it, perhaps,  
8 but he said that he had read it all of it one. So, with  
9 that. His only knowledge of fuel mishandling incidents at  
10 Millstone was based on three licensee event reports formally  
11 filed with the NRC. Now Dr. Kopp, in fact, testified, that  
12 there had never been any fuel handling incidents -- fuel  
13 mishandling incidents written up in LERs at Millstone 3.  
14 And when he was asked that question, let us see 68 12-16, he  
15 said instead of what he is said to have said here, he said  
16 something different, he said -- on page 12, he said, "Let's  
17 confine ourselves to Millstone. Which ones are you familiar  
18 with?" He said, "I don't know of any errors at Millstone  
19 that involve misplacing spent fuel involving any criticality  
20 concerns."

21 And he had already answered interrogatories in which he had  
22 said much the same thing. And so from that point, there was  
23 a discussion of other things at Millstone which was the  
24 mistake in the criticality calculation at Millstone 2 in  
25 1992, and the Boraflex concern in the three pool, and I

1 think that was 1995. He mentioned those two things and of  
2 course, those are not fuel mishandling incidents those are  
3 something different.

4 Nevertheless, the intervener's counsel counted  
5 that as three events --three matters, although there were  
6 only two and concluded that he didn't have any knowledge of  
7 fuel mishandling events.

8 I am not going to go through this whole thing,  
9 because although Dr. Kopp has said to had an opinion about  
10 fresh fuel storage, which he didn't. The fact is, that  
11 whatever his opinion might have been, that doesn't go to the  
12 proposal it goes to the way things are now.

13 Actually, what he said was that you could see  
14 quite easily from across the room which racks were -- which  
15 cells were capped and which ones weren't.

16 The only other thing that is accredited to Dr.  
17 Kopp, mistakenly, but I feel very strongly about, and that  
18 is he had no knowledge. Dr. Kopp was unaware of any history  
19 of fuel mishandlings at Millstone. He had no knowledge of  
20 the incident involving the drop in the Unit 2 spent fuel  
21 pool level. And then when you look to where you are directed  
22 to, page 47, he says, the intervener counsel says, "Are you  
23 familiar with an incident at Millstone where there was  
24 leakage that went undetected for a certain period of time,  
25 leading to a drop in the pool level?"

1 He said, "No. I am not."

2 But we were told by interveners that when counsel  
3 identified the leak in the pool level at the prehearing  
4 conference, that what they were talking about -- I can't  
5 seem to find my -- her it is -- my document here, was a  
6 condition report M2-990304, which is March -- no, oh yes,  
7 that is when it was retrieved. This was at Millstone 2,  
8 where approximately twenty-three hundred seventy gallons of  
9 water was transferred -- I can't stand it.

10 Okay. So this was mentioned earlier this morning.  
11 I think that Mr. Repka characterized this earlier as a Boron  
12 dilution event. It wasn't a Boron dilution event. It was  
13 just a lost of water. I think he just misspoke.

14 MR. REPKA: I didn't intend to characterize it as  
15 a Boron dilution --

16 MS. HODGDON: That is what I heard.

17 MR. REPKA: -- has been claimed to be a Boron  
18 dilution.

19 MS. HODGDON: I misheard what you said, then.  
20 This has been claimed to be a Boron lost event. But in any  
21 event, I heard this morning, interveners counsel say, it  
22 went undetected. So I asked somebody because I couldn't read  
23 this fine print to look it up, and the answer I got from Mr.  
24 Cerne and Mr. Linville is that it lasted for eighteen  
25 minutes and that is the time it took to detect it.

1 MR. LOCHBAUM: Eighteen minutes?

2 MS. HODGDON: Eighteen minutes. Yes. And that was  
3 a long time, and if it lasted much -- well, and anyway the  
4 whole point in this is that someone very astutely detected  
5 it before it did reach a low-level alarm state. In other  
6 words, it lost about two inches of water. They almost lost  
7 two. If the lost two it would have alarmed.

8 When Dr. Kopp was asked about it, he said, "If  
9 that weren't a criticality problem", he said, "wouldn't that  
10 be something you would have considered as part of your work  
11 on this matter?" He said, "That would be more of a  
12 radiation problem." And of course it would. So I just don't  
13 know where interveners were going with it. In fact where I  
14 am, I just wanted to make it clear that Dr. Kopp did not say  
15 the things that are credited to him in his deposition.

16 I don't know that I have anything to do with  
17 contention four. We would agree with the licensee that  
18 there is absolutely no issue raised here, genuine and  
19 substantial issue of fact, that would need to be addressed,  
20 settled, whatever the terms are in a subpart case base in an  
21 evidentiary proceeding.

22 MR. LOCHBAUM: I have just a few questions and one  
23 comment on your brief that you may want to consider  
24 correcting at some point.

25 MS. HODGDON: That's fine.

1 MR. LOCHBAUM: One is the Reg Guide. The 1.13  
2 draft, revision 2, endorses the ANSI ANS Standard 8.1, and I  
3 am just curious as to why that standard was not incorporated  
4 by reference into 10 CFR 50.68; it would help a great deal.  
5 It was in existence for some years before that regulation  
6 was drafted. MS. HODGDON: The answer is Dr. Kopp, I  
7 believe, wrote 10 CFR 50.68, and he is also the person who  
8 is most familiar with all of these things; the NC standard  
9 and REG guide 1.13. He is not here and we have been given  
10 cell phone but we haven't been able to reach him but we will  
11 try. And that would be the easiest way to get that answer.  
12 I don't happen to know.

13 MR. LOCHBAUM: Then I have a comment here. On  
14 page 26, where you are talking about the allowance for decay  
15 time. You reference the decay of UT-35, I am sure you mean  
16 plutonium 241. UT-35 has a decay constant of about 70  
17 million years. And I --

18 MS. HODGDON: I can't find my brief

19 MR. LOCHBAUM: And even though we are extending  
20 licencing permits, I don't think the commission at that is  
21 going to extend it for 70 million years.

22 MS. HODGDON: We are not doing it yet. I couldn't  
23 find my brief. If you point me to the page again, I'll look  
24 at that.

25 MR. LOCHBAUM: Page 26.

1 MS. HODGDON: Page 26.

2 MR. LOCHBAUM: A minor error but I thought it was  
3 worth correcting.

4 MS. HODGDON: The first full paragraph. No it is  
5 up here, oh. Oh, okay. I said, yes, that is either an  
6 error a typo or an error in logic. I mean, if you move that  
7 over some place else it might be all right. U2-35. Yes,  
8 thank you.

9 CHAIRMAN BECHHOEFER: Tom, where is that?

10 MR. LOCHBAUM: Page 26.

11 CHAIRMAN BECHHOEFER: But where on page 26?

12 MS. HODGDON: No, I understand the comment.

13 MR. LOCHBAUM: Now on page 28 you state, "It is  
14 highly unlikely that a single failure in administrative  
15 controls of the management process will be to misplacement  
16 or multiple misplacements."

17 My question is does the staff know of a single  
18 administrative failure, however unlikely, that would lead to  
19 a misplacement?

20 MS. HODGDON: "It is highly unlikely that a single  
21 failure in the administrative or the management process will  
22 lead to misplacement." Well, I think the trouble with this  
23 area is if you are talking about -- yes, I think that the --  
24 let me confer with the --

25 MR. LOCHBAUM: Well, to help you to focus on the

1 answer. What I am getting at is what is the origin of the  
2 phrase "highly unlikely." What leads you to qualify it that  
3 way. I went after Ms. Burton perhaps a little gruffly this  
4 morning on her use of lightly, here you are using "highly  
5 unlikely" and I want to know what leads you to use that  
6 phrase?

7 MS. HODGDON: Well, I believe I am merely citing  
8 Dr. Attard and Dr. Kopp and that those are those words  
9 "highly unlikely". I think 'unlikely' is probably enough  
10 without the 'highly.' But nevertheless, they said it and  
11 what leads them to say that it is "highly unlikely the  
12 single failure would lead to misplacement r multiple  
13 misplacements." We talked about this and I don't believe --  
14 we have another highly unlikely there, all right.

15 We have not been able to reach Dr. Kopp who is not  
16 what -- however, we don't really define unlikely. It is not  
17 a defined term. Exactly what we mean by it we -- it is one  
18 of those things you know it when you see it, like Potter  
19 Stewart.

20 Now, I don't know.

21 [Pause.]

22 MS. HODGDON: We did find it, page 17 of the  
23 affidavit of Dr. Attard and Kopp they explain what they mean  
24 by "unlikely" or "highly unlikely." It is because the  
25 administrative control. They proposed tech spec 3.9.13 will

1 control fuel storage limitations and selection of procedure  
2 SP 31022 described above will control fuel assembly  
3 selection. Therefore, both TS as well as plant procedures  
4 would have to be violated for a full assembly misplacement  
5 to occur.

6 In addition, fresh fuel assemblies, it goes on to  
7 say that they have a bright metallic color, a visually  
8 distinguishable from spent fuel assemblies. Finally, the  
9 burn up limit curves are 3.9-1; 3.9-3, and 3.9-4 propose for  
10 the Millstone Unit 3 tech specs for safe storage and Regents  
11 1, 2 and 3 are based on minimum burn up requirements. These  
12 are bounding values that result in just meeting the five  
13 percent sub criticality margin for storage pools in regions  
14 1, 2 & 3.

15 In practice -- that paragraphs explains why they  
16 were guarded to be highly unlikely in this instance. I  
17 think I misunderstood your question, because I thought you  
18 were addressing why what the unlikely, what we meant by the  
19 word unlikely. Whatever they mean by it, here they think  
20 that because of the many controls that are available here  
21 both tech specs and administrative controls that in this --  
22 for this -- in other words it is case specific. Every review  
23 is done case specifically by what is presented in the  
24 application and that was what was done here and it is just a  
25 conclusion that it would be highly unlikely based on

1 everything that has been presented by this licensee with  
2 regard to this proposed amendment.

3 MR. LOCHBAUM: Now, further on in page 34, and 35,  
4 there is discussion of the expertise, beginning on page 34,  
5 in Human Factors, etcetera, and I would ask you with respect  
6 to page 36, which Human Factors expert testimony is relied  
7 on to assert that the new controls are quote, are no greater  
8 or more complicated than those required for current  
9 operation, quote.

10 Again, I questioned Ms. Burton about Human Factors  
11 expertise earlier today and I am putting the same question  
12 to you. Where does it arise from or is this purely a  
13 layman's observation?

14 MS. HODGDON: I believe that this is Mr. Cerne's  
15 statement that they are no more. He is certainly very  
16 familiar with those administrative controls. However, with  
17 regard to this, I would remind the board that the burden is  
18 on the interveners to show that there is a genuine and  
19 significant issue of fact. And therefore, it is for them to  
20 have a Human Factors expert which they do not have. And it  
21 is not for the staff to make that choice.

22 This is the statement of a well educated and well  
23 informed senior resident inspector.

24 MR. LOCHBAUM: Okay, I am just --

25 MS. HODGDON: Who has no particular training in

1 Human Factors.

2 MR. LOCHBAUM: No, I am just serving a little  
3 notice that if we should find that we have to go to an  
4 evidentiary hearing on this, I would expect to see a few of  
5 the -- very few Human Factors experts in this country  
6 involved in substantiating that phrase.

7 MS. HODGDON: I don't believe that subpart K  
8 contemplates producing witnesses other than those who have  
9 been offered for the oral argument.

10 CHAIRMAN BECHHOEFER: Then we are in the dark,  
11 aren't we?

12 MS. HODGDON: I think we are stuck with the  
13 discovery that we have. And my understanding is that we can  
14 use those documents that have been produced, and we don't  
15 get anymore discovery and since we have no Human Factors  
16 experts, we would in the event we went to hearing we would  
17 go without those experts.

18 MR. LOCHBAUM: Well, if that judgment is sustained  
19 by our esteem chairman and --

20 CHAIRMAN BECHHOEFER: Well, I would just like to  
21 ask a further question. I recognize that there is not  
22 supposed to be any further discovery, at least absent  
23 extraordinary circumstances, but where is the limitation  
24 that says if you go to an evidentiary hearing you are  
25 limited to the people who filed affidavits.

1 I don't know of anywhere where I said we were  
2 aware of that, but you could show me perhaps. I am not  
3 aware of any.

4 MS. HODGDON: I think it would be absolutely  
5 bizarre to go to a hearing with a Human Factors expert who  
6 have not been made available for deposition. I mean,  
7 subpart K is bad enough in the argument stage.

8 CHAIRMAN BECHHOEFER: (inaudible) in an  
9 extraordinary circumstance.

10 MS. HODGDON: But within a hearing where  
11 everything is surprise, it might be very interesting.

12 MR. LOCHBAUM: Let me say that is we should decide  
13 that we have to go to an evidentiary hearing, and we don't  
14 have the benefit of a Human Factors expert, I don't know how  
15 we can come to any meaningful conclusion as to whether the  
16 new racks complicate the process, make it simpler, make it  
17 easier, make error more likely or less likely, and high  
18 likely they are. So I think that is something we will have  
19 to take into account.

20 Let me move on.

21 CHAIRMAN BECHHOEFER: Well, I might also comment.  
22 That there does not necessarily have to be available  
23 discovery prior to holding an evidentiary hearing. At least  
24 under the Administrative Procedure Act the availability of  
25 discovery is discretionary with the agency. So that we can

1 go to hearing --

2 MS. HODGDON: The agency has discovery.

3 CHAIRMAN BECHHOEFER: -- and it would just  
4 (inaudible) cross-examination perhaps, but --

5 MS. LOCHBAUM: In any event, we will discuss that  
6 among ourselves.

7 MS. HODGDON: I will repeat that the burden is on  
8 the intervener to show, and they have not done that. They  
9 should have had if they wanted to prove Human Factors type  
10 -- they knew what they were doing when they proposed this  
11 contention and they didn't put that on, and so they have not  
12 raised -- and it's not -- I am not trying to be -- I am not  
13 saying that there is a lot out there but technically they  
14 didn't do it right. I am just saying they haven't put on  
15 anything, so that is (inaudible)

16 CHAIRMAN BECHHOEFER: Well, they have made  
17 statements that the factors such as this, or there are  
18 questions of this sort of beyond the comprehension of,  
19 either the licensee or the staff, they made general  
20 statements to that effect.

21 MS. HODGDON: I couldn't hear you.

22 CHAIRMAN BECHHOEFER: I am sorry.

23 MS. HODGDON: It is the thunder in the basement.

24 CHAIRMAN BECHHOEFER: Pardon?

25 MS. HODGDON: It's the stuff from downstairs. It

1 is just rumbling around my ears.

2 CHAIRMAN BECHHOEFER: They have made more or less  
3 general statements the fact that neither the licensees nor  
4 the staff have an adequate understanding of factors called  
5 for to administer administrative -- well, that's bad English  
6 -- to carry out administrative control successfully.

7 MS. HODGDON: They made that statement but they  
8 have put in absolutely nothing to back it up. This is the  
9 opinion of their two experts neither of whom knows anything  
10 about Human Factors. So, why should they go to the hearing  
11 on that when we assumed that having not availed themselves  
12 of such help that they would go out and find somebody.  
13 Please, I think not.

14 CHAIRMAN BECHHOEFER: Well, a claim of a lack of  
15 adequate information to fulfill license requirements or even  
16 the ability to prove, which is eventually on the applicant,  
17 prove the safety of the new configuration --

18 MR. LOCHBAUM: I think you misunderstand what Ms.  
19 Hodgdon is saying and think this is something we can discuss  
20 between us.

21 CHAIRMAN BECHHOEFER: Oh. Well.

22 MR. REPKA: May I interrupt you for a second and  
23 respond.

24 CHAIRMAN BECHHOEFER: Certainly, certainly.

25 MR. REPKA: Respective to (inaudible) if the issue

1 is complexity for its own sake, I don't think that is a  
2 valid issue for further consideration. The contention is  
3 that there is added complexity. And of course, everything  
4 Ms. Hodgdon has said is correct that there is plenty of  
5 experts who are very familiar with these fuel movements that  
6 say qualitatively it is not more complex. But be that as it  
7 may, whether or not it is more complex, the contention is  
8 that complexity will lead to misloading, misloadings will  
9 lead to reactivity effects, reactivity effects will lead to  
10 criticality.

11 It apts the tension fails on items 2, 3 and 4, I  
12 just mention. There is no showing whatsoever that the will  
13 be a misloading. There is no showing that there would be a  
14 reactivity effect, and there is no showing that there could  
15 be a criticality. So a hearing of whether of not this  
16 proposal versus the current or versus some other  
17 hypothetical proposal which one is more complex, is a  
18 totally unnecessary academic exercise.

19 MR. LOCHBAUM: I would like to move on to just  
20 some --

21 CHAIRMAN BECHHOEFER: (inaudible) have some things  
22 to do before we --

23 MR. LOCHBAUM: -- before we move on. I'd like  
24 some idea of some of the timescales involved in the licensee  
25 taking action. You mentioned, for example, the drop in the

1 fuel pool and Millstone 2, was eighteen minutes, interval  
2 before it was detected. Let's suppose for a -- I am looking  
3 at page 63, footnote 29.

4 CHAIRMAN BECHHOEFER: Of what?

5 MR. LOCHBAUM: Of your brief. This footnote  
6 states, "That a fuel assembly misplacement and failure to  
7 discover it are two failures." I assume you are talking  
8 about that in point of view enforcement actions of that  
9 sort.

10 How long does a licensee have to discover a fuel  
11 misplacement before it is counted as two violations and has  
12 there ever been, to your knowledge, a fuel misplacement  
13 event that has gone beyond the time of restart? Those are  
14 two separate questions.

15 MS. HODGDON: I believe that there have been fuel  
16 misplacements that have gone beyond the time of restart.  
17 The incident at Oyster Creek went on for about a year, so  
18 clearly.

19 MR. LOCHBAUM: That is not a fuel misplacement.

20 MS. HODGDON: Well, all right.

21 MR. LOCHBAUM: That is a violation of a tech spec.

22 MS. HODGDON: It is not but they counted it as a  
23 fuel misplacement. It was fuel being in the wrong place,  
24 all right. But you are saying it is not a fuel misplacement  
25 according to what is being talked about here because it

1 wasn't taking the stuff out of the -- it was just total --

2 MR. LOCHBAUM: The fuel was were it was supposed  
3 to be. The analysis that had been done that changed the  
4 tech spec.

5 MS. HODGDON: They just hadn't qualified those  
6 racks for that fuel. Right. That's right. That is  
7 correct.

8 The licensee says that that is not applicable to  
9 Millstone. Of course, for many reasons it is not. A fuel  
10 misplacement that went undetected for startup, I can't off  
11 hand, I can run through this list and tell you that I can't  
12 off hand think of one.

13 Actually, what was being called a fuel  
14 misplacement here, at Millstone 3, in regard to the incident  
15 that Mr. Repka has talked about a few minutes ago, that was  
16 either a condition report or some other internal document,  
17 where the operator put the -- tried to fill a cell that was  
18 already full, that is not a misplacement although he called  
19 it that. I mean, the operator called it that. He just  
20 didn't know what to call it. It is not a misplacement; it  
21 is a very different kind of a thing from putting an assembly  
22 into an empty cell where it is not qualified to be stored  
23 there or the rack --

24 MR. LOCHBAUM: You've answered my question.

25 MS. HODGDON: Thank you.

1 [Pause.]

2 MS. LOCHBAUM: Do you have more presentation now  
3 or --

4 MS. HODGDON: Do I have any more presentation now?

5 CHAIRMAN BECHHOEFER: Of your summary that you  
6 want (inaudible).

7 MS. HODGDON: I don't think so. If I can look at  
8 my notes and (inaudible).

9 MR. LOCHBAUM: I wasn't sure.

10 CHAIRMAN BECHHOEFER: We didn't want to cut you  
11 off.

12 MS. HODGDON: No. I have nothing further then. I  
13 think that is very important.

14 JUDGE COLE: Ms. Hodgdon, just a comment and a  
15 question or two. Are you familiar with 50.68?

16 MS. HODGDON: 50.68, of course I am.

17 JUDGE COLE: Yes, NCR 50.68.

18 MS. HODGDON: Of course, I am. I am very familiar  
19 with it.

20 JUDGE COLE: Authored by Dr. Kopp.

21 MS. HODGDON: I just told you that Dr. Kopp wrote  
22 it. As a matter of fact, I was involved with it myself.  
23 Yes.

24 JUDGE COLE: Well, my comment on that is it  
25 probably should be rewritten and he should use shorter

1 sentences and do away with run-on sentences. Particularly  
2 in B-4.

3 MS. HODGDON: Oh yes, B-4 is really something,  
4 isn't it. We would convey your message.

5 JUDGE COLE: Thank you.

6 MR. LOCHBAUM: Be aware that I intend to convey a  
7 great deal more.

8 JUDGE COLE: Okay, on page 4 of your summary, Ms.  
9 Hodgdon.

10 MS. HODGDON: Mine?

11 JUDGE COLE: Page 4 of the NRC brief, bottom of  
12 the middle paragraph there it says, "The NRC staff performs  
13 a safety review of the thermal hydraulic structural nuclear  
14 criticality and radiological aspects of the proposed action  
15 described in this amendment."

16 What is the status of the staff's safety review  
17 and  
18 when will it be completed?

19 MS. HODGDON: I really don't know exactly. All I  
20 know is that it is not complete. Well, of course, as you  
21 know Dr. Attard only does the criticality. I mean everybody  
22 on the staff only goes from here to here, and so the thermal  
23 hydraulic structural and radiological -- I don't have a  
24 report on that. I can give you that.

25 CHAIRMAN BECHHOEFER: What would be the end result

1 of the review? Would it be a safety analysis; safety  
2 evaluation report?

3 MS. HODGDON: It will be a safety evaluation.

4 CHAIRMAN BECHHOEFER: On each of these or  
5 collectively in one volume?

6 MS. HODGDON: It would be one safety evaluation  
7 that will include all of these. Which is the way we always  
8 do this kind of request.

9 CHAIRMAN BECHHOEFER: And you have no idea when  
10 that will be completed?

11 MS. HODGDON: Well, I have an idea but I couldn't

12 --

13 CHAIRMAN BECHHOEFER: About when?

14 MS. HODGDON: Within a month.

15 CHAIRMAN BECHHOEFER: Within a month. Thank you.

16 MS. HODGDON: A month from now, according to Mr.  
17 Zimmerman who is acting project manager.

18 CHAIRMAN BECHHOEFER: I am going to refer for the  
19 moment to the affidavit of Mistfers Kopp and Attard and on  
20 page 5, paragraph 13, which carries over from the prior  
21 page, does a statement that the NRC is endorsed ANSI 81,  
22 1983, that of course, I am assuming that the staff doesn't  
23 treat that as a regulation as such. Am I not correct or am  
24 I wrong?

25 [Pause.]

1 MS. HODGDON: We don't understand, at least, I  
2 don't and I am getting a lot of opinion here. Is your  
3 question generally whether we enforce ANSI standards or is  
4 it this particular one?

5 CHAIRMAN BECHHOEFER: This particular one in this  
6 case.

7 MS. HODGDON: Oh, this particular one is just in  
8 the Reg guide. So it isn't forced as a regulation its REG  
9 guides only suggest how you can do things unless you can  
10 think of some better way you to do them.

11 Reg guides implement regulations. They are not  
12 regulations in and of themselves. And if they invoke ANSI  
13 standards then they are on or about the same level as the  
14 Reg guides themselves.

15 CHAIRMAN BECHHOEFER: I see. So then when you go  
16 to the next paragraph, paragraph 14, which talks about 10C  
17 50.68 which is a regulation, is that regulation even  
18 applicable to this proposed -- this proposal?

19 MS. HODGDON: Not directly because this regulation  
20 is about whether or not you need criticality monitors. So I  
21 think the question was asked somewhere about whether this  
22 was in deposition of whether they had criticality monitors.  
23 It was Dr. Kopp whether they had criticality monitors at  
24 Millstone 3. And I am sure they don't because no one has  
25 criticality monitors in their spent fuel pool. But, I mean,

1 that's a long story. I won't go into it.

2 The regulations about whether you need criticality  
3 monitors the reason that it is put in here is that the  
4 interveners had stated that the commission itself didn't  
5 know what -- this is with regard to GD 62 -- didn't know how  
6 -- what the staff was doing with regard to GD 62. This  
7 shows that as regards burn-up and so forth, that the  
8 commission is well aware of it.

9 MR. LOCHBAUM: Excuse me.

10 MS. HODGDON: With regard -- that the staff, that  
11 the commission is aware of all the things that are in the  
12 50.68, but that is all. And so, it was a question about  
13 commission awareness, so anyway.

14 MR. LOCHBAUM: I read the SRM and the SECY paper  
15 addressed to the commission on this, and the SRM that  
16 responded neither one of them contained the word burn-up.

17 MS. HODGDON: Well, it is -- all right. Do we say  
18 it does; I think it may be does.

19 [Pause.]

20 MS. HODGDON: Ms. Uttal tells me that the reason  
21 it is here is that it shows that the commission has approved  
22 the use of administrative controls. Notably --

23 CHAIRMAN BECHHOEFER: I was going to get there  
24 that was the next paragraph.

25 MS. HODGDON: -- a soluble Boron. Not burn-up

1 (inaudible). Soluble Boron taken -- so the use of course,  
2 soluble Boron is not an administrative control, but the  
3 administrative controls used in the relation to a soluble  
4 Boron. In other words, it shows that the commission does  
5 not believe that only physical separation and it satisfies  
6 GD-62. That they recognize the physical systems and  
7 processes and the administrative controls that would  
8 implement them.

9 CHAIRMAN BECHHOEFER: My next the one -- the  
10 question that would follow my previous two would be in  
11 paragraph fifteen of the affidavit it says, "Therefore, as  
12 set forth above", and that refers to the two matters I  
13 referenced, one the ANSI standard and one 50.68, it says,  
14 "NRC regulations allow the use of administrative controls to  
15 prevent criticality of fuel and storage."

16 Well, the reference to regulations would appear to  
17 have relate only to a regulation that doesn't apply to the  
18 type of administrative control that would be under  
19 consideration here.

20 MS. HODGDON: Well, actually it does.

21 CHAIRMAN BECHHOEFER: And that is why I wonder how  
22 this all follows.

23 MS. HODGDON: This is -- I think that we are  
24 splitting hairs here.

25 CHAIRMAN BECHHOEFER: Why (inaudible) split hairs.

1 MS. HODGDON: Because -- you asked me whether this  
2 was applicable to this application, and I said, "No it is  
3 not, directly", because what it is about is criticality  
4 monitors. But what it states is the situations that can  
5 exist and what you have to show in order not to need  
6 criticality monitors. And in so doing it recognizes that  
7 administrative controls are used, and that is the point that  
8 is made here. It allowed the use of administrative  
9 controls. I mean, it recognizes that administrative  
10 controls are used in the connection with the prevention of  
11 criticality in the spent fuel pool, that is all. Although  
12 it doesn't directly deal with it here, as I said, it deals  
13 with whether or not you need criticality monitors, and the  
14 conditions you have to show in order not to have any.

15 CHAIRMAN BECHHOEFER: Now on the next page 6, of  
16 the affidavit, there is a reference to the administrative  
17 controls proposed in the current application, and that says  
18 that they augment the current procedures.

19 MS. HODGDON: That says that they?

20 CHAIRMAN BECHHOEFER: It says augmented, and I am  
21 quoting.

22 MS. HODGDON: Augment, implement, augment.

23 CHAIRMAN BECHHOEFER: No, augment is the word I am  
24 --

25 MS. HODGDON: Okay, augment.

1 CHAIRMAN BECHHOEFER: That is in their affidavit,  
2 so. Paragraph 16.

3 MS. HODGDON: That's fine, if that is what is  
4 says. I can't find it but I believe you.

5 CHAIRMAN BECHHOEFER: Well, it is in the middle of  
6 paragraph 16.

7 MS. HODGDON: Augment. I found it, augment.  
8 Augment to the -- "That the new procedures would augment the  
9 current procedures to the extent necessary to accommodate  
10 the fifteen new racks." That's what it says, fine. Well,  
11 do you disagree with that? I mean, do you think I don't  
12 know what's the question?

13 CHAIRMAN BECHHOEFER: I am just saying we have  
14 heard statements to the effect that the administrative  
15 controls to be imposed are no different from those that are  
16 already imposed, and they seem to be there is a different in  
17 scope, if nothing else.

18 MS. HODGDON: I do not believe that this statement  
19 is inconsistent. It says, "They served to augment the  
20 current procedures to the extent necessary to accommodate  
21 the fifteen new racks."  
22 Now that is entirely consistent with everything else we  
23 said, and with everything Mr. Repka said. I don't  
24 understand the inconsistency or your feeling that there is  
25 one.

1 MR. REPKA: I believe, if I may respond to that as  
2 well and say the procedures would clearly need to be  
3 revised. We have said that in our testimony. As far as  
4 "augment", yes, they would be revised they would reflect  
5 three regions instead of two. The physical acts that would  
6 be involved, is what we are saying, would not change. The  
7 equipment involved would not change, but the physical  
8 actions would not change.

9 CHAIRMAN BECHHOEFER: I see. Thank you.

10 [Pause.]

11 CHAIRMAN BECHHOEFER: That is all the questions  
12 the board has for the moment. I guess it is time to go on to  
13 rebuttal.

14 Unless you have something further to add.

15 MS. HODGDON: No, I have nothing to add.

16 CHAIRMAN BECHHOEFER: This is rebuttal on  
17 contention four.

18 MS. HODGDON: Would it be very bold and request a  
19 five minute -- upon requesting a five minute recess, if I  
20 may be so bold.

21 CHAIRMAN BECHHOEFER: That's fair. We will break  
22 for five minutes.

23 [Recess.]

24 CHAIRMAN BECHHOEFER: Back on the record.

25 Ms. Burton are you ready?

1 MS. BURTON: Yes. Here we are. Thank you.

2 I think what I will do here, if I may, is proceed  
3 sequentially through the points that I have jotted down with  
4 respect to the presentation of the staff and the licensee.  
5 If that would be acceptable.

6 Beginning with Mr. Repka's comments, he made  
7 certain comments about -- let me just back up for just a  
8 moment. I would like to start with his comment that the  
9 licensee argues that it takes beyond design basis events to  
10 lead to criticality. I want to point out, as we have in our  
11 summary, that and as the licensee has provided further  
12 details about itself, in December 1997, the NRC find  
13 Northeast Utilities for operating the Millstone station  
14 beyond its design basis for quite a long time.

15 Mr. Repka stated that we haven't pointed to any  
16 flaws in procedure at Millstone. I assume he meant by that  
17 flaws and performance of procedures, but I believe that the  
18 record does show that, in fact, by way of a couple of  
19 examples, we did note in what we reported concerning  
20 refueling outage 6, that for example bypass keys that were  
21 required for performance of the emergency by passes on more  
22 than one occasion were not properly logged out or returned.  
23 That is a failure of performance of an administrative  
24 control, for example.

25 And we did note, also -- excuse me. A great deal

1 of attention was devoted by Mr. Repka to the incident that  
2 occurred in 1994, during refueling, that involved this  
3 positioning of the momentary misplacement of a fuel  
4 assembly. And there was discussion by Mr. Repka concerning  
5 the issue of lighting and he stated that we had omitted to  
6 say, although, the records have been submitted to this panel  
7 that a corrective action procedure was agreed upon. But I  
8 don't believe that there is any evidence here that, in fact,  
9 that corrective action was actually followed through. And  
10 we do know, for instance, from Mr. Beaupre's report, which  
11 is exhibit 12, that in the past and as recently as the 1999  
12 refueling outage, quote, corrective actions to resolve  
13 previously identified fuel handling system equipment  
14 problems are frequently ineffective. And that memo goes on  
15 to say that in some case, in fact, required work was not  
16 even done. I was somewhat surprised that Mr. Repka went on  
17 to say that the light bulbs at the spent fuel pool may not  
18 be changed at all if its not deemed that they are needed.

19 Well, we have presented the board with  
20 documentation from the utility that visibility has been a  
21 problem in terms of proper operations in the spent fuel pool  
22 and placing the fuel in the proper position. It is somewhat  
23 startling to hear that lighting initially installed in the  
24 plant is now rather arbitrarily deemed to be not needed and  
25 light bulbs can continue to go on not being replaced after

1 they have burned out. Somewhat ironic, that this utility is  
2 so reluctant to apparently to routine replace its light  
3 bulbs. It is a false conservation, one way of looking at  
4 it.

5 But continuing with a little bit more discussion  
6 about that incident in 1994, a number of problems were  
7 identified and activities were recommended to be done. And  
8 what we see happening is that they were not done, and that  
9 each time after refueling outages with problems there seem  
10 to be assessment that things were not done and things needed  
11 to be corrected and what we found is that the pattern has  
12 apparently repeated itself. And we heard today that the  
13 licensee does intend to address these issues that have now  
14 surfaced concerning the most recent refueling outage in  
15 1999; that all of these matters will be addressed in time  
16 for fueling outage number seven, which is a little bit of a  
17 ways off, but one issue here is what meaning we can attach  
18 to that representation given the likelihood that this  
19 utility is not going to be in any position to implement  
20 those changes because it will have most likely divested  
21 itself of Millstone before the time comes for refueling  
22 outage number seven.

23 So whether the SIGMA equipment will be replaced or  
24 whether there will be the proper remedies applied to the  
25 equipment that broke down and to the problems that had

1 previously been identified and still have not been  
2 corrected, whether they will be by another owner is simply a  
3 question at this time.

4 We note that Mr. Repka recognized that there are  
5 business factors and concerns concerning activities during  
6 an outage. And I think he recognized here that there are  
7 economic concerns that may drive some of the decision making  
8 that, at least in the 1999 refueling outage, seemed to  
9 suggest a proceeding with equipment that was not functioning  
10 going to granted permissible bypass procedures.

11 But we pointed out that the log maintained by  
12 Northeast Utilities, shown no fewer than seventeen instances  
13 where bypasses provided emergency override during that  
14 RFO-6, seventeen bypasses. That means on seventeen  
15 occasions in our view of this emergency procedures were  
16 employed that were beyond the routine. The licensee has  
17 suggested that these were not emergency procedures and is  
18 quibbling over the use of that term 'emergency' but we  
19 wonder what the meaning is of emergency if not as employed  
20 here repeatedly in the refueling outage number six.

21 We wonder how seriously the utility takes the term  
22 of emergency planning, for instance, if these emergency  
23 procedures don't qualify as emergency were in another  
24 semantical morass here.

25 CHAIRMAN BECHHOEFER: Ms. Burton, just to

1 reference something the staff has said, but on the same  
2 subject, I think the staff refers to these bypasses as  
3 administrative controls working rather than not working.  
4 Can you comment on that? It was in the supplement that we  
5 permitted to be put in to the record today.

6 MS. BURTON: Yes. Well, we heard from the staff's  
7 witnesses that, in fact, it must be that the administrative  
8 procedures work even if there are errors that aren't noticed  
9 for a long period of time even years later. The final  
10 determinant of whether they work is whether they are ever  
11 found out and we don't believe that that is an appropriate  
12 standard to go by. We think that the record that we  
13 presented to the board shows that things were not, and in  
14 fact, the licensee's own engineering analysis of the events,  
15 show that there are concerns that the utility may have come  
16 close to true safety issues because of the continuing  
17 persistence of break-downs in equipment to failures during  
18 the outage.

19 Excuse me.

20 [Pause.]

21 It has been pointed out, and I will note, that  
22 when there are repetitive bypasses, even if there happens to  
23 be at the time no fuel in that position, it increases the  
24 likelihood that there may not be proper notation; that the  
25 emergency was invoked; it may not be properly recorded; and

1 it may not be noted. Because we have shown here a record of  
2 mispositionings that have gone undetected for years. This  
3 can happen. That doesn't show that administrative controls  
4 work. It shows that they do not work, or that they do not  
5 accomplish or they have not been carried out in a manner  
6 consistent with a purpose behind them.

7 The licensee noted or stated, at least, that the  
8 interveners have failed to identify pathways for Boron  
9 dilution. But again, that brings us right back to the point  
10 of providing the board with the list that Dr. Kelber --  
11 Judge Kelber had suggested we provide because the very  
12 information that we are seeking is the information that the  
13 licensee is holding against us because we didn't have it. So  
14 the licensee was simply, in its own way, emphasizing our  
15 need to have that information.

16 We note that Mr. Repka was asked, "what additional  
17 or different kind of training would be planed if this  
18 Racking application were to be approved?" And I believe his  
19 response was that no new training would be required. But  
20 that raises a couple of points, one is, again going back to  
21 the likelihood, if I may use that word, that the licensee  
22 won't have divested itself of the plant before it has  
23 occasion to put new racks in the pool. And it also seems to  
24 conflict with other statements that the addition of new  
25 racks would require the preparation and the implementation

1 of new procedures. One would think that --

2 MR. LOCHBAUM: Excuse me, where did you find that;  
3 that reference.

4 MS. BURTON: To new --?

5 MR. LOCHBAUM: New procedures.

6 MS. BURTON: That is what I heard Mr. Repka say a  
7 few minutes ago, here.

8 MR. REPKA: I didn't say new procedures. I said  
9 the procedures would be revised to incorporate the new  
10 regions. I said the physical acts would remain the same.

11 MR. BURTON: There would have to be new procedures  
12 written is how I understood his statement.

13 MR. LOCHBAUM: Okay, let's go on.

14 MS. BURTON: Dr. Cole asked about the use of teams  
15 for refueling and how that might have interplay with the  
16 complexity issues. With respect to that point, I will go  
17 back again to the incident in 1994 at Millstone, when in  
18 fact it was pointed out that there is an interplay and there  
19 are issues involved when a vendor comes into the plant,  
20 because after all refueling outages are unusual events, they  
21 don't take place very often. There is some tranigent  
22 phenomenon in the work force and I believe that that is  
23 information that hasn't been addressed adequately by the  
24 licensee.

25 Judge Bechhoefer asked with respect to the Beaupre

1 memorandum about the question as to whether or not the  
2 issues raised in that memorandum suggested a pervasive  
3 pattern. I am not quoting verbatim, but I think that is  
4 what was said. And I think that on that point, again, the  
5 information that has been submitted to the board both  
6 through that memo, and the others that were released by  
7 Northeast Utilities, suggest that very phenomenon of  
8 pervasive problem of putting off, and putting off what needs  
9 to be done in advance of the refueling in corrective action  
10 so that the plant can assure safe handling during the  
11 refueling outages. That is the clear message of the Beaupre  
12 memorandum.

13           And a point that is related to that is that, for  
14 instance, with a 1999 outage with so many problems going  
15 making things haywire for so many days, that caused a change  
16 in the refueling plan. And the logs that we presented do  
17 show a number of times when a sequence deviations took  
18 place. Not that that represents any violation of procedure,  
19 but it simply creates an atmosphere which we believe makes  
20 the plant more vulnerable and the workers more vulnerable to  
21 time pressure more subject to error. And in light of those  
22 conditions that the more so dictates against allowing the  
23 licensee to trade physical protection for administrative  
24 controls.

25           Moving on to the comments made by the staff. The

1 staff stated that we presented selective excerpts of the  
2 refueling logs. Well, we did that, but we also presented  
3 the full logs of themselves as an exhibit in the case. We  
4 presented excerpts simply to highlight some of the more  
5 pertinent issues in those logs for the aide of the board and  
6 the parties.

7           Suggestions were made about the statements  
8 attributed to Dr. Kopp in the interveners' summary, however,  
9 the interveners did a append to their summary as an exhibit  
10 the entire transcript of Dr. Kopp's deposition for the  
11 purpose of aiding the board and making reference to the  
12 complete transcripts so that the comments can be read in  
13 their full context, and I believe that they were accurate.

14           A point made by the staff was concerning the  
15 database. Dr. Kopp agreed that on the point of wouldn't it  
16 be wise for a scientist to work from a database. On that  
17 issue, the staff has tried to somehow make the point that  
18 there was a database involving one incident of boron  
19 dilution; but thinking these proceedings, it was the case  
20 that Dr. Kopp only learned about that one incident  
21 serendipitously the previous day, an interaction at the  
22 visit of the spent fuel pool and, therefore, coming across  
23 that information that way is not equivalent to reliance upon  
24 an actual scientific database.

25           There was discussion by the staff about the

1 meaning of the term "likely." We had earlier discussion  
2 about that before. The staff has now conceded that it was  
3 one of those things, it is not a defined term. You know it  
4 when you see it. The staff then went on to say that  
5 definitions were suggested by two members of the staff, but  
6 those aren't definitions that carry the force of law, and we  
7 emphasize again that the meaning of the term "likely" is an  
8 issue that should give rise to full enunciation through an  
9 evidentiary hearing.

10 Mr. Repka interjected at one point and suggested  
11 that the Board needn't consider this issue of human -- of a  
12 human factor's expert, because it wouldn't get the Board  
13 anywhere, because even if it made a determination there, the  
14 intervenors had failed to make the proper presentation with  
15 regard to establishing the validity of their fourth  
16 contention. However, that isn't correct, because, in fact,  
17 what the intervenors have done is we have substantiated all  
18 of the elements needed in contention for. We've given the  
19 examples. We've shown how there are scenarios for the  
20 events, which have been postulated.

21 I think I have covered -- tried to cover the  
22 points that are -- excuse me -- there was something else I  
23 wanted to point out. I think it was Dr. Kelber's question  
24 about mispositionings since restart and we have provided the  
25 Board with information about the event at Byron Station,

1 license -- Byron Station, May 28, 1996. I believe that's  
2 Exhibit 19. And in that case, on May 28, 1996, three fuel  
3 assemblies were found to be present in Region II of the  
4 spent fuel pool without meeting technical specifications  
5 requirements. The assemblies did not meet the minimum burn  
6 up requirements, nor were they checker boarded. And it goes  
7 on to say two of the three noncomplying assemblies were  
8 placed in Region II in August 1993 and the third assembly  
9 was placed in Region II in January 1995.

10 So, I think I've covered the points that I have  
11 jotted down from the other presentations and I would simply  
12 like to close by advising the Board that I believe that we  
13 have, in all respects, met the standard of showing that  
14 there are substantial issues of fact in dispute, which can  
15 only be resolved through the evidentiary hearing process.  
16 The issues here are very serious. We are grateful to Mr.  
17 Repka in his own summary for further acquainting in more  
18 detail this board with some of the facts that outline the  
19 difficulties that this plant has had in operating in this  
20 community in compliance with the law, because the fact is  
21 for a great deal of the time, it hasn't. And we are  
22 certainly very disturbed to discover what we did when we  
23 looked for the first time at the reactor logs from the 1999  
24 refueling outage.

25 We have through these proceedings developed an

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1 appreciation for this process and deepening, of course,  
2 respect for the Board. But, increasing concern about the  
3 standard of review that an application such as this, which  
4 is so serious and has such potential significance for this  
5 community is entitled to by the NRC staff and we don't  
6 believe that the level of analysis that is required has been  
7 carried out by either the licensee or the NRC. And this is  
8 a major shortcoming and we believe that it looks as though  
9 the two entities, themselves, are at pains to try to put  
10 this most recent refueling outage under the rug, as though  
11 it's business as usual and we know otherwise from Mr. Boprey  
12 and others Northeast Utilities, who gave a critical eye to  
13 what happened and we share with you their very grave  
14 concerns.

15 Thank you.

16 CHAIRMAN BECHHOEFER: I guess we're at the stage  
17 now where we should progress to contention six, and Ms.  
18 Burton, you're up again, I guess.

19 MS. BURTON: All right.

20 [Pause.]

21 CHAIRMAN BECHHOEFER: You may proceed --

22 MS. BURTON: Thank you.

23 CHAIRMAN BECHHOEFER: -- with contention six.

24 MS. BURTON: Contention six is that the proposed  
25 license amendment fails to comply with general design

1 criteria 62, because it improperly relies on administrative  
2 controls. I will assume the Board's familiarity with the  
3 background and documentation that we have provided here and  
4 information that has also been incorporated from filings in  
5 the matter of the Sharon Harris plant in North Carolina. I  
6 will say at the outset that the two proceedings are not  
7 factually equivalent and one big difference between that  
8 case and this is that in this case, it is planned and  
9 contemplated that fresh fuel will be put in the Millstone  
10 Unit 3 spent fuel pool. That is not the case at the Sharon  
11 Harris plant and, therefore, this case is very different  
12 from that case.

13 We have presented in the summary the historical  
14 derivation of GDC-62 and appended the various documents that  
15 show how there has been an evolution in the -- in this  
16 matter. The Commission's general design criteria for  
17 nuclear power plants establish the basic principle of  
18 nuclear power plant design. They constitute minimum  
19 requirements for the principle design criteria for water  
20 cooled nuclear power plants similar in design and location  
21 to plants for which construction permits have been issued by  
22 the NRC. Essentially, GDC-62 provides that, by its plain  
23 language, criticality in the fuel storage and handling  
24 systems shall be prevented by physical systems or processes  
25 preferably by the use of geometrically safe configurations.

1           General design criterion 62 has its roots going  
2 back to November 22, 1965, when there was a press release  
3 that issued notice of consideration of a -- of the Atomic  
4 Energy Commission seeking public comment on proposed design  
5 criteria for nuclear power plant construction permits. That  
6 was now 35 years ago. That led to adoption of GDC-62, which  
7 is still the law of the land. And the summary does relate  
8 how there have been efforts and pressures to change or  
9 modify that clearly stated language over the years; but, to  
10 date, that language is, as I have set it forth, that is  
11 controlling legal language and that language controls these  
12 proceedings.

13           The point here is, of course, that the licensee  
14 proposed to substitute for physical systems or processes  
15 administrative controls and we argue that it cannot legally  
16 be permitted to do so. It doesn't matter if, in the past,  
17 other licensees have applied to do the same sort of thing  
18 and they have been permitted to by the NRC. And you will be  
19 hearing from the NRC staff as to that. They will explain to  
20 you why they have not paid what we consider to be proper and  
21 due heed to the law over the years in disregarding GDC-62.

22           In this case, the physical barriers are being --  
23 are not being applied and -- in this license amendment  
24 application. The licensee proposed to make up for that loss  
25 with administrative controls. And it is our position that

1 they cannot do so without being in violation of the law and,  
2 therefore, this Board -- this body has no authority to  
3 permit them to do so.

4 I wanted to highlight one or two things from our  
5 summary. We have explained why the plain language of GDC-62  
6 is not altered or contradicted by other relevant NRC  
7 criticality standards, in particular 10 CFR 50.68 and 10 CFR  
8 section 70.24. And, again, we are going to be head to head  
9 here on an issue of definition and semantics. And I'm going  
10 to jump ahead to our point that addresses calculations,  
11 which the licensee has submitted in the course of these  
12 proceedings. And this concerns also the Board's request to  
13 the parties to define the term "maximum fuel assembly  
14 reactivity."

15 MS. BURTON: I'd like to address 10 CFR section  
16 50.68, subsection b(4), as it relates to the storage of fuel  
17 and spent fuel pools. Although this provision also mentions  
18 administrative measures, in the sense that it discusses the  
19 parameters for taking credit for the presence of soluble  
20 boron in the water, the provision also makes it clear that  
21 criticality ultimately must be prevented without resort to  
22 administrative controls. If no credit for soluble boron is  
23 taken, the K effective of the spent fuel storage racks  
24 loaded with fuel of the maximum fuel assembly reactivity  
25 must not exceed 0.95 at a 95 percent probability, 95 percent

1 confidence level, if flooded with unborated water. If  
2 credit is taken for soluble boron, the K effective of the  
3 spent fuel storage racks loaded with fuel of the maximum  
4 fuel assembly reactivity must not exceed 0.95 at a 95  
5 percent probability, 95 percent confidence level, if flooded  
6 with borated water and the K effective must remain below 1.0  
7 subcritical at a 95 percent probability, 95 percent  
8 confidence level, if flooded with unborated water. Thus,  
9 the basic requirement of subsection b(4) is that criticality  
10 must be controlled; in other words, K effective maintained  
11 below 0.95 or 1.0, depending on the taking of credit for  
12 soluble boron, without considering the presence of soluble  
13 boron in the water. Moreover, this control must be achieved  
14 for racks loaded with fuel of the maximum fuel assembly  
15 reactivity.

16 Now, the Board, as I've stated, asked the parties  
17 to the proceeding to define the term "maximum fuel assembly  
18 reactivity." For the Millstone Unit 3 fuel pool, fuel of  
19 the maximum fuel assembly reactivity is fresh fuel with an  
20 enrichment of five percent, because that is the most  
21 reactive fuel that will pass through the pool. Moreover,  
22 the licensee's application does not seek credit for soluble  
23 boron. Thus, subsection b(4) establishes a requirement that  
24 K effective in the Millstone Unit 3 pool must not exceed  
25 0.95 at a 95 percent probability, 95 percent confidence

1 level, if the pool is flooded with unborated water and the  
2 racks are loaded with fresh fuel with an enrichment of five  
3 percent.

4           The licensee in these proceedings have provided  
5 the results of criticality calculations, which show that  
6 this requirement would be violated for a full loading of  
7 fresh fuel in each of the proposed three regions of the  
8 pool. In region one, K effective would be 0.9728 with no  
9 soluble boron. In region two, K effective would be 0.9842  
10 for boron concentration of 2,000 parts per million and would  
11 be higher at a lower boron concentration. In region three,  
12 K effective would be 0.9811 for boron concentration of 1,320  
13 and would be higher at lower boron concentrations. Thus,  
14 the licensee has shown in its proposed license amendment  
15 that it would violate subsection b(4) of section 50.68.  
16 That violation provides sufficient grounds for denial of the  
17 application.

18           JUDGE KELBER: Ms. Burton, I asked -- I was the  
19 one who framed the question on what maximum fuel assembly  
20 reactivity means, because I frankly didn't understand it  
21 myself. I can see, however, from the history of it that  
22 there may be grounds for adopting a somewhat different  
23 definition. I believe you are as familiar with that history  
24 as anybody. Can you see how a licensee might consider a  
25 different definition, especially considering the letter

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1 from, I think it was from one Wisconsin utilities that  
2 suggested the phrase?

3 I can -- I, myself, am puzzled by the meaning of  
4 the phrase; but what I'm asking you is, is it conceivable  
5 that licensee or the staff might take a different view of  
6 what the phrase means, given the history and the phrase,  
7 which it substituted for in the initial draft rule?

8 MS. BURTON: Well, I think that we understand from  
9 their filings that they do, indeed, take a different tack  
10 and their interpretation is not ours. There's an agreement  
11 -- a disagreement here. There's a dispute.

12 JUDGE KELBER: Okay.

13 MS. BURTON: And we wish to go to hearing to  
14 resolve the dispute.

15 JUDGE KELBER: You think a hearing would be  
16 necessary to resolve that?

17 MS. BURTON: Well --

18 JUDGE KELBER: Is it a matter of law?

19 MS. BURTON: I would argue both ways here. I  
20 would argue that the law -- the rule GDC-62 and the --  
21 excuse me -- the meaning of section 50.68 is questionable;  
22 that is not necessarily fact bound and, therefore, not  
23 necessarily resolvable through an evidentiary hearing. But,  
24 at the same time, I believe that there are factual issues  
25 that would help us to arrive at what is the intended meaning

1 of that term. The process of arriving at that could  
2 effectively be an evidentiary hearing.

3 JUDGE KELBER: What kind of evidence would be  
4 needed?

5 [Pause.]

6 CHAIRMAN BECHHOEFER: Yes?

7 MS. BURTON: Yes, Dr. Kelber, with respect to what  
8 potentially be a proper subject of inquiry at an evidentiary  
9 hearing, I think would be the facts that involve the  
10 derivation and the influences that led to the adoption of  
11 this language; that is information that could properly be  
12 brought to a hearing and the ordinary process of a hearing  
13 invoked.

14 JUDGE KELBER: But isn't all of that material in  
15 the exhibits that you have already submitted? I mean, is  
16 there other material that -- out there that we should look  
17 for?

18 [Pause.]

19 MS. BURTON: I'm being reminded, Dr. Kelber, that  
20 with respect to the history of the adoption of 10 CFR 50.68,  
21 the intervenors, themselves, in this proceeding did not  
22 submit the history. I think that, however, the staff, in  
23 its submission, did make that contribution to some extent.

24 JUDGE KELBER: Okay. I think we have all the  
25 necessary materials before us.

1 [Pause.]

2 JUDGE KELBER: What we're debating is the same  
3 question that you've been trying -- dwelling on, that is the  
4 meaning of the term "maximum fuel assembly reactivity."  
5 We'll hear from the other parties, as well. But, we've  
6 heard your view and I think it's just -- it is well taken,  
7 let's put it that way.

8 CHAIRMAN BECHHOEFER: Well, let me ask the  
9 question in a somewhat different way and if you read --  
10 assuming that 50.68 is even applicable to the situation  
11 before us, if you read the first sentence of 50.68(b)(4) and  
12 then you look at the bottom calculation in Table 3 of the  
13 Turner affidavit, the bottom calculation in Table 3, where  
14 it says, "loss of also soluble boron in only one assembly"  
15 is not -- does not that last table per se, by its terms,  
16 violate the first sentence of 50.68(b)(4), as a matter of  
17 law?

18 [Pause.]

19 MS. BURTON: I think we're ready now --

20 CHAIRMAN BECHHOEFER: Yes.

21 MS. BURTON: -- to respond. Thank you.

22 We would -- it would be our position that, yes,  
23 there would be a violation under the terms that you have set  
24 forth of section 50.68(b)(4); but we would go further than  
25 that, because I think that you have postulated only one

1 assembly of fresh fuel, whereas the applicable rule has  
2 reference to storage racks loaded with fuel of the maximum  
3 fuel assembly reactivity. We would take that to mean that  
4 the entire rack is full of nothing but fresh fuel and,  
5 therefore, the violation is more significant than what was  
6 postulated.

7 CHAIRMAN BECHHOEFER: Well, I postulated it merely  
8 because I'm not even assuming loaded with that. But, if one  
9 -- if one fuel rod would violate it, then -- if only one  
10 would violate it, then if more than one is there, it would  
11 be even more violated, shall we say. That was a layman  
12 perhaps viewing a technical regulation, but I'm just  
13 postulating that for that reason.

14 MS. BURTON: We would agree. I'm just pointing  
15 out that our position here further is that the  
16 administrative criticality prevention proposed by the  
17 application does violate the plain meaning and clear intent  
18 of GDC-62 because the introduction and maintenance of  
19 soluble boron in the spent fuel pool requires ongoing  
20 administrative actions and procedures and does not  
21 constitute physical systems or processes. Furthermore, the  
22 licensee's proposed reliance on administrative criticality  
23 prevention measures is not justified by draft Reg Guide 113  
24 or other NRC staff guidance. And it is our position that  
25 neither the licensee nor the staff has demonstrated that

1 public health and safety would be adequately protected, if  
2 the licensee relied on ongoing administrative controls for  
3 criticality prevention.

4 We note that we are astounded that the staff has  
5 pursued its position on this point for over two decades  
6 without conducting any safety analysis, to determine whether  
7 its radical departure from the requirements of GDC-62 could  
8 be justified on safety grounds. The staff has never done a  
9 systematic analysis of the potential for criticality  
10 accidents when reliance is placed on administrative measures  
11 instead of physical measures.

12 We have shown in appendices to our summary that  
13 experience at U.S. nuclear power plants shows that fuel  
14 mispositioning involving misplace -- excuse me, involving  
15 placement in the fuel of one or more fuel assemblies within  
16 appropriate burn up enrichment or age is a likely  
17 occurrence. Experience also shows that the concentration of  
18 soluble boron in the fuel can fall below specified levels.  
19 Some accident sequences could yield substantial reductions  
20 in soluble boron concentration.

21 From a qualitative perspective, it is clear that  
22 criticality scenarios, which involve the failure of ongoing  
23 administrative controls, have a much higher probability of  
24 occurring than criticality scenarios involving failure of  
25 physical controls. Also, Appendix C shows that significant

1 onsite and offsite radiation exposures are potential  
2 outcomes of a criticality event in a fuel pool. Therefore,  
3 under these circumstances, there is no basis for concluding  
4 that the public health and safety can be protected through  
5 reliance on administrative measures for criticality  
6 prevention at Millstone Unit 3.

7 We have also set forth why we have the view that  
8 the licensee's criticality accident analysis misapplies  
9 applicable staff guidance and we conclude by asking this  
10 Board, as a matter of law or through an evidentiary  
11 proceeding, to find that the criticality prevention measures  
12 proposed by the licensee are inconsistent with GDC-62 and  
13 valid and applicable NRC staff guidance; that the licensee's  
14 criticality prevention measures are demonstrably  
15 insufficient to provide a reasonable level of protection to  
16 public health and safety; and that the licensee's proposed  
17 reliance on new and complex administrative controls pose an  
18 undue and unnecessary risk of a criticality accident; and,  
19 therefore, this application cannot be approved.

20 And that concludes my remarks.

21 JUDGE KELBER: I have some questions on your  
22 brief. Let me turn to the discussion that starts -- that  
23 you start of contention six, and I refer to the fourth  
24 paragraph which on my copy appears on page 30. And you  
25 state there that the "practical application of GDC-62

1 requires a definition of a 'credible,' and I've got that in  
2 quotes, "range of accident conditions." Why is that so?  
3 Where does GDC-62 mention accident conditions? It's the  
4 fourth paragraph after you -- when you start the discussion  
5 in your brief of GDC-62.

6 MS. BURTON: Yes.

7 [Pause.]

8 MS. BURTON: I think we've found it. Dr. Kelber,  
9 I'm very sorry, I wonder if you could please repeat your  
10 question.

11 JUDGE KELBER: In the fourth paragraph, you state  
12 that the "practical application of GDC-62 requires a  
13 definition of a 'credible' range of accident conditions."  
14 Disregarding for the moment the meaning of the term  
15 "credible," why does that -- why do you require that and  
16 where does GDC-62 mention accident conditions?

17 MS. BURTON: Dr. Kelber, yes, it is quite true  
18 that GDC-62 does not mention accident nor credible range of  
19 accident conditions. However, I don't believe that such a  
20 regulation can be considered entirely apart from the context  
21 and its derivation. And I have reference to Part 50,  
22 Appendix A, criteria two and four, if you have those at  
23 hand.

24 JUDGE KELBER: I read criterion two: "Design  
25 basis for protection against natural phenomena, structures,

1 systems, and components important to safety shall be  
2 designed to withstand the effects of natural phenomena such  
3 as earthquakes, tornadoes, hurricanes, floods, tsunami, and  
4 sieges, without loss of capability to perform their safety  
5 functions. That is the epidemia. I won't recite the whole  
6 section.

7 And going on to criterion four, environmental and  
8 dynamic effects design bases, structures, systems, and  
9 components important to safety shall be designed to  
10 accommodate the effects and to be compatible with the  
11 environmental conditions associated with normal operation,  
12 maintenance, testing, and postulated accidents, including  
13 loss of coolant accidents. And I think that we need to  
14 consider that GDC-62 must be considered within the context  
15 of these criteria.

16 JUDGE KELBER: Okay. Let's pass on to -- in my  
17 case, I'm going to skip over quite a few things. On my  
18 copy, page 58, which is just preceding the headline two,  
19 "Physical systems and processes are distinct in nature from  
20 ongoing administrative controls," a discussion just  
21 preceding that -- okay, on that page, you say -- on what  
22 basis, I'm going to ask you, do you conclude that the only  
23 accepted -- acceptable physical system or process is a  
24 geometrically safe configuration and is a geometrically safe  
25 configuration a physical process?

1           Let me read the whole sentence, "The phrase  
2 'physical systems or process' is not defined in Appendix A,  
3 Part 50, but it may be understood by reference to the  
4 example provided in GDC-62 of an acceptable physical system  
5 or process: a geometrically safe configuration." Now,  
6 again, I ask is that a physical process and why is that  
7 exclusively the only physical system or process that can be  
8 used? Yourself cited as an example, why is that the only  
9 example?

10           MS. BURTON: Dr. Kelber, I understand your  
11 question to be one that asks us where we essentially draw  
12 the line between physical and administrative, and our  
13 position is that what is required is geometric configuration  
14 plus soluble boron -- I'm sorry, I meant to say solid boron.

15           JUDGE KELBER: Say it again, please.

16           MS. BURTON: Yes. Our position is that GDC-62  
17 requires nothing less than a geometrically safe  
18 configuration, plus we would recognize solid boron as being  
19 a physical element.

20           JUDGE KELBER: Solid boron?

21           MS. BURTON: Yes.

22           JUDGE KELBER: Okay. Why is that the only  
23 example? What limits it? You've got two very general  
24 phrases there: physical systems or physical processes,  
25 because "physical" modifies both of those. What limits the

1       generality of those phrases?

2               MS. BURTON: I won't restate what we set forth in  
3       the passage that immediately follows the section that you  
4       have referenced to, Dr. Kelber, but I think the point here  
5       is that according to our understanding of the history of  
6       GDC-62, tells us that this is what is required. And in the  
7       alternative, I think that the licensee and the staff are  
8       suggesting that there's no line to be drawn, as far as what  
9       can be acceptable as an administrative control, and we  
10      believe that GDC-62 dictates a line, a very clear sharp  
11      line.

12             JUDGE KELBER: Well, personally, I wish that were  
13      so, but it isn't. We have heard from Mr. Repka that the  
14      Congress, who after all is our boss, has said that the  
15      licensees should, in accordance with the National Policy  
16      Act, store more fuel; go to high density fuel storage. Now,  
17      apparently, the Congress takes a larger view of the phrase  
18      "physical systems or processes" than you do. I'd like to  
19      know what you perceive as setting the limits, other than our  
20      personal predilections.

21             I have great esteem for Mr. Cottrell's point of  
22      view. He was a very fine scientist and respect his views  
23      greatly. But, we are not permitted by circumstance and by  
24      policy as expressed by Congress to adhere to that stricture,  
25      nor do the AEC adhere to it initially. So, what limits the

1 scope of the physical processes and physical systems?

2 MS. BURTON: Dr. Kelber, we accept solid boron as  
3 not being incompatible with high or density storage.  
4 However, we believe that there is a line that has been drawn  
5 and that is by virtue of GDC-62, as well as section 10 CFR  
6 50.68, because they, together, establish design parameters.

7 JUDGE KELBER: Okay. Let's move on to the next  
8 couple of pages, where you discuss -- and I'll try and find  
9 the heading. It's under the general discussion, "Physical  
10 systems and processes are distinct," and it's approximately  
11 four paragraphs further on. It's the paragraph that starts,  
12 "By contrast, prevention of criticality by ongoing  
13 administrative controls." At the end of this paragraph, you  
14 say, "These administrative controls must be implemented in a  
15 -- on a continuous ongoing basis with complete reliability."  
16 I'd like to know what you mean by the phrase "complete  
17 reliability."

18 MS. BURTON: Dr. Kelber --

19 JUDGE KELBER: Yeah.

20 MS. BURTON: -- what we mean by that is that it is  
21 not sufficient to adopt a procedure alone. The procedure  
22 must be carried out faithfully every single time without  
23 error and thereby be completely reliable.

24 JUDGE KELBER: Now, further on, you use the  
25 phrase, "thus providing multiple and cumulative

1 opportunities for error." What does the word "cumulative"  
2 mean in this connection? What's a cumulative opportunity?  
3 Also, what is a cumulative probability? It's in the same --  
4 at least in my case, in my book, it's on the same page.

5 MS. BURTON: On this point, what we might have  
6 said in a more clearer fashion is that over time, the number  
7 of opportunities for error would accumulative, giving rise  
8 to the phenomenon whereby there would be a cumulative and  
9 greater probability for errors.

10 JUDGE KELBER: You're defining cumulative  
11 probability as cumulative probability? I hope you don't  
12 play gamblers room.

13 [Pause.]

14 JUDGE KELBER: Let me put -- let me try to define  
15 it for you and see whether it is what you meant. Do you  
16 mean that given a certain probability of occurrence of an  
17 error, that as opportunities for error accumulate, the  
18 likelihood that an error would have occurred is greater?

19 MS. BURTON: That's along the lines of what we  
20 were trying to say.

21 JUDGE KELBER: Okay. Finally, at the very end of  
22 your brief -- not quite the end, but very close to the end,  
23 where you're discussing, in fact, our request for you to  
24 define the term "maximum fuel assembly reactivity," you've  
25 gone to say, "moreover, NNECO's application does not seek

1 credit for soluble boron." Where did they forswear the use  
2 of soluble boron?

3 [Pause.]

4 JUDGE KELBER: The paragraph in which you have  
5 footnote 01.

6 MS. BURTON: Our understanding is that when the  
7 licensee in 1997 proposed to no longer take credit -- I'm  
8 sorry, they did take credit and this -- for soluble -- solid  
9 boron -- for soluble boron and then this application  
10 proposed to drop that credit. We are of the view that in  
11 doing so, they gave up taking credit for soluble boron.

12 JUDGE KELBER: We'll see what they have to say  
13 about that.

14 CHAIRMAN BECHHOEFER: Well, by their agreeing to  
15 include soluble boron, did they not change that position?  
16 Assuming that was their position to start out with, did they  
17 not change it by their agreement, which we have approved  
18 this morning, to take credit for --

19 JUDGE KELBER: Do you mean they're going to survey  
20 it?

21 CHAIRMAN BECHHOEFER: Yes.

22 JUDGE KELBER: Shouldn't they -- are they entitled  
23 to take that?

24 MS. BURTON: We understand that since the company  
25 is no longer taking credit for the Bopraflex, because of the

1 degraded condition, that it is not therefore taking credit  
2 for soluble boron.

3 JUDGE KELBER: Okay. Let's pass on that.

4 [Pause.]

5 JUDGE KELBER: Mr. Repka, would you be prepared at  
6 some point to comment on that question?

7 MR. REPKA: Yes, I'd be happy to do that now or I  
8 can do that later. We're at your pleasure.

9 JUDGE KELBER: Whatever you please.

10 CHAIRMAN BECHHOEFER: Are you finished at this  
11 stage?

12 MS. BURTON: Yes, thank you.

13 CHAIRMAN BECHHOEFER: Okay. Well, you've got a  
14 chance to now, then.

15 MR. REPKA: Well, I'll start out my presentation  
16 then with -- directly with that question. The proposal, the  
17 accident analysis, does not credit soluble boron for normal  
18 conditions. The analysis does credit soluble boron for  
19 accident conditions, the single misload.

20 In the prior -- the current tech spec, the current  
21 proposal, there also was no credit for soluble boron for  
22 normal conditions. There is credit for soluble boron for  
23 accident conditions in the current case of the 1750. With  
24 the Boraflex, the accident is a seismic event, not a  
25 misload. But the fact remains, the current proposal does

1 credit soluble boron for the accident conditions.

2 Now, as a follow up to that -- and this contention  
3 seems to have mutated a little bit into a question not of  
4 compliance with GDC-62, but of compliance with 10 CFR 50.68,  
5 which really was not the contention at all.

6 As a follow up, I want to respond to two things  
7 directly. First, Judge Kelber asked the question about the  
8 meaning of the phrase "maximum fuel assembly reactivity"  
9 within the context of 10 CFR 50.68. The answer is that in  
10 that context, it's referring to the maximum permitted  
11 reactivity for the particular region. The intervenors are  
12 offering an interpretation of 50.68 that's not consistent  
13 with the regulatory history. It's not consistent with the  
14 fact northern states power filed a comment letter  
15 specifically asking that the word "reactivity" be  
16 incorporated in 50.68, to take credit for the fact that  
17 enrichment burn up, decay are reactivity considerations. So  
18 that's number one. It's a very pervasive reading on that  
19 basis lone.

20 But, second, the reading that it should somehow  
21 maximum reactivity maximum conceivable reactivity, fresh  
22 fuel of five percent enrichment, that has no basis in any  
23 regulatory history, but beyond that, it wouldn't make sense.  
24 There would be no reason to require for normal conditions  
25 that fresh fuel of the maximum permitted enrichment be

1 loaded everywhere, because there simply isn't fresh fuel  
2 lowered in all their acts. So, that's a very perverse  
3 reading of 50.68 that makes no sense. Now --

4 JUDGE KELBER: Let me interrupt at this point.  
5 Your interpretation then is that it is the maximum, if the  
6 fuel of maximum reactivity were permitted to be in that  
7 particular rack?

8 MR. REPKA: That's correct; that's correct.

9 Now, I'd like to in addition address Judge  
10 Bechhoefer's questions, because he was asking about the  
11 first sentence in 10 CFR 50.68, which is the sentence, "If  
12 no credit for soluble boron is taken, the K effective must  
13 not exceed 0.95." And you asked the question whether on  
14 Table 3, whether that shows the violation, and the answer is  
15 it does not, because that first sentence of 50.68 is  
16 referring to normal conditions, not accident conditions.  
17 Dr. Turner's table is referring to a loss of all boron -- no  
18 soluble boron, plus the accident condition of a single  
19 maximum bounding misload. So, that analysis has nothing to  
20 do with the first sentence of 50.68.

21 But, licensing basis analysis for Millstone, that  
22 shows compliance with 50.68, is discussed not in the table  
23 of beyond design basis scenarios, but in paragraph 55 of Dr.  
24 Turner's application, which showed -- where he states that  
25 for all three regions, K effective will remain less than

1 0.95, even if there's no soluble boron. And then taking the  
2 single conservative misload with 425 ppm credit for boron,  
3 it will not exceed 0.95 either and, hence, the tech spec  
4 that we talked about earlier, that provides the margin to  
5 800 ppm boron. Those are the licensing basis analyses.  
6 Those show compliance with 10 CFR 50.68.

7 As a further distinction and a further  
8 understanding within 50.68(b)(4), it's important to note  
9 also that it's the first sentence of 50.68(b)(4) that  
10 applies here, because that's referring to the normal,  
11 non-accident conditions. And for the normal non-accident  
12 conditions, these analyses don't credit soluble boron and  
13 the result is less than 0.95. That's what I had to say  
14 about 50.68. If -- at your pleasure, I'll back up to the  
15 top and address GDC-62.

16 JUDGE KELBER: Yes, please.

17 MR. REPKA: The contention six raises a purely  
18 legal issue. There was some talk earlier about whether  
19 further hearings were required on the issue and the answer  
20 is that under subpart K, there can be no further hearings.  
21 The contention must be resolved as a legal contention, on  
22 the basis of the filings already made and this oral  
23 argument. The legal question is -- has been stated by the  
24 Board: does GDC-62 permit a licensee to take credit in  
25 criticality calculations for enrichment and decay time

1 limits, limits that will be supported by administrative  
2 controls. The answer is, yes, it does.

3 That's precisely the question that was before the  
4 licensing board in the Sharon Harris case. The coalitions  
5 have tried today to distinguish that case from this one, I  
6 believe on the basis that those pools weren't -- aren't  
7 intended to hold fresh fuel. The fact remains, however,  
8 that those pools are subject to GDC-62, same requirement;  
9 those pools involve credit for soluble boron; they involve  
10 burn up credit; and the question presented, the legal issue  
11 was precisely the same. And the Board determined there,  
12 correctly so, that GDC-62 doesn't prevent either soluble  
13 boron or credit for burn up.

14 CHAIRMAN BECHHOEFER: Has the Commission had  
15 anything to say about that ruling?

16 MR. REPKA: The Commission has not. It has not  
17 taken that under appeal.

18 CHAIRMAN BECHHOEFER: Or yet, at least.

19 MR. REPKA: Now, as discussed in the affidavits  
20 submitted by the Northeast Nuclear, by Dr. Turner, and by  
21 Mr. Parillo, there are four ways to control criticality:  
22 geometric spacing; solid neutron absorbers; soluble neutron  
23 absorber like soluble boron; and lastly, reactivity limits,  
24 the reactivity effect involving enrichment, burn up, or  
25 decay. Our proposal employs all four. Every one of those

1 methodologies involves a physical process for criticality  
2 control. Every one involves -- is incorporated into a  
3 physical system for criticality control. Every one requires  
4 some administrative controls for either/or implementation  
5 and ongoing surveillance. Every one is consistent with the  
6 terms of the GDC, with NRC regulatory guidance, with  
7 longstanding NRC practice, and with the intent on the  
8 Nuclear Waste Policy Act.

9 JUDGE KELBER: That's a good point -- question for  
10 me to ask you -- point for me to ask you a question, because  
11 on page 56, you state a variation of what you just said.  
12 You said that -- well, I'll give you a chance to turn to  
13 that page.

14 MR. REPKA: Yes, sir. Hopefully, it wasn't a  
15 variation. Hopefully, it was -- the principle the same.

16 JUDGE KELBER: They're pretty close to what you  
17 said there. "NNECO is entitled," I'm emphasizing that word,  
18 "to consider the conditions that the engineer system will,  
19 in fact, encounter and to rely upon the physical  
20 implications of these conditions." What I want to know is  
21 where does this entitlement come from? I wanted to phrase  
22 is, whence cometh this entitlement, but --

23 [Laughter.]

24 MR. REPKA: Well, it's an entitlement that flows I  
25 think not only from GDC-62, but also from just simply good

1 engineering practice. That relates to the point we're  
2 making about the fact that burn up credit, decay down  
3 credit, like soluble boron, are simply initial conditions.  
4 They're the conditions the racks will see. Of course, those  
5 will be incorporated.

6 But beyond that, that goes to the distinction we  
7 made earlier, the Board, in its prior order, made a  
8 distinction between physical processes outside the spent  
9 fuel pool to create the burn up, to create the decay, versus  
10 those physical processes that occur in the spent fuel pool  
11 to prevent criticality. Our focus here is on the processes  
12 inside the spent fuel pool. The reactivity limits, burn up,  
13 enrichment, decay, all go to the production or absorption of  
14 neutrons, which has a physical effect, control and  
15 criticality. It's incorporated into a physical system of  
16 geometric racks. It utilizes administrative controls. But,  
17 it is reactivity limits, like soluble boron, like neutron  
18 absorbers -- fixed neutron absorbers, are physical --  
19 involve physical processes and a physical system.

20 JUDGE KELBER: This may sound a little arcane, but  
21 the question that interests me, do you contemplate that the  
22 engineered system can, itself, change these conditions; that  
23 is to say, for example, the boron concentration? In other  
24 words, what you're saying is that good engineering practice  
25 states that you should use all of these properties

1 essentially complying with a design criteria. I don't  
2 really differ too much from that general view, although I  
3 reserve the opportunity to dissent, in particular. But, you  
4 now have an engineered system doing this and engineered  
5 system can, in fact, change the conditions, which it  
6 encountered initially.

7           What limits the engineered system? You have, for  
8 example, accepted limitations on credit for fission product  
9 buildup and presence of various actinides and  
10 transactinides. These may be strategic, but staff doesn't  
11 really like you to do that, but there are limitations. The  
12 question is: when you have an engineered system, you can  
13 change the conditions, which it has encountered, what limits  
14 what the engineered system can do?

15           MR. REPKA: I'm not sure I understand how the  
16 engineered system is going to change it, in this case. I  
17 think what you do --

18           JUDGE KELBER: Soluble boron, a control of  
19 something which is a product of the system -- engineered  
20 system, produces it; it can change it. What limits the  
21 ability of the system to change the conditions it has  
22 encountered?

23           MR. REPKA: Are these the -- the regulation  
24 controls that establish the system, the technical  
25 specification, for example, governing the soluble boron,

1 that's part of the system. The administrative control is  
2 part of the system. In addition, you address that by  
3 bounding analysis. The administrative control --

4 JUDGE KELBER: You went far enough.

5 MR. REPKA: Okay. The point is it's 800 ppm,  
6 rather than 445.

7 JUDGE KELBER: In other words, the system isn't  
8 autonomous, that's what I was getting at.

9 MR. REPKA: That's true. Now, as I said, all of  
10 the criticality control methodologies that could be  
11 employed, and there are only the four, all employ  
12 administrative controls at some level. We recognize that.  
13 Dr. Thompson, I think, recognizes that, as well. That  
14 applies to geometric spacing. It applies to reactivity  
15 limits. He -- number one, there's nothing in the GDC that  
16 suggests that administrative controls are not allowed. The  
17 term "administrative controls" doesn't appear in the GDC,  
18 doesn't preclude administrative controls in anyway. So the  
19 prohibition that he sees is created entirely out of whole  
20 cloth.

21 Beyond that, he recognizes that administrative  
22 controls are employed in any system, such as in the  
23 establishment of a geometric spacing. He would distinguish  
24 between those that are one time and ongoing; but, again,  
25 that's a distinction that has no regulatory basis whatsoever

1 and that distinction doesn't recognize that soluble boron,  
2 which may require ongoing surveillance and, therefore, by  
3 his lights, it's improper. Well, solid neutron absorbers  
4 also require ongoing surveillance, Boraflex being a classic  
5 example. So, that distinction doesn't wash.

6 He would then make the further distinction that,  
7 well, in the one case, the ongoing surveillance is  
8 relatively modest and in other cases, it's not. Well, (a),  
9 as a factual matter, I'm not sure that in the example we've  
10 taken that really holds up. Why is a measurement of the  
11 concentration of soluble boron more complex than a  
12 surveillance program for solid neutron absorbers? Simply  
13 not true. But beyond that, there's no basis for that kind  
14 of distinction at all anyway, between modest and  
15 straightforward.

16 In the subpart K filing, we now give even a fourth  
17 semantic distinction, which is those administrative  
18 controls, which are primary versus those, which are  
19 secondary. So, we have this hierarchy now of administrative  
20 controls, a term not used in the regulation, not prohibited  
21 in the regulation, of variations on the theme, some of which  
22 might be allowed; others, which would not.

23 The whole argument is an entirely semantic  
24 argument. It doesn't work. It doesn't have any basis in  
25 fact, in law, or in logic.

1 CHAIRMAN BECHHOEFER: Well --

2 MR. REPKA: Also, I might --

3 CHAIRMAN BECHHOEFER: -- would it answer (b), if  
4 it isn't explicitly pointed out, but is explicitly utilized  
5 in many cases, amend the regulation to specifically so  
6 provide, make it clear?

7 MR. REPKA: Your question is that 50 -- 10 CFR  
8 10.68, for example, speaks to administrative controls --

9 CHAIRMAN BECHHOEFER: Right.

10 MR. REPKA: -- you're saying the fact that GDC-62  
11 does not --

12 CHAIRMAN BECHHOEFER: GDC does not. And isn't the  
13 answer, well, amend to include specifically --

14 MR. REPKA: I think --

15 CHAIRMAN BECHHOEFER: -- remove ambiguities?

16 MR. REPKA: Well, I think that would require a lot  
17 of prescience on the part of the rule -- writing the rule  
18 back in the 1960 and early '70s; it's all of which predates  
19 the current fuel storage situation.

20 But beyond that, GDC-62, itself, doesn't rule it  
21 out. In fact, by talking to physical systems and processes,  
22 preferably by geometric spacing, it's a preference for  
23 geometric spacing. The fact that it prefers geometric  
24 spacing doesn't rule out anything, much less administrative  
25 controls. So, in a way, I think the regulation does

1 implicitly do exactly as you say, it allows -- it allows  
2 administrative controls.

3 In our papers, we further went on and discussed  
4 the rulemaking history related to GDC-62. The fact that  
5 there was a proposal that seemed to say rule out procedural  
6 controls, rule out processes in the language of GDC-62, very  
7 explicitly, that suggestion was not accepted and the  
8 citations are all in our papers. So, the idea that GDC-62  
9 somehow rules out administrative controls of any kind, much  
10 less this narrow kind of administrative controls that Dr.  
11 Thompson defines it's ongoing., and not too complex, and  
12 primary not secondary, it just -- that's not in the GDC, nor  
13 is it in the rulemaking history.

14 JUDGE KELBER: I'd like to follow up Judge  
15 Bechhoefer's question with another one here, and this is  
16 focusing on administrative controls, as on burn up and  
17 enrichment limits. They've improved in many cases over a  
18 span of many years and the current version of the standard  
19 ANSI ANS 8.1 sanctions credit for burn up, but does not  
20 describe how to do it; though I understand that there may be  
21 some efforts to codify that, in respect to spent fuel  
22 shipping casks. But, what I ask you is there any industry  
23 sponsored interest in codifying measures for accounting for  
24 burn up into this or a related standard? It is -- it would  
25 make a life a great simpler for everybody if, in fact, there

1 were such expansion of 8.1.

2 [Pause.]

3 MR. REPKA: Dr. Turner informs me that ANSI  
4 standard 8.17 does address burn up credit, although it does  
5 -- it's not prescriptive, and that ANSI standard 57.2 is in  
6 the process of being revised to do more on that topic.

7 JUDGE KELBER: A more prescriptive standard?

8 MR. REPKA: Not necessarily more prescriptive, but  
9 it will require benchmarking.

10 JUDGE KELBER: Okay. That's -- that's --

11 MR. REPKA: Now, in --

12 JUDGE KELBER: Wait, it's a 57 point what?

13 MR. REPKA: Fifty seven, point, two.

14 JUDGE KELBER: Which isn't referenced by the staff  
15 anywhere here.

16 MR. REPKA: But beyond that, the staff's own  
17 regulatory guidance on burn up credit goes back as far as  
18 1981 and the draft revision two of Reg Guide 1.13 reference  
19 seven in our documents. That did specifically discuss  
20 credit for burn up. And the staff has provided further --

21 JUDGE KELBER: Oh, I recognize that. And neither  
22 the standard nor the staff's guidance are regulation  
23 regrettably, and that's why I asked earlier whether the  
24 staff ever considered incorporating that standard by  
25 reference, which they do in other cases.

1 CHAIRMAN BECHHOEFER: It's not even a regulatory  
2 guide yet; it's a draft regulatory guide, is that not  
3 correct?

4 MR. REPKA: What's not -- 1.13 is still a draft.

5 CHAIRMAN BECHHOEFER: 1.13, that's still a draft,  
6 is it not?

7 MR. REPKA: 1.13 is a draft that has been utilized  
8 as a guidance document, as a draft for years. But the 1998  
9 critically guidance document, authored by Dr. Kopp, is not  
10 a draft. That is staff guidance that they -- it is used.

11 JUDGE KELBER: It's a good guidance letter, I  
12 believe; but, again, it's not a regulation.

13 MR. REPKA: That's correct.

14 JUDGE KELBER: I just don't understand why 50.68  
15 was issue, even though it has apparently somewhat limited --  
16 without taking into account such documents.

17 JUDGE COLE: Mr. Repka, could you tell me how you  
18 arrived at the concentration -- or your team has arrived at  
19 the concentration of 800 parts per million boron in the  
20 spent fuel pool?

21 MR. REPKA: The concentration was arrived at by  
22 doing the design basis accident conditions analysis, which  
23 was a -- all the racks filled with the maximum permissible  
24 reactivity, the most conservative misload, which is a fresh  
25 fuel assembly into Region 3. The accident analysis showed

1 that with 425 ppm boron decay effective would remain less  
2 than 1.0.

3 JUDGE KELBER: So, why is it 800 then? Why isn't  
4 it 425?

5 MR. REPKA: I'm corrected; it was to maintain a  
6 less than .95, not 1.0; but the answer is 800 versus 425, as  
7 an additional margin of safety. It also had some symmetry  
8 in the fact that that was the original concentration back  
9 when the pool was first licensed.

10 JUDGE COLE: And is it true that you would rarely,  
11 if ever, see that concentration, approximately 800 parts per  
12 million, in the spent fuel pool?

13 MR. REPKA: We would not expect to see that.  
14 There is an administrative limit of 2,600 ppm. It's  
15 verified every week and the history shows that it's been  
16 very, very stable.

17 JUDGE COLE: So the only reason you would be below  
18 2,600 parts per million is because of some unforeseen  
19 scenario?

20 MR. REPKA: That's -- that's correct, scenarios  
21 which we don't consider to be -- I hate to use the word --  
22 very likely. Thank you.

23 [Laughter.]

24 MR. REPKA: Now, with respect to 50.68, we talked  
25 earlier about components with 50.68 and how that's

1 demonstrated by the design basis criticality calculations.  
2 I referenced paragraph 55 in Dr. Turner's affidavit. That's  
3 a true summary. Those calculations, which are the licensing  
4 basis calculations, are also included for each of the  
5 regions in Tables 4.2.1, 4.2.3, and 4.2.5 of the amendment  
6 application, which is reference one in our book of  
7 materials, and those all again address no boron, no accident  
8 conditions, K effective less than 0.95.

9           The secondary relevance -- and maybe it's primary,  
10 I don't know, primary, secondary -- of 50.68 here is the  
11 fact that in adopting 50.68, there is reference made to the  
12 term "reactivity." There is reference made to soluble boron  
13 credit. There is reference made in various subparagraphs of  
14 the rules to administrative controls, all of which we  
15 maintain shows Commission awareness, Commission acceptance  
16 of the long standing NRC and industry practice with respect  
17 to boron credit -- soluble boron and burn up credit.

18           JUDGE KELBER: In that respect, let me make one  
19 observation. The Commission did not actually review the  
20 document with the term "maximum permissible, maximum fuel  
21 assembly reactivity," and they viewed one with the original  
22 term, I believe it was "maximum enrichment" -- well, the  
23 term "enrichment" was used, rather than "reactivity."

24           The second observation I would make is that  
25 reactivity is not the term that should be used here. I

1 understand the term, in which -- the way it isn't used.  
2 We're using it as reactivity worth. I understand further  
3 from our earlier discussion that you remove the ambiguities  
4 in the treatment of reactivity worth by taking a  
5 conservative estimate of the burn up distribution. All of  
6 these are ambiguities in 50.68 that have followed us for a  
7 long time in this proceeding. If it bothered us, they  
8 should have bothered the Commission had they had the  
9 opportunity to review it.

10 MR. REPKA: Right. We acknowledge the ambiguities  
11 of 10 CFR 50.68. We maintain that we meet it. We maintain  
12 that the analysis has been prepared by Dr. Turner and  
13 Holtech, who are the knowledge industry experts. They've  
14 done a very conservative analysis. One example of that is  
15 the fact that the staff guidance document calls for a K  
16 effective to be less than 1.0, in the case of the pool being  
17 flooded with unborated water. Holtech and Northeast Nuclear  
18 have used K effective less than 0.95, rather than going to  
19 the full range of the allowed -- of what's allowed by the  
20 guidance. So, we believe, notwithstanding any ambiguities,  
21 it is a very conservative analysis.

22 Lastly, there is -- has been some discussion of  
23 the rulemaking with respect to GDC-62 back in the 1960s.  
24 We've addressed that in our filings. I won't repeat that  
25 here. I think it's of very, very margin relevance under the

1 circumstances and beyond that, it really does not support  
2 the -- in any event, the idea that either administrative  
3 controls, soluble boron, or reactivity limits are precluded.

4 That's all I have to say and I'll entertain  
5 questions.

6 CHAIRMAN BECHHOEFER: Staff? Ms. Hodgdon?

7 MS. UTTAL: This is Ms. Uttal. I need a short  
8 break.

9 CHAIRMAN BECHHOEFER: Okay.

10 JUDGE KELBER: Seven minutes.

11 [Recess.]

12 CHAIRMAN BECHHOEFER: Okay. Back on the record.

13 MS. UTTAL: I had several comments that I wanted  
14 to make regarding the intervenor's filing and the argument  
15 here today. Mr. Repka has covered most of the points that I  
16 was going to make. I don't want to keep us here too long,  
17 it being a late hour, and also I'm hesitant to be  
18 repetitious; but, I will raise a few of the points.

19 As the Board has been told, this contention is --  
20 and as the Board has ordered, this contention is a legal  
21 question and should be decided on the written submissions  
22 and the oral argument. There is no basis to hold an  
23 evidentiary hearing in this matter. Nothing presented by  
24 the intervenor establishes that there are any facts that  
25 need to be resolved through cross examination in an

1 evidentiary hearing. They have not met their burden. The  
2 only issue in dispute here is the interpretation of a  
3 regulation, GDC-62, and the relevancy and meaning of the  
4 other sources cited, and the Board has all the information  
5 it needs to render a decision in -- on this contention.

6 And staff urges the Board to adopt the findings in  
7 the opinion of the Board in the Sharon Harris case, which  
8 determined this very same issue, based upon argument and  
9 theories that are strikingly similar to those presented  
10 here. There's an identity of witnesses between the two  
11 cases, so I would urge the Board to adopt the findings in  
12 that case.

13 As Mr. Repka pointed out, there is nothing in the  
14 language of GDC-62 or in the history of GDC-62 that supports  
15 the intervenor's theory that administrative measures -- or  
16 ongoing administrative measures were primary administrative  
17 measures or any of the other list of qualifiers that the  
18 intervenors may come up with are prohibited by that  
19 regulation. And I believe that we've discussed this in our  
20 brief and I think it's been fully vented, as the history of  
21 GDC-62 has also.

22 In relation to the intervenor's discussion of  
23 50.68, they cite pages of the Federal Register Notices, the  
24 statement of considerations, and they cited for the  
25 proposition that the regulation clearly shows that

1 administrative controls are not permissible. But, all you  
2 have to do is read the language that they, in fact, cite in  
3 their brief, because it's demonstrated in that language that  
4 administrative controls were approved of by the -- in 50.68.  
5 In fact, an administrative control -- or a control of  
6 criticality that the intervenor say is not permitted, that  
7 is the use of soluble boron is specifically approved by  
8 50.68 and used in determining whether you need the criteria  
9 for not having to use criticality monitors, and that would  
10 be in Section b(4).

11 In section b(2) and (3), administrative controls  
12 are specifically mentioned and, again approved of in that  
13 regulation. And I don't know the page in the intervenor's  
14 brief where they go through the statement of considerations,  
15 but, as I said, everything in that recitation points to the  
16 fact that administrative controls are permitted, because, at  
17 some point, they quote the following from the statement  
18 considerations: "Criticality monitoring of 70.24 is  
19 unnecessary, as long as design and administrative controls  
20 are maintained, and I think that says it all regarding  
21 50.68.

22 The intervenors also indicate that 50.70 -- excuse  
23 me, 72.124 has absolutely no applicability here and, yes, we  
24 are not here under a Part 72 matter. But, I will point out  
25 that Part 72 is applicable to both wet and dry storage;

1 therefore, some of the principles enunciated in 72.124 would  
2 be while not directly applicable, applicable by implication,  
3 or you can read those and understand that the Commission has  
4 approved what's in 57 -- 74.124.

5 JUDGE KELBER: Could you repeat that? I didn't  
6 get it.

7 MS. UTTAL: Okay. Fifty -- excuse me, I keep on  
8 citing it wrong -- 72.124, which is applicable to wet and  
9 dry storage, okay. That was the point I was making.

10 JUDGE KELBER: You went on to say something about  
11 the Commission has.

12 MS. UTTAL: Well, it indicates that the principles  
13 enunciated in --

14 JUDGE KELBER: This is not a recent action of the  
15 Commission?

16 MS. UTTAL: I'm sorry?

17 JUDGE KELBER: This is not a recent action of the  
18 Commission that you raise?

19 MS. UTTAL: No, but it goes to show that the  
20 Commission has approved the principles in there.

21 The final point I wanted to make is that there is  
22 case law within the agency, and I've cited the -- not a lot  
23 of case law, but some cases -- the Appeal Board decision in  
24 Big Rock Point, where they approved the remote control  
25 makeup line. The St. Lucie decision, where they discussed

1 administrative controls shows that the Appeal Board and also  
2 at least one licensing board has approved of administrative  
3 controls to control criticality in fuel pools. And other  
4 than that, I would rely on my brief in the arguments being  
5 made.

6 JUDGE KELBER: I'd like to get your views on  
7 limitations of process -- physical process. What limits the  
8 scope?

9 MS. UTTAL: I don't know exactly what you mean.

10 JUDGE KELBER: There are all kinds of processes.  
11 I have two parts to this question and the first part is:  
12 what processes are -- sausage making is a process, but you  
13 aren't going to use that in control of criticality. What  
14 does limit the processes that you can use?

15 MS. UTTAL: Well, all the processes that are used  
16 in these spent fuel pools are physical, because they rely on  
17 physical phenomena or actual -- all the spent fuel pools are  
18 based on the geometric safe configuration of the racks. I  
19 don't want to say all. Let's limit it to Millstone 3 and  
20 that's a physical -- it's a physical system; it's not a  
21 process. The boral sheets are, again, a physical system,  
22 but they're added on to the racks. Soluble boron is added  
23 in there. But, they're all based on physical phenomenon.

24 I think we're having trouble understanding; but in  
25 terms of the boron -- the soluble boron in the water, the

1 limit on that would be the --

2 JUDGE KELBER: Well, let me put it to you this  
3 way. Mr. Repka stated that as a matter of good engineering  
4 practice, in meeting the general design criteria 62, they're  
5 permitted to use -- make use of whatever physical properties  
6 they find there and, within limits, even alter some of those  
7 properties, within limits. Now, the staff has put some  
8 limitations of its own; not just the technical  
9 specifications submitted by the licensee, but the staff has,  
10 for example, prohibited the taking credit for the fission  
11 product poisons, as an example. So, you -- the staff has  
12 some idea of a limitation on the scope of the term "physical  
13 processes" and that's what I'm trying to get at.

14 MS. UTTAL: There are limitations. There's the  
15 staff review. There's the guidance.

16 JUDGE KELBER: All right, we can take a pass on  
17 that.

18 MS. UTTAL: Okay.

19 JUDGE KELBER: One final question, it has to do  
20 with the role of the administrative controls. Now, let me  
21 go back to the process of sausage making, which has very  
22 little to do directly with this case; but, it is a process.  
23 Now, what I want to know is: do you think that the recipe  
24 for the sausage is part of the process?

25 MS. UTTAL: You mean the written recipe?

1 JUDGE KELBER: Absolutely.

2 MS. UTTAL: Well, it controls what would go into  
3 the physical process, the various --

4 JUDGE KELBER: so, it is part of the process then.  
5 If somebody said, tell me all of the parts of the process --

6 MS. UTTAL: Yes.

7 JUDGE KELBER: -- of making sausage --

8 MS. UTTAL: Because, you would have -- well, the  
9 first part is that you add in x amount of meat and you add  
10 in x spices and --

11 JUDGE KELBER: Lucky people who eat your sausage.  
12 It has meat in it.

13 MS. UTTAL: Pig snouts. But, yes, that would part  
14 of the process.

15 JUDGE KELBER: Okay, thank you.

16 CHAIRMAN BECHHOEFER: Would somebody who made  
17 sausage based on his own knowledge and without reading the  
18 recipe have omitted a necessary physical process?

19 MS. UTTAL: I --

20 JUDGE KELBER: I think we're going to argue what  
21 "on his own knowledge" means.

22 MS. UTTAL: I really don't have an answer to that.

23 JUDGE COLE: Did you ever see them make sausage?

24 MS. UTTAL: That's something that I don't want to  
25 see.

1 JUDGE KELBER: Are we coming to the end?

2 JUDGE COLE: I think so.

3 CHAIRMAN BECHHOEFER: Does the staff have anything  
4 further? Is the staff finished with --

5 MS. UTTAL: Yes.

6 CHAIRMAN BECHHOEFER: Okay. Ms. Burton, back to  
7 you.

8 MS. BURTON: Yes, I do. I have just a little bit  
9 of rebuttal here and I would like to follow through on this  
10 sausage making, because I think what may happen next year is  
11 this licensee is going to come in and ask if they can  
12 perform sausage making as an administrative control here,  
13 because they've been telling us that GDC-62 doesn't rule out  
14 anything, at least that's what I think I heard here. The  
15 staff has been challenged here to give us its definition of  
16 what is appropriate under GDC-62 to be excluded from  
17 physical processes. The staff took a pass on that and  
18 couldn't give us any example, other than -- just one  
19 example. There's no definition here. There's no guidance.  
20 There's no rule. There's no structure, other than GDC-62  
21 happens to be the law.

22 What this application proposes to do is simply  
23 erode away the law and leave us with sausage making, to  
24 follow through at this late hour that metaphor. But to  
25 change the metaphor slightly, if this licensee were to come

1 in and ask maybe next week for another amendment, to rerack  
2 again and this time not use solid boron, not use the  
3 degraded Boraflex or the boral, but simply rely upon soluble  
4 boron, there would be nothing that the licensee or the NRC  
5 staff apparently would say that would bar this body or a  
6 successor body from granting such an amendment. They say  
7 that anything goes and if anything goes, then there is no  
8 law, because they are not following the law.

9 So, I think we've pretty well set out the case  
10 here and we have heard from both the licensee and the staff  
11 that they pay no heed to this law, which is so clear in its  
12 expression and has been so unchanged for so long and remains  
13 the law, notwithstanding regulatory guidance memos and so on  
14 and policy that may have been issued in the intervening  
15 time.

16 I have a point here about a comment Mr. Repka  
17 made. He was referencing, I think in response to a  
18 question, something that appears at page 51 of his summary  
19 and that is the licensing basis criticality analyses for the  
20 Millstone Unit 3 proposal, in which it is stated, "For the  
21 design basis accident case involving the most conservative  
22 misplacement of one fuel assembly and crediting only 425 ppm  
23 soluble boron, the K effective is less than 0.95. Well,  
24 that particular analysis calling for only a single fuel  
25 assembly misplacement is not conservative, it's not

1 realistic, and it totally disregards the history we have  
2 provided this Board with, with respect to a troubling number  
3 of multiple fuel mispositionings within this industry. That  
4 is not conservative. It's a non-bounding analysis and it  
5 should be rejected, in terms of its application to this  
6 matter.

7           Again, Mr. Repka stated that the intervenors have  
8 created their interpretation of GDC-62 out of whole cloth.  
9 That's hardly true, because you have substantially the  
10 history and the derivation of that regulation. They just  
11 simply choose not to pay it any heed.

12           The business about what is physical and what is  
13 administrative, well, clearly, physical has to do with  
14 non-human, whereas administrative has to do with human.  
15 That is one way of looking at it; maybe not the best way.  
16 But, clearly, GDC-62 must have meaning. We must give it  
17 meaning. This Board is bound to afford it that grace of  
18 meaning. And in these circumstances, if this application is  
19 successful, it will have meant that this Board will have  
20 understood that GDC-62 has no meaning and that is to reduce  
21 this entire proceeding, at least with contention -- with  
22 regard to contention six, to an absurd argument.

23           And I don't believe that this Board confronted  
24 clearly with this challenge to a decade's long  
25 misinterpretation and ignorance of that law -- this Board

1 will set a standard and it should be the standard that is  
2 correct, that does reflect the history that led to its  
3 adoption. It does accept the common sense and clear  
4 statement that is set forth, and that will be a decision,  
5 which will carry weight and ring forth to the countryside,  
6 and perhaps do something to stop what has been a clear  
7 erosion of standards over these years since adoption of the  
8 rule, coming from industry pressure and ultimately leading  
9 to, if not an application seeking to eliminate boron --  
10 solid boron, who knows what would be next. It's up to your  
11 imagination to speculate.

12 CHAIRMAN BECHHOEFER: Ms. Burton, to what extent  
13 -- you may have answered this in other context, but to what  
14 extent may the interpretation of a regulation be -- well, to  
15 what extent may administrative practices undertaken under a  
16 regulation be considered in the interpretation of the  
17 language of that regulation? I hope I put the question the  
18 right way that time.

19 MS. BURTON: Well, I think with all respect, what  
20 we have tried to make clear in this presentation and in this  
21 oral argument is that we believe that there is only one  
22 proper correct legal way to read GDC-62 and that is for the  
23 proposition that it requires that there be prevention of  
24 criticality in the fuel storage and handling system by  
25 physical systems or processes, preferably by the use of

1 geometrically safe configurations. It's all very well for a  
2 licensee to employ its labor force to do other things, in  
3 addition to this. Nobody is stopping them from doing that;  
4 but, they cannot do it in substitution of this law.

5 CHAIRMAN BECHHOEFER: Well, I was really -- the  
6 context was: if there may be some ambiguity as to what the  
7 word "processes" mean, is it not then appropriate in  
8 interpreting that regulation, to look at the administrative  
9 steps carried out by an agency enforcing that regulation?

10 MS. BURTON: Dr. Bechhoefer, I think we realize --

11 CHAIRMAN BECHHOEFER: I'm not a doctor yet, but  
12 thanks for the complement.

13 MS. BURTON: I'm sorry. Judge Bechhoefer, I think  
14 it is clear or it should be clear from these proceedings  
15 that although that might be the ordinary case in another  
16 realm, here, there are no demonstrated concrete standards  
17 for enforcement. And in their absence, therefore, I think  
18 the answer to your question is no.

19 JUDGE KELBER: You're getting back to the no  
20 guidance in law?

21 CHAIRMAN BECHHOEFER: Yes.

22 JUDGE KELBER: Okay.

23 MS. BURTON: Perhaps I wasn't understood and I  
24 apologize if I wasn't more -- if I was not clear, and that  
25 is that if the staff did have standards properly drafted and

1 those standards were concrete and were not randomly selected  
2 and were not arbitrarily supplied and applied based on de  
3 facto situations presented to them, then that would be quite  
4 another story. But, we are here in a vacuum of standards.  
5 That isn't disputed by the staff, at least in terms of what  
6 they have said here. Although they may dispute my  
7 characterization of it, they haven't given us standards.  
8 They haven't -- we've asked for them. We've asked their  
9 experts to tell us and identify the concrete standards that  
10 are used to draw the line between what is appropriate and  
11 not, in terms of administrative controls as a substitute and  
12 for GDC-62, to the extent that they believe that it is  
13 permissible to have any. They've been unable to do that for  
14 us.

15 JUDGE KELBER: Now, we get back to the question I  
16 raised earlier: is the recipe part of the process? Here's  
17 the recipe as a stand in for the general phrase  
18 "administrative control." Processes have other  
19 administrative -- other controls on them, too, and it's part  
20 of the dictionary definition. So, I want to know is why  
21 aren't administrative controls part of a physical process?

22 MS. BURTON: Dr. Kelber, it would depend on, with  
23 all respect, what you mean by "recipe." If the recipe were  
24 for a physical configuration and solid boron, then all that  
25 you would need to do is make sure that you have the

1 configuration one time and the solid boron also hopefully at  
2 one time, and you follow the recipe; whereas if you have a  
3 recipe that calls for something else on administrative  
4 controls, then that is something where you have to stand by  
5 your sausage maker and make sure that all the parts are  
6 melding properly or whatever.

7 JUDGE KELBER: I was asking a more apt fit  
8 question, but let me first interpolate that -- don't take  
9 boron as something as permanent as the pyramids. It suffers  
10 radiation damage and will eventually have to be replaced.  
11 Whether it will have to be replaced in the lifetime of the  
12 spent fuel pools is another question. But, it does suffer  
13 radiation damage by definition.

14 My question is basically on something I found I  
15 Webster's Third New International Dictionary. I don't  
16 necessarily endorse that dictionary. I prefer the second  
17 edition, but here's the -- item number two, under process,  
18 "an artificial or voluntary progressively continuing  
19 operation that consists of controlled actions or movements  
20 systematically directed toward a particular end," and I was  
21 impressed by the phrase "controlled actions." And I still  
22 don't understand from your position why a process  
23 necessarily has -- cannot involve ongoing controls, as you  
24 put it.

25 MS. BURTON: I think perhaps we could make the

1 distinction here, that a physical process is primarily  
2 physical and --

3 JUDGE KELBER: Sausage making is a physical  
4 process. How do you think that breakfast sausage you order  
5 gets to you? It doesn't come by divination. Those of you  
6 who read the Harry Potter books, like I do, know that in  
7 that -- at Hog Wash, you can get it that way, but we can't.

8 MS. BURTON: Well, nevertheless, that's how we  
9 believe that GDC needs to be understood; that if you have a  
10 process which is primarily physical and has very little  
11 human interaction, that's what is within the meaning of  
12 GDC-62. And in the alternative, if you have a process that  
13 requires ongoing religious devotion to it by humans, that is  
14 something very different and not at all within the  
15 contemplation of GDC-62.

16 JUDGE KELBER: You're reading quite a bit into the  
17 process, much more than the dictionary. Okay, thank you.

18 MS. BURTON: Just to conclude, we believe that  
19 GDC-62 is very clear on its face. And in the alternative,  
20 the other parties are arguing that it very clearly permits  
21 them to disregard it and substitute administrative controls  
22 without adoption by the NRC of concrete standards and on a  
23 case by case basis and without limitation, and that is  
24 clearly at odds with the law, both on its face and as to  
25 what we've been able to show you, as to the derivation of

1 that wall. And, therefore, we believe that we should  
2 prevail on our sixth contention -- yes, that's right.

3 Are there any questions -- further questions?

4 JUDGE KELBER: No.

5 CHAIRMAN BECHHOEFER: Any other parties?

6 MR. REPKA: Two things. One -- there's one point  
7 made that feel absolutely compelled to respond to. There's  
8 a reference to the design basis accident condition, being a  
9 reference to our summary on page 51, where we explain the  
10 design basis accident is a single misload of the maximum, in  
11 the most restrictive configuration and the argument is made  
12 that that doesn't bound the kind of experiences we've seen  
13 in the industry. That point is directly addressed in Mr.  
14 Parillo's testimony, paragraph 43. The fact of the matter  
15 is that very conservative single misload accident, the  
16 reactivity effect bounds by far the reactivity effects that  
17 have ever been seen by misloads, including multiple misloads  
18 and the operating history of the industry and what's been  
19 pointed out. So, it is a very conservative analysis.

20 The second thing I wanted to bring up, if now is  
21 the right time, with the Board's leave, there was a question  
22 earlier to the staff about the status of the safety  
23 evaluation and the amendment. And I feel it's important to  
24 apprise the Board, since we've seen to be at the end of this  
25 matter, as to the status of the project in Northwest

1 Nuclear's need to proceed with the project.

2 I believe we're on record in the license amendment  
3 application in saying that the amendment is necessary  
4 following the next refueling outage to start up from the  
5 outage, to maintain full core reserve capacity in the next  
6 cycle of operation. That next outage is right now currently  
7 scheduled in about the February 1, 2001 time frame. But, in  
8 addition to that, so that there is no misunderstanding at  
9 all, it is the company's plan -- he would need the amendment  
10 to store fuel in these racks, but be at no fuel or fresh  
11 fuel. It is the company's plan and hope and schedule to be  
12 able to use these racks for the 19 -- or the 2001 outage.  
13 They would be used as a staging area for new fuel. And it's  
14 the current hope to have an amendment hand to -- in hand to  
15 store the fresh fuel for the next outage in the November  
16 2000 -- November 1, 2000 time frame. So, to have the  
17 amendment to store that fuel, obviously, we can have an  
18 amendment issued by the NRC staff with the final finding of  
19 no hazards consideration; or absent that, we would need a  
20 Board decision in this proceeding.

21 In addition to that, there's support that is  
22 scheduled --

23 CHAIRMAN BECHHOEFER: In this proceeding did you  
24 say?

25 MR. REPKA: In this proceeding.

1 CHAIRMAN BECHHOEFER: I see. Do we have to await  
2 then?

3 MR. REPKA: No. Do you have to wait until then?

4 CHAIRMAN BECHHOEFER: Until then, yes.

5 MR. REPKA: No, absolutely not. That's a back end

6 --

7 CHAIRMAN BECHHOEFER: If we should end this  
8 proceeding, then you wouldn't get it in this proceeding.

9 MR. REPKA: Right, that's correct.

10 CHAIRMAN BECHHOEFER: We're not going to rule  
11 instantly on anything.

12 MR. REPKA: No, I understand that. We would like  
13 to have an amendment either with a no significant hazards  
14 consideration finding, which means the amendment could be  
15 issued; or through a culmination of this proceeding and the  
16 amendment issuing, obviously to support November 1, 2000 in  
17 that schedule.

18 Beyond that, to support that schedule, the text  
19 spec change and authorization is not needed to install the  
20 racks, because they are going in an area -- an open area in  
21 the pool. And the fabrication, installation process is  
22 proceeding to support that schedule. Obviously, that's an  
23 at-risk kind of thing from the company's perspective. If  
24 the racks are never authorized to store fuel, then obviously  
25 it's a project the company would have expended financial

1 resources it didn't need to expend. But, in any event, the  
2 company is proceeding on the project, in order to be able to  
3 use the racks in approximately November 2000 time frame.

4 The last thing I wanted to mention, again, just on  
5 the record, the Board had requested in their order, and I  
6 can't remember exactly what the date of the order was, a  
7 site tour for tomorrow. We have arranged to make -- to  
8 provide that tour. I was informed earlier that Ms. Burton  
9 said she wasn't aware that the Board -- such a tour. There  
10 was a Board order --

11 CHAIRMAN BECHHOEFER: I thought I had put it in an  
12 order, but -- I thought I had put it in some order.

13 MR. REPKA: Well, you had.

14 CHAIRMAN BECHHOEFER: I probably have it around  
15 here some place; but whether I can find it offhand, I don't  
16 know.

17 MR. REPKA: But, in any event, I just wanted to  
18 say, we are prepared for the tour at the completion of the  
19 limited appearance sessions tomorrow. You'll see some of  
20 the things we've been talking about today and, you know, we  
21 will -- as we've requested before, any representatives of  
22 the party that would go, we would just need the access  
23 authorization information.

24 CHAIRMAN BECHHOEFER: Would you -- would someone  
25 -- we'll be here for possible additional limited appearance

1 statements tomorrow morning and that, I guess -- well, since  
2 we're essentially through, we'll start right at 9:00. We  
3 had said we would allow two hours, but it depends on how  
4 many people are around to make statements. If no one is  
5 there to make a statement, we'll leave; we'll close the  
6 proceeding.

7 MR. REPKA: We are prepared at any point. If  
8 there's nobody here and we can begin, you know, by 10:00,  
9 say, we're prepared to do it in a window from about, you  
10 know, starting from 10:00 to 2:00, whatever the Board --

11 JUDGE COLE: Or 9:30.

12 CHAIRMAN BECHHOEFER: It just depends. We don't  
13 know whether people will want to --

14 JUDGE KELBER: Can you find someone, who is drive  
15 with us and tell us where to go?

16 MR. REPKA: Yes, we can do that.

17 CHAIRMAN BECHHOEFER: The intervenors are  
18 certainly invited to come. You have to file whatever forms  
19 they -- we filed out something and we had -- I definitely  
20 remember -- and whether I could ever leaf through here and  
21 find it, I'm not sure; but, it's in some order. I think  
22 it's the --

23 MS. BURTON: I remember a discussion. We'll be  
24 happy to have a representative along.

25 CHAIRMAN BECHHOEFER: Let me just check one thing.

1 I think it was the scheduling, which was in here.

2 [Pause.]

3 JUDGE COLE: Okay. Are we adjourned?

4 CHAIRMAN BECHHOEFER: No, we're not. It was in  
5 our -- to clear the record, in our memorandum and order of  
6 April 19, 2000, schedules for the proceeding. On page -- on  
7 page two, in about the middle of the page, we said, "After  
8 such limited appearance statements, the Board requests the  
9 licensee to provide a site tour, if time permits, for  
10 members of the licensing board and all parties, who wish to  
11 participate. You're a party, so --

12 MS. BURTON: There must have been a more recent --

13 CHAIRMAN BECHHOEFER: No, there wasn't, but --

14 MS. BURTON: I see.

15 CHAIRMAN BECHHOEFER: -- we still would like to  
16 see the pool and we want the parties to see what we see.  
17 So, I don't know if they have to fill out additional forms,  
18 as we did, but --

19 MR. REPKA: They would, except for Dr. Thompson  
20 and Mr. Lockbaum had previously been there, so I think we  
21 probably have their information. But --

22 CHAIRMAN BECHHOEFER: I guess the burden would --

23 MR. REPKA: -- earlier is better than later, I  
24 guess is what I'm trying to say, in terms of having the  
25 information.

1 CHAIRMAN BECHHOEFER: Right.

2 JUDGE KELBER: This is -- why don't we go off the  
3 record, so that --

4 CHAIRMAN BECHHOEFER: Well, let's just conclude  
5 the -- I guess we're ready to close the formal record at  
6 present, so absent any objection, we'll close the formal  
7 record.

8 [Whereupon, at 6:42 p.m., the hearing was  
9 recessed, to reconvene at 9:00 a.m., Thursday, July 20,  
10 2000.]

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