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Docket Number: 50-293-LR

ASLBP No. 06-848-02-LR

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ATOMIC SAFETY AND LICENSING BOARD PANEL

+ + + + +

HEARING

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In the Matter of: :

ENTERGY NUCLEAR GENERATION : Docket No. 50-293-LR

COMPANY AND ENTERGY NUCLEAR:

OPERATIONS, INC. : ASLBP No. 06-848-02-LR

(Pilgrim Nuclear Power :
Station) :

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Wednesday, March 9, 2011

John Carver Inn

Gov. Carver Boardroom

25 Summer Street

Plymouth, Massachusetts

BEFORE:

ANN MARSHALL YOUNG, Chair

DR. RICHARD F. COLE, Administrative Judge

DR. PAUL B. ABRAMSON, Administrative Judge

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P R O C E E D I N G S

(9:00 a.m.)

1
2
3 CHAIR YOUNG: I am Ann Marshall Young. I
4 am the Chair of the Licensing Board. And I am going
5 to ask my colleagues to introduce themselves and then
6 we will start over on the left and have all the
7 parties introduce yourselves and whoever is with you.

8 JUDGE COLE: I am Richard Cole. I am
9 environmental technical judge. I have been with the
10 Panel for 38 years.

11 JUDGE ABRAMSON: I'm Paul Abramson. I am
12 a legal judge and a technical judge. And if you see
13 me getting up and pacing around today, I have a back
14 injury which makes it very painful for me to sit. So,
15 please be tolerant of it. It is not because I am
16 trying to ignore anybody or expressing any
17 dissatisfaction with what I am hearing. It is just my
18 physical condition.

19 CHAIR YOUNG: Also, if you need to
20 interrupt us at any point and ask us to speak more
21 clearly or anything like that, please feel free.

22 All right. Do you want to start, Entergy?

23 MR. LEWIS: Yes. Thank you, Judge. My
24 name is David Lewis and with me is my partner, Paul
25 Gaukler. We are with the law firm Pillsbury Winthrop

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1 Shaw Pittman. We have the privilege of representing
2 Entergy in this proceeding today. We do have our
3 witnesses on Contention 3 in the audience, Dr. Steven
4 Hanna and Dr. Kevin O'Kula.

5 CHAIR YOUNG: All right.

6 MS. UTTAL: Good morning, Judges. I am
7 Susan Uttal from the Nuclear Regulatory Commission,
8 representing the Nuclear Regulatory Staff. With me on
9 my right is Beth Mizuno; and on my left is Andrea
10 Jones, also attorneys for the Staff. There is a
11 fourth attorney, Brian Harris, who is sitting behind
12 us also representing Staff.

13 We have two of our witnesses here on
14 Contention 3, Nate Bixler and Tina Ghosh.

15 CHAIR YOUNG: Ms. Lampert.

16 MS. LAMPERT: Good morning. I am Mary
17 Lampert. I am representing Pilgrim Watch, pro se. We
18 do not have witnesses here today. Our witness for the
19 cables is in a meeting on that subject in Washington
20 today.

21 At the table here is Rebecca Chin,
22 representing the Town of Duxbury.

23 MS. HOLLIS: Good morning, Your Honor.
24 Sheila Hollis from Washington here representing the
25 Town of Plymouth.

1 CHAIR YOUNG: Thank you all. We thought
2 we would start this morning by talking about the new
3 contentions. And then when we are finished with
4 those, we will get to Contention 3.

5 On the new contentions my questions will
6 really focus mainly on two things. The standards for
7 reopening and Ms. Lampert I do want to give you an
8 opportunity answer some questions on that. I will say
9 that our inclination is that the standards on
10 reopening should apply but as I said, I want to give
11 you a chance to answer some questions on that.

12 And then as part of that, the significance
13 or level of severity of any issues that are raised.
14 Let's see, the actual language. And we don't have
15 very good light up here. So if we look like we are
16 straining to read --

17 JUDGE ABRAMSON: It is just because we
18 have bad eyes.

19 CHAIR YOUNG: Right. The significant --
20 If the issue is significant enough or exceptionally
21 grave, timeliness issues might not be as critical.
22 The significance of the issue and whether a materially
23 different result would occur.

24 Then, I believe it is 2.340, the extent to
25 which we as a Board can raise to the Commission a

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1 serious safety environmental or common defense and
2 security matter.

3 I believe you, Ms. Lampert, had suggested
4 that we could raise an issue sua sponte and I think
5 Entergy responded that the way that that would be done
6 would be pursuant to 10 CFR 2.340.

7 So those are sort of a collection of
8 issues around the reopening issue.

9 By the way, you notice I have some
10 caffeine up here. Anyone feel free because --

11 JUDGE ABRAMSON: To tap into the caffeine?

12 (Laughter.)

13 CHAIR YOUNG: To get your own caffeine.

14 To the extent that it makes you more effective in your
15 arguments, feel free to do that.

16 So, we would start with the first new
17 contention that you filed in November and then move to
18 the other two. Did either of you want to say anything
19 before we get into this?

20 JUDGE COLE: Yes. Number one, that is
21 what we would call the cleanup contention. Do you
22 agree with that characterization of it?

23 MS. LAMPERT: That is the way I refer to
24 it.

25 JUDGE COLE: Okay, thank you. I think I

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1 entered it as different adjective but that's all
2 right.

3 JUDGE COLE: What adjective did you use?

4 MS. LAMPERT: No, I call it cleanup.

5 JUDGE COLE: Okay.

6 CHAIR YOUNG: Do you have anything to add?

7 JUDGE ABRAMSON: Nothing.

8 CHAIR YOUNG: I guess on whether the
9 reopening standards apply, Ms. Lampert you filed
10 recently a response or a reply and you gave it, made
11 reference to a number of cases.

12 Yes. Really what -- I guess you raised a
13 couple of issues. One, I think you argued that the
14 reopening standards apply to new evidence on a given
15 contention and not to new contentions. And I believe
16 that one of the other parties raised subsection D of
17 2.326. What would you argue should be the case if
18 contention three had not been, no part of it had been
19 remanded and the case had been basically over with our
20 issuance of our initial decision in October, I think,
21 of 2008? Would you argue that if you wanted to raise
22 a new contention then, you would not have to meet the
23 reopening standards?

24 MS. LAMPERT: What I have said and this
25 holds both for cables and for the cleanup is that the

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1 issues have not been litigated. This hearing, this
2 process is clearly not over or we wouldn't be here
3 today.

4 CHAIR YOUNG: But I mean, if we weren't
5 here today.

6 MS. LAMPERT: If we weren't here today?

7 CHAIR YOUNG: Right.

8 MS. LAMPERT: You mean if everything had
9 been closed?

10 CHAIR YOUNG: Right.

11 MS. LAMPERT: If a decision had been made
12 on Contention 1 and Contention 3?

13 CHAIR YOUNG: Right.

14 MS. LAMPERT: Then we would be in a
15 different situation. But we aren't in that situation.

16 And so I think a late filed contention is
17 applicable if an issue that is raised has never been
18 litigated. And then you go to the eight steps. Is it
19 timely raised? Etcetera, etcetera.

20 This has not been litigated. We are not
21 talking about buried pipes and tanks.

22 CHAIR YOUNG: So just to interrupt, you
23 are basically hanging your argument on the fact that
24 Contention 3 was in part remanded, which you are
25 saying in essence opened up the proceeding for any

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1 issue that might come along.

2 MS. LAMPERT: Yes, that is correct.

3 CHAIR YOUNG: Okay. Is there anything
4 that you would like to point us to in any of
5 Commission's decisions that would support that?

6 MS. LAMPERT: Well I think what Entergy
7 had looked at was the Vermont case and that was an
8 example of why my argument, they felt, was incorrect.
9 However in the Vermont case, they did speak to the
10 issue on remanding and also it is not an analogous
11 case because in reality what was brought was more
12 information on a subject that had already been brought
13 forward.

14 And so frankly, I don't see how we can
15 talk about a request for reopening when nothing had
16 been -- when it hadn't been opened before. I mean,
17 that is ridiculous on its face. This has not been
18 litigated. And so the question remains did I bring it
19 forward in a timely manner. And I think we
20 demonstrated that we did.

21 CHAIR YOUNG: Could you give me a response
22 to the approach that when the Commission remanded
23 parts of Contention 3, that that is all that they
24 reopened and that anything outside that envelope, so
25 to speak, would not be part of what they reopened when

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1 they did that remand.

2 MS. LAMPERT: Yes. Way back in 2006, we
3 brought forward in May five contentions. Two were
4 accepted into the process. One, the buried pipes and
5 tanks, was closed up.

6 This one, the Sandia one remained open.
7 And so for all practical purposes, this adjudication
8 process has not been completed. You know, we have got
9 miles to go before we sleep. And as a result, it is
10 open and, therefore, when something within scope of
11 significance come to our attention, I believe we are
12 within our rights to bring it forward, which is what
13 we did, Judge Young.

14 CHAIR YOUNG: Do you have any arguments on
15 whether and the extent to which you would meet the
16 reopening standards, assuming we were to apply them?

17 MS. LAMPERT: Yes. Actually, I think --

18 CHAIR YOUNG: Let's limit to the cleanup
19 contention, the first one that you filed at this
20 point.

21 MS. LAMPERT: Let me see. Excepting
22 affidavit which we did not file, yes I believe we do.
23 However, I think we could be excused from the
24 requirement for an affidavit for two reasons. One, it
25 is a nontechnical issue and it is very straightforward

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1 on its face. Second, there were, I have a pile on the
2 floor of FOIAed e-mails provided with it from
3 officials, government employees and there is no reason
4 to believe that what they say in it is not true. And
5 I should expect that would be acceptable to be able to
6 get all those folks to come here to say yes, I did
7 write that e-mail. It wouldn't seem necessary.

8 And I also asked the reporter who did the
9 investigative report if he could provide an affidavit.
10 And he said at this point, that would be contrary to
11 the policy of inside EPA that they stand by the truth
12 of everything that they put forward. And so at a
13 later date if he were called and required, he
14 certainly would appear.

15 Does that -- I hope that answers your
16 question.

17 CHAIR YOUNG: Do you want to answer the
18 same question with regard to your other contentions?
19 Or I guess --

20 MS. LAMPERT: Yes, I --

21 CHAIR YOUNG: You can approach the other
22 two together or however --

23 MS. LAMPERT: Well whatever. So we are
24 moving to cables. I think that would be an easy way
25 to deal with it.

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1 CHAIR YOUNG: Okay.

2 MS. LAMPERT: Again for the same reasons,
3 there has never been any discussion of submerged non-
4 environmentally qualified cables before you. This is
5 an important significant piece of information. It has
6 not been litigated. It was not part of Contention 1,
7 which is closed. I argue again that it is still open.

8 Looking to Vermont Yankee's decision,
9 CLI1017, I think it supports the decision that there
10 is a necessity to reopen. We have good cause. I
11 think the issue on timeliness, you want me to get into
12 that?

13 CHAIR YOUNG: Go ahead.

14 MS. LAMPERT: That was a dispute. The
15 dispute seemed to be that we didn't bring it forward
16 in a timely manner because we would have had
17 demonstrated that we knew about the significance of
18 this issue because I had filed a 2.206 summer of 2010.
19 And the PRB actually has accepted it, indicating its
20 significance but they have put it on hold until this
21 issue which deals with the future Aging Management
22 Program is decided. So yes, I did know about it.

23 I didn't bring it forward in 2006, for
24 example, because there is only so much we could have
25 dealt with and we thought, looking at the history of

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1 how NRC had been supposedly seriously dealing with
2 this issue. Sandia did a study in 1996. The NRC had
3 done a report in 2002, again more reports in 2004.
4 They looked at a variety of sites that showed problem.
5 Then they got their act really together, developed
6 questionnaires to go out in 2006 to all the licensees
7 to really track it, see what is happening to
8 presumably come up with some requirements. I mean,
9 this has been going on a while. So, it was like, hey,
10 am I the only one who was deluded and thought the NRC
11 was going to actually regulate and make some
12 requirements on something they considered serious for
13 over a decade?

14 Well, I thought I was being a reasonable
15 person. Obviously Entergy, NRC Staff thought the NRC
16 is never going to do anything as far as the
17 requirement goes. I was stupid enough to think so.
18 So I didn't file, at that time.

19 But then the frosting on the cake came
20 December second when they had the information notice
21 and went on and on and on, again and again and again
22 how serious this was, how it relates degradation to
23 aging, which is what this process is all about; how
24 moisture was the main problem; yada, yada, yada.
25 Then, they made no requirements.

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1 So again it was, what is a woman to do?
2 Come to you. That is what you do, in hopes that the
3 Aging Management Program would be made sufficient and
4 so this would be addressed going forward for the next
5 20 years. Because I am not here to start the process.
6 I'm not stupid.

7 What I am here for is to assure that
8 safety measures are required and put in place. And
9 what they have now for the Aging Management Program is
10 not sufficient. And so that is why I argue and I
11 think correctly because the point not that we didn't
12 know about this, the point was what we learned
13 December second was that NRC is not stepping up to the
14 plate and requiring fixes.

15 And so from December second to December
16 13, I put together this new contention, in a timely
17 manner.

18 JUDGE ABRAMSON: Just a quick follow-up,
19 Ms. Lampert. Was there anything in the AMP that
20 addressed these cables that you are concerned about?

21 MS. LAMPERT: Was there anything in it?
22 Nothing of significance. What the AMP has is to look
23 for degradation, initially, once in ten years for
24 medium volt cables nonspecific. Not how much you have
25 to look at, what you then have to do, etcetera,

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1 etcetera. And then in Rev. 2, they switched it to six
2 years. It is a little better but it doesn't do the
3 trick. There is still no specificity, no requirement
4 for replacement. And also there is another part that
5 deals with looking down manholes first once in two
6 years and then the revised GALL was once every year.
7 No, again, specificity.

8 And if you look at the December second
9 information notice and ones prior to that, they say
10 very specifically that hey, we have seen when they
11 pump them out that it comes right back in.

12 And then also there is a very central
13 question. What percent of the cables can you make a
14 judgment from looking down a manhole or well? You and
15 I both know those long lines of cables are not exactly
16 at parallel to the surface. There are dips where
17 there would be puddling and where they can be sitting
18 in a puddle of water for a long, long time.

19 And then also I will point out that in
20 April of 2010, which came out in an inspection report
21 this past summer, it indicated, they looked down, the
22 NRC looked down three manholes. They all had water
23 and they admitted that two always had water.

24 And then I had, in one of the submittals,
25 I brought bigger ones because it was hard to see, it

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1 shows the property and it shows the distance to sea
2 level.

3 And so you have to, I mean this is a site-
4 specific issue, and you look at Pilgrim's site and
5 there is no question it is a harsh environment, which
6 is a dispute by the way, because of its proximity;
7 low-laying proximity to the ocean, because of the
8 snows, the rains we have here, etcetera.

9 And so as a result of the characteristics
10 of our site, moisture being the driving factor in the
11 degradation and age, this makes this what you are all
12 about, assuring that the Aging Management Program is
13 sufficient and particularly necessary because the NRC
14 is in the we are studying, we are studying, we are
15 studying mode as opposed to getting on top of it with
16 requirements.

17 Yesterday in Washington, Chairman Jaczko,
18 in his introductory talk to the big meeting that is
19 going on, mentioned cables. I have a copy here or it
20 is obviously on the NRC's website, as one of the big
21 to-do items.

22 So it is clearly significant. It is
23 clearly something for aging management. And I think
24 if we have the opportunity and we get into what does
25 and what doesn't the current Aging Management Program

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1 do, the specifics of this site, the long history of
2 concern in this, I don't think there is any question
3 that it belongs in this process and, you know, let's
4 wrap it up as fast as we can. But you know, we aren't
5 slaves to Senator Vitters. That was sniping.

6 Did I get at some of the question, Judge
7 Abramson?

8 JUDGE ABRAMSON: Yes, you did. Thank you
9 very much.

10 CHAIR YOUNG: Let's come back to the
11 cables issue in a moment. For now if we could go back
12 to this "cleanup contention" and move --

13 Well but first before we move onto the
14 issues of significance/severity/seriousness/gravity,
15 does the staff or Entergy have any arguments that you
16 haven't already made on the reopening standards? If
17 you have anything that you would like to say in reply
18 to Ms. Lampert on those --

19 MR. LEWIS: Yes, Judge. We have not
20 responded to the reopening standards that were made in
21 her reply and she did make some new arguments. We
22 would like to respond to them.

23 The assertion that the reopening standards
24 do not apply to a new contention is belied on its face
25 by the rule itself, in particular subsection (d) of

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1 that rule which clearly, 2.236 -- 326(d) which
2 indicates that the reopening standards apply to a new
3 contention.

4 But moreover and beyond the little words
5 of the rule, when the Commission promulgated these
6 reopening standards in 1986, the Commission said "Our
7 rules of practice make it clear that the reopening
8 standards, as well as the late intervention standards,
9 must be met when an entirely new issue is sought to be
10 introduced after the closing of the record." It
11 couldn't have been stated clearer. And the citation
12 for that is 51 *Federal Register* 19535 and this
13 particular statement is at 19538 carrying on to 19539.

14 The Commission also has clearly applied
15 these reopening standards in the context of a new
16 contention. Pilgrim Watch referred to an Oyster Creek
17 case that the Staff had cited and said that is
18 different. There the motion to reopen related to a
19 contention that had been litigated. What Pilgrim
20 Watch didn't mention is that here were two motions to
21 reopen at Oyster Creek. There was also a motion to
22 reopen addressed by the Commission in CLI-08-28, which
23 is exactly this situation where the Intervenor in
24 *Oyster Creek* moved to reopen the contention to plead
25 a brand new fatigue contention that had never been

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1 raised. And the Board clearly applied the motion to
2 reopen standard and the Commission affirmed the Board
3 and applied those same standards.

4 MS. LAMPERT: That is now in the Third
5 Circuit.

6 MR. LEWIS: With respect to *Vermont*
7 *Yankee*, Pilgrim Watch's characterization of that case
8 is also inaccurate. The remanded contention in the
9 *Vermont Yankee* case related to environmentally
10 assisted fatigue and the Commission remanded the case
11 to the licensing Board in *Vermont Yankee* to allow them
12 to pursue one of the variations of their contention on
13 that issue. In that proceeding, the intervenor in *New*
14 *England Coalition* declined to pursue the remanded
15 issue and, instead, moved to reopen the record on a
16 brand new, entirely different contention, in fact
17 relating to inaccessible cable.

18 So the motion to reopen in *Vermont Yankee*
19 was not related to an issue that had been previously
20 litigated. It related to a brand new issue that had
21 never been litigated.

22 Pilgrim Watch's characterization of the
23 Commission's Decision in *Vermont Yankee* with respect
24 to the motion to reopen is also inaccurate. The
25 Commission did not require *New England Coalition* to

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1 meet the standards for a motion to reopen with respect
2 to the remanded contention. But in that case, *New*
3 *England Coalition* had also said we have concerns about
4 buried piping. They asked the Commission to hold the
5 proceeding in abeyance. The Commission said there is
6 no basis to hold the Commission in abeyance. But if
7 you have any genuinely new issues while this case is
8 on remand before the Board, you can file a motion to
9 reopen and you should do so under the provisions of
10 2.326(d).

11 So the footnote that we cited is exactly
12 on point. There the Commission remanded a case,
13 remanded one specific issue relating to
14 environmentally assisted fatigue, and instructed the
15 parties and the licensing Board that if the intervenor
16 wanted to raise any other issues, they should apply
17 the motions to reopen standards.

18 There is old case law that has also made
19 it clear that when a record is reopened, it is not
20 reopened as to all issues. It is only reopened as to
21 the particular issue that has been reopened. And for
22 example, in a Three Mile Island case by the Appeal
23 Board many years ago, the Appeal Board said the
24 fortuitous circumstance of the preceding has been or
25 will be reopened on other issues has no significance.

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1 So if somebody wants to reopen a new
2 contention, the fact that the proceeding may have been
3 reopened for some other issue doesn't mean all issues
4 have been reopened. And clearly when the Commission
5 remanded the Contention 3 to this Board, it remanded
6 an issue as limited by its rulings. It certainly did
7 not throw open the proceedings and decide to restart
8 them over again.

9 The TMI case that I cited is ALAB-486 8
10 NRC 9 at 22.

11 JUDGE ABRAMSON: Counsel, let me ask you
12 one question in follow-up on this. The NRC, the
13 Commission has recently released some proposed
14 revisions to Part 2. Does any of that address this
15 issue or are you not familiar with that release? I
16 know I am hitting you blind with this, but I looked at
17 it the --

18 MR. LEWIS: I don't think that they
19 proposed changing the reopening standards. I believe
20 they have changed, they are considering changing the
21 late filed standards and would judge late filed
22 contentions only under 2.309(f)(2).

23 JUDGE ABRAMSON: It did not reach into the
24 reopening --

25 MR. LEWIS: That is my belief.

1 JUDGE ABRAMSON: Maybe the Staff can
2 comment on that too, please.

3 MS. MIZUNO: I'm sorry, Your Honor. I
4 don't know whether it actually addressed the
5 reopening. The one piece of Part 2 that may be
6 amended that we focused on is the merging of the non-
7 timely versus the late filed contention issue.

8 JUDGE ABRAMSON: Yes, I recall that part.
9 I just wondered whether it reached into this and I
10 don't recall having looked at it closely enough to see
11 it.

12 MS. MIZUNO: But if you wish, we can find
13 that out and get back to you on that.

14 JUDGE ABRAMSON: It is only a proposal at
15 this point. So Ms. Lampert, have you seen that yet?
16 The NRC released some proposed revisions to Part 2
17 about a week or ten days ago. Is that about right?

18 MS. LAMPERT: No, I haven't.

19 JUDGE ABRAMSON: Okay.

20 MS. LAMPERT: But I will look at.

21 JUDGE ABRAMSON: Yes, it is worth taking
22 a look. I don't know whether it is relevant for this
23 or not but this is what I was asking.

24 MR. LEWIS: Judge, I also don't know
25 whether you want to address Pilgrim Watch's assertion

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1 that the reopening standards are unfair and the courts
2 have held that they can't be applied. I can address
3 that issue, too. I think the short answer to that is
4 this Board has to follow the Commission's rules. But
5 in fact those reopening standards have been upheld by
6 a number of courts, including the D.C. Circuit after
7 the UCS case.

8 And the D.C. Circuit, after UCS-1 the
9 principle case that Ms. Lampert cited, explicitly
10 explained that they were not ruling that the reopening
11 standards could not be applied to an issue that could
12 have been raised earlier in the proceeding.

13 CHAIR YOUNG: Yes, I think there are some
14 specific circumstances in those cases having to do
15 with the emergency, some emergency planning issues
16 that had not been permitted to be raised earlier. Am
17 I recalling that right?

18 MR. LEWIS: Yes, the issue what they
19 referred to as UCS-1, the first UCS case that Pilgrim
20 Watch cited was a situation in which the Commission
21 required the staff to make a finding on the emergency
22 preparedness exercise as a prerequisite to issuing an
23 operating license but had issued a rule saying that an
24 intervenor could never challenge the results of that
25 exercise in the proceeding. And that is what the

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1 court said was impermissible if the Staff had to make
2 a finding. In fact, the staff admitted that this
3 exercise was material to its licensing decision. The
4 Commission said that excluding it entirely as to all
5 parties from the proceeding was a violation of 189.
6 That is not anywhere near the situation here.
7 Clearly, this app has been the Aging Management
8 Program on inaccessible cable has been susceptible to
9 a contention and challenge from the very beginning of
10 this proceeding.

11 MS. LAMPERT: We have responded once. I
12 can't rattle off these cases like that can. Surprise,
13 surprise. But I understand that Entergy has said that
14 they are going to make a reply and then you will have
15 everything before you. Because what I cited, I feel
16 is correct and you are taking a twist on it. But I am
17 not going to get out of my job qualifications and get
18 into a big legal argument with you now.

19 CHAIR YOUNG: You have done pretty good,
20 given that you are not a lawyer, I will have to say.

21 Were you actually planning to file
22 anything further?

23 MR. LEWIS: No.

24 CHAIR YOUNG: Okay.

25 MR. LEWIS: No, I was just addressing it

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1 now in this argument, --

2 CHAIR YOUNG: Right.

3 MR. LEWIS: -- which I think I am allowed
4 to do.

5 CHAIR YOUNG: And you --

6 MR. LEWIS: Judge there were some
7 assertions that --

8 CHAIR YOUNG: Go ahead.

9 MR. LEWIS: -- Pilgrim Watch made in the
10 arguments and I don't know whether you want me to
11 respond to them or just limit myself at this point to
12 the reopening standards but there were some --

13 CHAIR YOUNG: Why don't you save the
14 others --

15 MR. LEWIS: Okay.

16 CHAIR YOUNG: -- at the moment. Does the
17 Staff have anything?

18 (Sound of cell phone ringing.)

19 CHAIR YOUNG: I'm sorry. I thought I had
20 turned that off.

21 JUDGE ABRAMSON: Somebody should have
22 announced to turn all the cell phones off.

23 CHAIR YOUNG: Yes, maybe that would have
24 helped to announce that.

25 (Laughter.)

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1 CHAIR YOUNG: Please repeat that. You
2 were --

3 MR. LEWIS: No, Judge. I had asked
4 whether you wanted me to respond to other assertions
5 that --

6 CHAIR YOUNG: Oh, okay.

7 MR. LEWIS: And you said no. Not at this
8 point in time.

9 MS. MIZUNO: I think, Judge Young, you
10 were turning to the Staff to ask if the Staff wished
11 --

12 CHAIR YOUNG: Thank you.

13 MS. MIZUNO: -- to raise any other issues.

14 Actually no, Your Honor, we do not. We
15 cited the statement of considerations in the *Federal*
16 *Register* notice that counsel cited. We cited
17 specifically to the regulation and it does provide for
18 this very situation.

19 In addition, we did brief the Vermont
20 Yankee issue. We briefed it twice and feel that that
21 is well briefed.

22 Also with respect to the federal cases in
23 the D.C. Circuit, Union of Concerned Scientists in
24 Deukmejian that Pilgrim Watch cited in its reply on
25 page four, it is our view, along with Entergy, that

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1 both of these cases are in the inapposite.

2 And the reason they are inapposite was
3 because in those instances there was no opportunity
4 for hearing on the issue. In one instance, it was for
5 closed by rule making, in the other instance I am not
6 quite sure what the basis for it was but it was a low
7 power license issue. There was no opportunity for
8 hearing on that. Instead, the petition was referred
9 to the full license hearing. And in those instances,
10 there was no opportunity for hearing on the specific
11 issue that was being brought forward.

12 In this instance, there was a full
13 opportunity for hearing. That hearing was held. It
14 went up on appeal. It is back now on remand. There
15 has been more than an opportunity for full hearing.
16 And for that reason, we believe that the standard for
17 reopening is what should be applied here. Thank you.

18 MS. LAMPERT: One issue I would like to
19 respond to --

20 CHAIR YOUNG: Go ahead.

21 MS. LAMPERT: -- is the sua sponte that we
22 had a dispute about. And it certainly seems that the
23 spirit of it still exists and it is clear that the
24 Chair of the Board, you, have the authority and I
25 would say because of the significance of the issue, if

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1 this is not accepted for us, to bring it forward and
2 request to the Commission that it be allowed to be
3 heard.

4 CHAIR YOUNG: I don't -- Just before we
5 move on to the sort of significance issues and that is
6 related, I think the word there used is seriousness or
7 serious. We are not going to expect any further
8 filings from the parties.

9 That said, if any relevant decision were
10 overturned, you said that the Third Circuit had a case
11 pending before it and I can't recall which one it was
12 at the time, --

13 MS. LAMPERT: It was the Oyster Creek one.

14 CHAIR YOUNG: -- you can certainly refer
15 that to us without any additional filing but any party
16 can. We are going to be moving forward to making
17 decisions on these things. But if prior to issuance
18 of a decision you become aware that a case has been
19 reversed, you are always free to just notify us of
20 that.

21 Okay. Anything else on reopening
22 standards, per se?

23 All right then, on the significance types
24 of issues. I guess there is sort of preliminary sort
25 of issue with regard to the so-called cleanup

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1 contention and that is, I guess the relationship
2 between the subject of the article and the e-mails and
3 how the SAMA analysis is done. That issue has come
4 out in the responses to the contention, arguing that
5 the issue that you are raising essentially has to do
6 with things outside the scope of the contention --
7 That your contention would not be within the scope of
8 the proceeding because it has to do with whether NRC
9 or EPA or FEMA will take charge of any cleanup and not
10 with the actual SAMA analysis.

11 MS. LAMPERT: What? You are saying the
12 contention is not within scope?

13 CHAIR YOUNG: I'm saying that the argument
14 has been --

15 MS. LAMPERT: Oh, okay.

16 CHAIR YOUNG: And so with respect to that
17 argument, I guess I would like to get a little bit
18 better understanding perhaps from some of the experts
19 on what the assumptions are or what the inputs are in
20 the SAMA analysis on cleanup, whether there is a
21 presumption cleanup will occur and so forth.

22 And again, I am the lawyer only, not a
23 technical member. So it might be helpful to me to get
24 some clarification on that from the experts. I know
25 we are going to be asking them questions possibly with

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1 regard to Contention 3 but some similar issues have
2 been raised in this contention.

3 JUDGE ABRAMSON: Judge Young, let me just
4 interject for a moment. We are here for oral
5 argument, which means counsel will need no experts on
6 admissibility of these contentions.

7 If indeed you are interested in additional
8 information from experts, I would support sending out
9 questions like we did on the last situation, to which
10 I might remind you, you objected. But I would support
11 you asking questions and getting responses but I do
12 not support the concept of asking for expert or asking
13 the lawyers to comment on expert issues, at this
14 process, in this process.

15 MS. LAMPERT: Thank you.

16 CHAIR YOUNG: Hold on. Hold on. The
17 experts are here. And they are here to talk --

18 MS. LAMPERT: Mine aren't. Mine aren't.

19 CHAIR YOUNG: Okay, yours aren't. That's
20 true. And I think the ruling that we made was that
21 any party who wanted to bring their experts could
22 bring them.

23 Now, --

24 MS. LAMPERT: For consultation not for
25 speaking. That was our understanding.

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1 MR. LEWIS: Well that is not correct.

2 CHAIR YOUNG: In any event, in any event,
3 I think that it would be helpful to have some
4 clarification on this issue whether we do it by
5 talking directly to experts or just talking to
6 counsel.

7 This issue of the relationship between the
8 basis for the late filing or the filing of the
9 contention when you filed it and the SAMA analysis
10 itself and what that relationship is, if any, and how
11 those things interact, is a central argument against
12 or one of the arguments against the contention.

13 So, I would appreciate some clarification
14 from that and let me go first to you, Mr. Lewis. And
15 to the extent that it would be helpful to have input
16 from the experts that are here, I think it would be,
17 certainly, more efficient and less time consuming to
18 do that directly.

19 But before we get to that, why don't you
20 provide whatever clarification you are aware of on
21 that issue?

22 MR. LEWIS: Okay, I believe I can do it,
23 Judge Young, but Dr. O'Kula can also address it.

24 Just as background, because Pilgrim Watch
25 made the decision not to submit any expert affidavit

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1 in response to its contention, we did not feel that we
2 needed to. That as a threshold matter, they did not
3 meet the affidavit requirements to support their
4 motion to reopen. That is the only reason that we
5 didn't also submit a counter declaration, putting the
6 facts in proper perspective. But we did cite to the
7 max users guide, to the portion of the guide that
8 identifies that the EPA protective action guidelines
9 are what is used in the MACCS2 analysis.

10 And what we also pointed out is that we
11 gave Pilgrim Watch all the inputs that we used in
12 doing our MACCS2 analysis in disclosure to Pilgrim
13 Watch in 2007. So they had all the inputs, including
14 the inputs on the assumed cleanup levels, which are
15 expressed as dose. They are one of the inputs. And
16 the way the MACCS2 Code works as I understand it --

17 CHAIR YOUNG: Let me stop you.

18 MR. LEWIS: Yes.

19 CHAIR YOUNG: Let me just interject there.
20 You said the presumed cleanup levels which affects the
21 dose. So am I correct in understanding from that that
22 there is, there are some presumptions about any
23 cleanup that --

24 MR. LEWIS: Yes.

25 CHAIR YOUNG: Okay.

1 MR. LEWIS: Absolutely.

2 CHAIR YOUNG: Okay.

3 MR. LEWIS: What the MACCS2 Code does,
4 first the MACCS2 Code models the contamination of the
5 area. And then it models cleanup and it assumes
6 certain decontamination factors and it has a cost for
7 those decontamination factors.

8 So it models a piece of property. It
9 establishes the level of concentration. It applies a
10 decontamination factor. It figures out what the cost
11 would be. It figures out what the concentrations
12 would be after that decontamination. And it then
13 figures out what would be the dose to a member who
14 then goes back and lives or works on that property.

15 And it applies the EPA protective action
16 guidelines to figure out was that decontamination
17 sufficient to meet the EPA standards? If it is, then
18 that property could be returned to use. If it can't,
19 the property is considered condemned and MACCS then
20 counts the value of the property as a cost of being
21 condemned and lost forever.

22 The model uses the EPA Protective Action
23 Guidelines, which are, it is five rem over five years
24 and the way it is split up is --

25 CHAIR YOUNG: Before you get to that

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1 point, really what I would like to focus on here is
2 the cleanup presumptions.

3 MR. LEWIS: Yes.

4 CHAIR YOUNG: And the reason for that is
5 if this information that became available in November,
6 I guess it was, if it raises a question about the
7 correctness of those presumptions as to what gets
8 cleaned up and decontaminated, wouldn't there be some
9 relationship there then between the issue of whether
10 that cleanup would occur and whatever presumptions
11 there are as to that cleanup occurring?

12 MR. LEWIS: Judge Young, I think the
13 answer is yes, there could be an issue about what your
14 assumed cleanup levels are but this inside EK article
15 is not the first time that issue has been raised. And
16 therefore, it does not make this issue timely, as we
17 pointed out in the site restoration study that Pilgrim
18 Watch cited at the very beginning of this proceeding.

19 In fact, there is a discussion in that
20 report of exactly this issue that yes, there are a
21 number of different cleanup standards that one might
22 assume and, in fact, it referred to the EPA's cleanup
23 standards. It referred to the Protective Action
24 Guidelines and it referred to NRC standards for public
25 dose.

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1 So the fact that you have a choice and you
2 could choose different cleanup standards, has been an
3 issue that has been known from the very beginning of
4 this proceeding and longer.

5 CHAIR YOUNG: Well, let's --

6 JUDGE ABRAMSON: Judge Young, let me
7 interject here.

8 CHAIR YOUNG: Let me just follow this up.
9 I am trying to get you to focus not so much on the
10 cleanup standard but the presumption on whether
11 cleanup occurs.

12 And I guess part of the reason I am doing
13 this is because for the general public, at least, who
14 knows about Katrina, who knows about the Gulf oil
15 spill, the issue of whether things occur as they have
16 been predicted to occur, and the significant
17 consequences that can occur when things don't happen
18 as planned, that could be a matter of public concern.

19 So if questions are raised about whether
20 cleanup will occur as planned in the way that the Code
21 presumes cleanup will occur, then wouldn't there be a
22 relationship there?

23 JUDGE ABRAMSON: Can I redirect that?

24 CHAIR YOUNG: Well let him answer, first.

25 JUDGE ABRAMSON: Go ahead and then I want

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1 to follow it up.

2 MR. LEWIS: Sorry, Judge. I am having a
3 little trouble following your question. I mean,
4 clearly the MACCS2 Codes User Manual very clearly
5 indicates that the MACCS2 Code models decontamination
6 and cleanup and looks at what it would cost and what
7 property could be cleaned up and what property would
8 be condemned, and what is the dose from property that
9 is cleaned up for people who then live after it and
10 models it out to 30 years. All those things are
11 accounted for.

12 So the fact that the code is modeling
13 cleanup is not new and is on the very face of the
14 model description.

15 CHAIR YOUNG: Right. But the things that
16 is new, apparently and you can respond to this but the
17 thing that I understand is being asserted to be new is
18 a question about who would actually take
19 responsibility for the cleanup and whether and how
20 quickly and so forth that would occur.

21 So if it is presumed that it would occur
22 and I don't know what the presumptions are or what the
23 inputs are about when it would occur, how quickly it
24 would occur and so forth. But if it is presumed in
25 how the code treats it that it would occur, cleanup,

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1 and it does not occur according to those presumptions
2 and there is, let's say, evidence to indicate that
3 there are questions about that, that is what I am
4 trying to focus in on.

5 MR. LEWIS: I understand the question now.

6 CHAIR YOUNG: Okay.

7 MR. LEWIS: I think the assertion that
8 there is new information that in fact a cleanup might
9 not be performed is flat out wrong. Again, the site
10 restoration study that I referred to which also we
11 talked about --

12 CHAIR YOUNG: Well you talked about
13 cleanup standards.

14 MR. LEWIS: Yes, I did but that same --

15 CHAIR YOUNG: Right.

16 MR. LEWIS: -- report also talks about the
17 fact that there are multiple agencies and there are
18 some questions about who would take the lead. That
19 was also discussed in that site restoration study. So
20 the assertion that there has never in fact been this
21 kind of catastrophic accident and therefore there is
22 no precedent on whether it would be FEMA or whether it
23 would be the state government, whether it would be EPA
24 or NRC, those aren't new issues. And you can go to
25 the site restoration study and see that there is a

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1 discussion that there are different agencies with
2 different jurisdictions.

3 But I think that the assumption that some
4 agency is not going to step up is not a reasonable
5 assumption. I mean the assumption that --

6 CHAIR YOUNG: Even after Katrina?

7 MR. LEWIS: Even after Katrina.

8 CHAIR YOUNG: Okay.

9 JUDGE ABRAMSON: Can I follow this up,
10 please, Judge Young?

11 CHAIR YOUNG: Hold on one second. Could
12 you just tell me in your response do you give a site
13 to the site restoration study and where in it those
14 statements are made?

15 MR. LEWIS: Yes, we do.

16 CHAIR YOUNG: Okay, thanks.

17 JUDGE ABRAMSON: Now can I follow up?

18 CHAIR YOUNG: Go ahead.

19 JUDGE ABRAMSON: Counselor, let me see if
20 I understand this correctly and then I want to ask Ms.
21 Lampert just what this challenge is all about.

22 What you are telling us is that when a
23 code tries to compute the cost of cleanup and the cost
24 of damages, it is doing that to be able to compare as
25 to which SAMAs are cost-effective. Is that correct?

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1 MR. LEWIS: That is correct, yes.

2 JUDGE ABRAMSON: And one cannot, and this
3 seems to be stating the obvious. One cannot figure
4 out what to compare without computing the costs. Is
5 that correct?

6 MR. LEWIS: That is correct, yes.

7 JUDGE ABRAMSON: And so the code does have
8 a mechanism for computing those costs. And it had to
9 be there as part of the mechanism for doing the SAMA
10 cost benefit balance. Correct?

11 MR. LEWIS: That is correct.

12 JUDGE ABRAMSON: Okay. Ms. Lampert, do I
13 understand correctly that the challenge here is who is
14 going to take responsibility for assuring that this is
15 cleaned up. Is that correct?

16 MS. LAMPERT: No.

17 JUDGE ABRAMSON: No?

18 MS. LAMPERT: That is part of it. There
19 are two issues that were brought, actually three.
20 There were three new pieces of information. Two of
21 the three apply directly.

22 One is that there is not, contrary to what
23 they are saying, an agreed upon cleanup standard, a
24 definition of what of the many cleanup standards will
25 be used to determine how clean is clean.

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1 JUDGE ABRAMSON: Okay. All right.

2 MS. LAMPERT: That is one issue, which
3 directly affects --

4 JUDGE ABRAMSON: I understand. And the
5 other issue is?

6 MS. LAMPERT: Okay. The second one is
7 that there is no federal agency that is saying I am
8 the chief. I am going to be in charge. They are all
9 Indians. And if you read the FOIAs, it seems clear
10 that they realize that the cost is horrendous and they
11 don't want to mess up their own budgets.

12 JUDGE ABRAMSON: I understand that. Let
13 me just follow this with one last question, I think.

14 Did we have a contention at the initiation
15 of this proceeding challenging the Entergy estimates
16 of cost to cleanup?

17 MS. LAMPERT: I will respond to that.

18 JUDGE ABRAMSON: Yes.

19 MS. LAMPERT: The Commission in 2 CLIs
20 issued in 2010 said specifically, and I could read
21 them to you if you would like, that cleanup,
22 decontamination was never a part of the original
23 pleading. So therefore, this is --

24 JUDGE ABRAMSON: Well would you go back?
25 Would you answer my question?

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1 MS. LAMPERT: Yes, I did answer.

2 JUDGE ABRAMSON: Did you challenge the
3 costs initially? The costs of estimates.

4 MS. LAMPERT: And there are many costs but
5 this was one that the Commission and your Board
6 decided was not under the umbrella of economics.
7 Remember I was annoyed about it.

8 JUDGE ABRAMSON: Imagine that.

9 (Laughter.)

10 MS. LAMPERT: But I have forgiven you.

11 But can I say in response to what they
12 were saying? Please, yes. Thank you.

13 As far the references to the site
14 restoration study, there was one key factor that they
15 forgot to mention and that is that it was published in
16 1996. And so therefore, everyone was supposed to
17 assume once again that the NRC was or was not going to
18 take care of it. And EPA and NRC and FEMA and the
19 rest of them weren't, in the interim, going to sit
20 down and decide what the deal was.

21 So going back to hey, we cited site
22 restoration study in 1996 and that is supposed to say,
23 therefore, we knew and we should have brought it all
24 forward, doesn't hold water, number one.

25 Number two, they talked about the EPA

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1 standards are -- standard. They forgot to add the S.
2 Standard is used in the MACC Code cleanup
3 calculations. But there are many EPA standards. So
4 that does not address the issue.

5 There is not a determination is there
6 going to be 15 millirem, it is it going to be five?
7 Is it going to be 5,000? That has to be decided and
8 that is why I provided to you the Reichmuth analysis
9 that shows very clearly in a variety of different
10 sites from rural to New York City, the huge difference
11 using one standard over the other will make in costs.

12 For example, using the 15 millirem, they
13 showed for a dirty bomb which certainly doesn't have
14 the contamination level from a reactor, that it would
15 exceed the Gross National Product. However, if you
16 were using --

17 JUDGE ABRAMSON: Yes, I think we
18 understand those arguments, Ms. Lampert --

19 MS. LAMPERT: Oh but I love making them.

20 JUDGE ABRAMSON: -- unless Judge Young
21 wants to hear it again.

22 MS. LAMPERT: Let me just say one more
23 thing about responsibility, the second issue, not
24 having a chief. Having no agency take charge.

25 Why that affects costs is that it will

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1 delay the process, as Judge Young pointed out, in the
2 last two natural disasters we have had. And there is
3 a clear relationship; the longer you take to cleanup
4 radionuclide deposition, the more resuspension you are
5 going to have, the more likelihood it is going to get
6 into the ground, the groundwater, etcetera, etcetera.
7 And then the cost is going to escalate. And that
8 factor should, therefore, be factored into an analysis
9 because you have to make an assumption. Again, they
10 didn't address it, on how quickly this job is going to
11 take for a variety of levels of contamination because
12 it is directly related to cost.

13 MR. LEWIS: Judge can I make a point on
14 this? I think this underscores the importance of the
15 Commission's requirement to how competent declaration
16 supporting a motion to reopen.

17 What you are hearing now are assertions
18 that certain things will have affects and they will be
19 significant and they will have significant
20 consequences on dose.

21 The Commission's standards on the
22 reopening specifically say that the affidavit has to
23 be from a competent individual with knowledge of the
24 facts. To provide these kind of assertions with no
25 expert support whatsoever does not come close to

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1 satisfying the standards for a motion to reopen.

2 Also with respect to the site restoration
3 study, you know, Pilgrim Watch's retort well that was
4 1996 and how were we to know that things hadn't
5 change; Pilgrim Watch would turn the standard for new
6 information into a subjective standard.

7 Basically, Ms. Lampert is arguing that the
8 first time she learns of an issue is when it is
9 timely. It is not a subjective standard. The
10 standard assumes that persons that are pleading
11 contentions at the outset of a proceeding do their
12 homework. They look at issues. Here Pilgrim Watch
13 added the site restoration study. It flagged the fact
14 that there could be different assumptions.

15 It was incumbent upon the intervenor to
16 pull the string and follow up. And the assertion that
17 Pilgrim Watch only learned of an issue recently is
18 simply not a basis for timeliness.

19 CHAIR YOUNG: Hold on. What I would
20 really like to try to get you to focus more on, and we
21 have talked about the reopening standards. And by
22 moving sort of to the seriousness, severity,
23 significance, and so forth, and mentioning the
24 provisions of 10 CFR 2.340 and the ability of the
25 Board to basically refer to the Commission -- Or I am

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1 not sure the word refer.

2 MR. LEWIS: It requires their approval
3 upon referral of the Commission.

4 CHAIR YOUNG: Right. To put an issue to
5 the Commission is saying this may be a serious issue
6 that you might want to consider or might want us to
7 consider. That is what I am really trying to focus on
8 at this point.

9 The sort of significance, severity,
10 seriousness, gravity, all those are sort of related
11 terms and they are all terms for the central question
12 in not just the reopening standard but in the standard
13 for whether a presiding officer or Board can highlight
14 an issue and say to the Commission this might be
15 something that warrants further attention.

16 That is sort of the context I am looking
17 in at this point and I am not sure that we need to
18 have any more argument on what the reopening standards
19 are. Clearly, they are what they are.

20 But in this regard, I would like to have
21 a better understanding of this relationship issue
22 because if indeed there is some question about what
23 agency would be responsible and about the possibility
24 that therefore there either could be some issues
25 similar to those in previous recent disasters on how

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1 quickly they were addressed, if there is a
2 relationship of that to the cost presumptions, the
3 cleanup cost resumptions that go into the SAMA
4 analysis, that is where I see the possibility of there
5 being some relationship. And that is why I would like
6 to get a better understanding.

7 Now before when I was asking you about
8 that a few minutes ago, I was asking about what is
9 presumed in terms of cleanup and you indicated that it
10 was presumed that he cleanup would occur. And then
11 that went into the decontamination and the costs of
12 all that. And I think you then subsequently then made
13 the argument that when you are looking at cost-benefit
14 analysis, that is what is concerned, or maybe it was
15 Judge Abramson who raised it, that you have to have a
16 cost that goes into a cost-benefit analysis.

17 But if there is some question about what
18 that cost will be because there is some question about
19 how quickly it will occur and who will be responsible
20 for it, --

21 JUDGE ABRAMSON: Or whose standards would
22 be applied. She is also raising --

23 CHAIR YOUNG: Right. But what I am
24 focusing on is the issue of how that would affect the
25 SAMA analysis. Because if the SAMA analysis, if in

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1 doing that it is assumed that the cost will be X
2 amount, and because of these questions, that cost is
3 unrealistically low, the cost figure that goes into
4 the analysis is unrealistically low, then that sort of
5 goes against the idea that it is a conservative
6 analysis.

7 So that is what I am trying to get some
8 better understanding of. And it may be that your
9 experts, Mr. O'Kula, could provide some clarification
10 on that.

11 MR. LEWIS: Yes, we could bring Dr. O'Kula
12 up. I would say though that even with respect to
13 significance, this is Pilgrim Watch's burden to
14 establish this is a significant issue. And remember
15 this is an environmental contention. But even --

16 CHAIR YOUNG: I really -- You can make
17 your arguments on procedural questions and burdens if
18 you like but I am really trying to get you to focus
19 solely on the question that I asked and not whose
20 burden --

21 MR. LEWIS: I am just saying that there is
22 no showing that a delay while an agency figures out
23 who is going to be the lead would impact cleanup
24 costs.

25 CHAIR YOUNG: Okay, let's --

1 MR. LEWIS: Pilgrim Watch makes the
2 assertion but there is no expert support for that
3 assumption.

4 CHAIR YOUNG: Let's just assume from the
5 article and from the e-mails that there are questions
6 about, let's just assume for argument sake that there
7 are questions about which agency would take charge
8 such that if God forbid some accident were to occur in
9 the near future, there would be actual questions about
10 who would be in charge, how it would get done.

11 How does that relate to the figures that
12 go into the SAMA analysis on cleanup and costs? And
13 I am not trying to suggest that there will be an
14 accident. Obviously, there are a lot of protections
15 in place but I am trying to understand that
16 connection.

17 JUDGE ABRAMSON: While you are getting Dr.
18 O'Kula, counselor, let me ask you and the Staff, does
19 the Staff have -- Has the Staff provided anything more
20 than --

21 First of all, has it provided guidance to
22 applicants as to what cleanup standards to use and
23 what assumptions to make about timing? Is it embedded
24 in the goal report or a similar report?

25 In other words, what I am asking you is

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1 what is the source of the assumption in the MACCS
2 analysis that they will cleanup to EPA standards and
3 the assumptions of timeline? What is the source for
4 those?

5 MS. UTTAL: There is a reg guide. We are
6 trying to find the number.

7 JUDGE ABRAMSON: There is a reg guide that
8 says here is what to do? Okay, so it is part of our
9 regulations.

10 So would you say this is a challenge to
11 our regulations?

12 MS. UTTAL: It is part of our guidance,
13 not the regulation.

14 JUDGE ABRAMSON: Guidance. Okay, it is a
15 NUREG. Okay.

16 CHAIR YOUNG: Do you want to take a break
17 and talk with your experts for ten minutes?

18 MR. LEWIS: Yes, please.

19 CHAIR YOUNG: Okay, let's do that.

20 (Whereupon, the foregoing matter went off
21 the record at 10:08 a.m. and went back on
22 the record at 10:20 a.m.)

23 CHAIR YOUNG: All right. If everyone
24 would come to attention, please. Let's start again.

25 When we move into the discussion of

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1 Contention 3, we may also have questions. And again
2 it may be me mainly who has clarification questions
3 for some of the experts. So it might be a good idea
4 at this point if we just had all the experts stand up
5 and I will swear you all in. Because even though you
6 are just providing clarification, since you are expert
7 witnesses, it might be good to swear you in.

8 So maybe all those of you, just stand --
9 Oh, they are not all here?

10 JUDGE COLE: I just saw a staff lawyer
11 running out looking for a witness.

12 CHAIR YOUNG: We can wait. We can wait.

13 MS. LAMPERT: Can I fly a few in?

14 MR. LEWIS: Judge Young, just on this
15 issue while the witnesses are arriving, the parties at
16 our last conference call did agree that we would have
17 the witnesses available on Contention 3, in case the
18 Board had questions.

19 CHAIR YOUNG: Right.

20 MR. LEWIS: And so our experts are here
21 for that purpose and that was consistent with the
22 discussion.

23 On this issue about if there was some
24 wrangling between the agencies over who was in charge
25 and if somehow that caused them to delay the

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1 initiation of cleanup, who would that affect the
2 MACCS2 modeling?

3 Talking very quickly with our expert, that
4 is not something that we are prepared to address. To
5 go into the MACCS2 model and to determine how would a
6 delay in the initiation of cleanup affect the cost,
7 would it be higher or lower? On the one hand, you
8 would have more decay. On the other hand, you know,
9 maybe it doesn't make any difference because the
10 radionuclides are long lived and so the ones that are
11 significant wouldn't change.

12 That is just not something that we are
13 prepared. And quite frankly, I don't think it is
14 appropriate on a motion to reopen, to expect us to
15 address these technical issues when they haven't first
16 been raised and properly vetted by --

17 MS. LAMPERT: Again, this is --

18 CHAIR YOUNG: Okay, stop. Stop. Stop.
19 Stop. Everyone.

20 If the experts are not prepared to answer
21 questions, then obviously they don't need to answer
22 them. But I want to make one thing very clear here.
23 The clarification that I am asking for is not based on
24 any presumption on my part that there would be a
25 relation -- Quite frankly, I didn't know whether you

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1 would say there would be a relationship or no
2 relationship.

3 My question is purely for clarification
4 purposes on what happens in the analysis with regard
5 to the cleanup. What is presumed with regard to what
6 cleanup occurs, when it occurs, whether it occurs.

7 And so, I am not asking any part to
8 respond to anything or to make any arguments one way
9 or the other. And I don't have any presumptions one
10 way or the other on what the response would be.

11 MR. LEWIS: We --

12 CHAIR YOUNG: You have indicated that it
13 looks as though -- What you have indicated makes me
14 think that there is some relationship if the analysis
15 presumes that cleanup and decontamination would occur
16 and then cost figures are put on that.

17 My question was simply for clarification
18 purposes. And when I made reference to the
19 significance and severity issues, that is one of the
20 things I was making reference to. So if your experts
21 are not prepared to respond to that, then they don't.

22 MR. LEWIS: Our experts can. Dr. O'Kula
23 can explain what cleanup is assumed and how does the
24 modeling, you know, modeling, when does it start and
25 how does it treat it.

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1 But as far as the issue which is the next
2 question which is now what happens if there is a
3 delay, I think then you would have to do an analysis
4 and look at it because there is a number of different
5 factors going on.

6 And so, if Judge Young you want to
7 understand what is in the model, yes Dr. O'Kula can do
8 that. If you go beyond that and start saying and what
9 happens if there is delays, you know, I don't think
10 that would be a fair question to ask our experts at
11 this point in time because that issue hasn't been
12 performed and it is a non-trivial issue. It is not
13 that it is obvious one way or the other.

14 CHAIR YOUNG: The only --

15 JUDGE COLE: It is the arm wrestling of
16 the agencies after that.

17 MR. LEWIS: Yes.

18 CHAIR YOUNG: I'm sorry?

19 JUDGE COLE: It is the arm wrestling of
20 the agencies after that. We can't handle that
21 problem.

22 JUDGE ABRAMSON: But you have made clear,
23 have you not, that there is an assumption of about the
24 cleanup standards and there is an assumption about the
25 timing.

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1 MR. LEWIS: Yes.

2 JUDGE ABRAMSON: So yes, it is true that
3 for the SAMA cost-benefit analysis, there are
4 assumptions about what is going to get cleaned up to
5 what standard and how long it is going to take.

6 MR. LEWIS: And the code model again
7 indicates that there is different phases. There is
8 this early phase and there is the late phase. And the
9 decontamination occurs in the late phase. So Dr.
10 O'Kula can provide discussion of that if you would
11 like.

12 CHAIR YOUNG: Okay.

13 MR. LEWIS: But I would object if it
14 starts going beyond that.

15 CHAIR YOUNG: Okay. And Mr. Lewis and
16 everyone else, I want to make absolutely clear again
17 that any questions that I ask are purely to clarify
18 what the situation is. They are not to try to make
19 anyone defend against this or that or presume that I
20 think one way or the other. I am just trying to
21 simply understand what happens with regard to those.

22 And when we get into Contention 3 this
23 afternoon, you will see that I will be asking
24 additional questions that may in fact the answers to
25 which may be obvious to some technical people may not

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1 be obvious to me. Just simple clarification
2 questions. That is all I'm asking and that is all I
3 want any lawyer or witness to understand.

4 JUDGE ABRAMSON: Now have you have got a
5 sufficient answer on this, since your question was is
6 there a connection? Yes, there is a connection.

7 CHAIR YOUNG: What I would like to
8 understand, what I would like to get clarification on
9 is how it works at that point. So if you can provide
10 that, that would be helpful. If you can't, you can't.

11 So and this is not for purposes of turning
12 this into a hearing but if all the experts are here
13 now, I could swear you all in for purposes of the
14 whole day. Are we all here yet?

15 MS. UTTAL: Yes.

16 CHAIR YOUNG: Okay, why don't you all
17 stand up and I will just swear you in? All the
18 experts who are here. Okay.

19 Whereupon,

20 ALL EXPERT WITNESSES PRESENT

21 were called as witnesses by the parties, and having
22 been first duly sworn, assumed the witness stand and
23 were examined and testified as follows:

24 CHAIR YOUNG: Okay so basically what I
25 want to understand is when figures are put in for

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1 cleanup, what I understood from Mr. Lewis is that it
2 is assumed that cleanup will occur and cost figures
3 are put in for that. And I guess I am not as
4 concerned about what the cost figures are but how it
5 works as the analysis is performed and where you get
6 the information to put in at that point. Does that
7 make sense?

8 DR. O'KULA: Yes, I believe it does.
9 Judge Young --

10 CHAIR YOUNG: Thank you.

11 DR. O'KULA: This is the part of the
12 analysis, the long-term phase in terms of cleanup and
13 decision-making, that ultimately goes into the costs
14 associated with the postulated accident. So it is the
15 long-term phase of the code and --

16 CHAIR YOUNG: And you do it for each
17 separate accident.

18 DR. O'KULA: Correct. It is done for each
19 separate accident, one at a time.

20 But now I have contamination over a
21 certain range from the release point that is factored
22 in sector by sector, square mile by square mile.

23 CHAIR YOUNG: When you say sector -- I am
24 going to interrupt.

25 DR. O'KULA: I'm sorry.

1 CHAIR YOUNG: Just try to understand.

2 DR. O'KULA: Yes.

3 CHAIR YOUNG: Is that the same thing as
4 the segments that are talked about in the ATMOS module
5 or is that a different concept?

6 DR. O'KULA: Yes. To be correct, we are
7 looking at a polar coordinate grid that goes out to 50
8 miles is our range of analysis and we normally treat
9 16 compass directions, principle compass directions.
10 So we have a sector that is 22 and a half degrees wide
11 in terms of its width from an angular basis. And then
12 it is set with our closest radius point and its
13 farthest radius point as a --

14 CHAIR YOUNG: It is the same thing as --

15 DR. O'KULA: We described that as -- It
16 almost looks like a pie shape.

17 CHAIR YOUNG: Right. It is the same thing
18 as, maybe I am not remembering right but it is the
19 same thing that is talked about as a segment in the
20 Contention 3 discussion, I think. Okay.

21 DR. O'KULA: Yes.

22 CHAIR YOUNG: Right.

23 DR. O'KULA: So if I refer to it as a
24 sector, I --

25 CHAIR YOUNG: I just wanted to make sure

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1 there wasn't --

2 DR. O'KULA: -- made the translation.

3 CHAIR YOUNG: Right.

4 DR. O'KULA: I understand.

5 So contamination has now been broadcast on
6 the surfaces in this sector, in this segment of
7 territory that has a radius beginning point and
8 farther out endpoint and it has a certain width to it.

9 The calculation that in the MACCS2 Code
10 then makes the determination how or has a level of
11 contamination on the surface from that accident
12 scenario. So we are doing one at a time. And it now
13 says what will I need to restore this area to
14 habitability? Can people live there again? Or on the
15 economic side that can be used for economic
16 activities, businesses. And there is a farming and a
17 non-farming determination, if that sector of territory
18 is used for agricultural purposes, then there is also
19 that decision that is made.

20 Can this territory be cleaned sufficiently
21 to allow rehabilitability and then or if it is
22 agricultural territory, can farming take place once
23 again?

24 Now, there is a period of -- There are
25 various levels of decontamination that could be

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1 required to make that activity either the habitability
2 or the return to farming safe. And so then I would
3 need to understand or input various guidelines, either
4 from the states or from the federal agencies as to
5 what are the minimum threshold, what are the doses
6 that I would allow to be accumulated over a period of
7 time before I would allow people to re-inhabit their
8 homes or return to agricultural activities.

9 JUDGE COLE: And who makes those
10 decisions?

11 DR. O'KULA: There are precedents that
12 have been used previously either from the decisions as
13 far as inputting those levels into the MACCS2 Code are
14 made by the analysts of course. But they are looking
15 at guidance from past SAMA analysis as to what were
16 the appropriate levels to use, whether they be as Mr.
17 Lewis referred to, the EPA Guidelines or if there is
18 a state authority that has a more stringent level,
19 they may choose to input that value.

20 In the case of the NUREG 1150 study in the
21 late 1980s that was published in 1990, one or two of
22 the plants used information based on their state's
23 guidelines for cleanup and so they chose when that
24 model was run for that specific plant to use not the
25 EPA Guidance but instead the state guideline.

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1 So it is site-specific and the analyst
2 would refer to regulatory bodies, federal and then
3 state, and any standards that would come into place
4 are the user's discretion as to what are the most
5 conservative, what are the most appropriate to use.

6 In terms of the delay that could be
7 modeled, if the user were trying to account for the
8 fact that there may be some decision-making at a broad
9 level before activities would be undertaken for
10 decontamination, that in fact could be modeled. And
11 that delay time could be added to the end of the
12 emergency phase, which is roughly a week after the
13 plume has been released from the point of, the source
14 point, the reactor itself.

15 And so this intermediate phase of the
16 analysis would -- could be the model by which you
17 would say this is a period of inactivity. Assessment
18 crews are assessing how getting field measurement
19 readings on how contaminated the soil and the surfaces
20 are. And so we are conservatively accounting for a
21 certain period of time by which this fact-finding
22 would take place. So that could be done in the late
23 phase of the MACCS2 Code model.

24 JUDGE COLE: And all of these details
25 would be articulated in the SAMA analysis report.

1 DR. O'KULA: They would be part of the
2 discussion on what was done, what was assumed, what
3 were the appropriate inputs, yes.

4 JUDGE COLE: Thank you.

5 CHAIR YOUNG: So on the cleanup part of
6 it, I believe Mr. Lewis said that it was assumed that
7 cleanup and decontamination would occur before you got
8 to the point of defining what the dose would be and
9 the economic costs. Did I understand you right, Mr.
10 Lewis?

11 MR. LEWIS: Yes. But what I said was that
12 our analysis used the EPA Protective Action Guidelines
13 which were specifically prepared for severe nuclear
14 accidents. They give a recommendation for a dose that
15 should not be exceeded. It is, I believe, two rem in
16 the first year and 0.5 rem in each of the next four
17 years. That criteria, I believe and Dr. O'Kula can
18 confirm and explain, is simply what is used to
19 determine can I clean it up enough to return to
20 service or should I consider it condemned, that dose
21 standard does not truncate the evaluation of dose to
22 the public. It is simply used for determining can I
23 achieve cleanup or should I condemn it. But let me --

24 CHAIR YOUNG: But I thought you had said
25 earlier that the way it is analyzed, it would be

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1 assumed that cleanup would occur. And whether it is
2 to rehabilitate it completely or not is not really
3 what I am looking at so much. I was just looking at
4 the sequence.

5 I thought I understood you to say that
6 certain assumptions would be made about the cleanup
7 and the decontamination level and then the dose.

8 And so what I was trying to understand was
9 what assumptions were made about whether cleanup
10 occurred, what cleanup occurred, and the cost of it.

11 MR. LEWIS: I will tell you what I think
12 I said and then Dr. O'Kula to make sure that what I
13 said is right.

14 With respect to all contaminated property,
15 the model looks at can it be returned to habitability
16 and use.

17 CHAIR YOUNG: Right.

18 MR. LEWIS: And it, I believe, first looks
19 at does the property already meet the release
20 standards, in which case you would not need any
21 decontamination. If it is not, then it looks at
22 different levels of cleanup which are input and
23 actually defined in our environmental report, these
24 are the decontamination factors of 3 and 15. And it
25 applies a cost for each of those levels of cleanup.

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1 And so first it tries, if I cleanup to a
2 decontamination factor of three, do I achieve this
3 Protective Action Guide dose limit? If I do, then I
4 apply that and I apply that cost.

5 If that doesn't work, then they say okay,
6 I have to do more contamination. How about this
7 decontamination factor of 15? It applies it. That
8 has a higher cost. It then tests it. Do I meet the
9 habitability standard in the Protective Action
10 Guideline? If the answer to these questions are no,
11 then it is condemned. It does what actually other
12 tests --

13 CHAIR YOUNG: So you are asking can you
14 make it.

15 MR. LEWIS: Yes.

16 CHAIR YOUNG: Okay.

17 MR. LEWIS: It actually does one other
18 test, too. On each of these cases, it compares the
19 cleanup cost with a value of the property. If in any
20 of these cases the cleanup cost exceeds the value of
21 the property, then it considers the property
22 condemned.

23 CHAIR YOUNG: Okay. So what I was trying
24 to understand what is another way to put it -- What
25 is the source of the costs that are attributed to

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1 different cleanup levels?

2 MR. LEWIS: First, was I generally right?
3 Was I close?

4 DR. O'KULA: You were spot on --

5 MR. LEWIS: Okay.

6 DR. O'KULA: -- as far as my recall is on
7 that activity in the Code.

8 MR. LEWIS: The question was where does
9 the cleanup come from from the decontamination
10 factors?

11 CHAIR YOUNG: Yes, where do you get the
12 cost figures for those, based on -- Well, you tell me.

13 DR. O'KULA: Yes. Usually, the customary
14 case is that past precedence are looked at for very
15 similar type reactor accidents. So they can be early
16 studies that were done in the 90s, in the late-90s as
17 far as reference values. The NUREG-1150 study was
18 used in many plant SAMA analyses. As far as making
19 what assumptions as far as how many dollars would it
20 take to decontaminate to a certain level. So that is
21 a primary basis for many of the SAMA Analyses, the
22 NUREG-1150 study.

23 And if any information is more
24 contemporary then there is certainly the capability to
25 add that information into the model at this point.

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1 CHAIR YOUNG: So there haven't been any
2 accidents that have produced the kind of consequences
3 that you are talking about as I understand. Correct?

4 DR. O'KULA: Right. In the continental
5 United States, yes.

6 CHAIR YOUNG: So they would be taken from
7 other countries or military -- I'm just trying to
8 understand where they come from. Maybe NUREG-1150
9 says but I am just --

10 DR. O'KULA: Correct. Many of the studies
11 are, over the last 10, 15 years or so are based on
12 assumptions as to how far one would go, what would it
13 cost to accommodate those activities. And so they are
14 always looking to be updated as far as is there any
15 new information. Would this type of cleanup with the
16 type of source terms, the type of releases that would
17 come from a postulated reactor accident, would these
18 be any different than say the type of release that
19 would occur if a dirty bomb would be released or a
20 nuclear submarine had a mishap in port. So those are
21 different kinds of events. And so there needs to be
22 a careful layout out of assumptions about the
23 applicability of the source term from the reactor
24 accident versus these other type of more localized or
25 more widespread type events. The type of material

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1 that is released, how -- are we talking more plutonium
2 type products? A different kind of radioactivity in
3 terms of its effects on humans than say cesium and
4 strontium, different radio half-lives.

5 And different assumptions go into the
6 model in terms of how tough is it to clean up
7 something that bonds very quickly to plant life and
8 the surfaces --

9 CHAIR YOUNG: Bonds?

10 DR. O'KULA: -- or say --

11 CHAIR YOUNG: B-O-N-D-S?

12 DR. O'KULA: Yes.

13 CHAIR YOUNG: Right.

14 DR. O'KULA: Correct. That absorbs very
15 quickly on surfaces. Is it as easy to decontaminate
16 tritium, which reactor accidents don't have very much
17 of but there would be some? Is that radionuclide
18 difficult to decontaminate versus something like
19 cesium and strontium? How much effort would that take
20 to decontaminate? And then the costs are figured.
21 Well, that would take so many days and require a
22 workforce of so much. So we can ascribe a certain
23 cost level towards that action.

24 And it is not done in a very detailed way
25 in MACCS2 but some broad assumptions are used to

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1 factor in what it would take to ultimately reduce
2 radioactivity contamination down to these levels that
3 Mr. Lewis referred to.

4 CHAIR YOUNG: I think I may have
5 misunderstood something before or maybe Mr. Lewis
6 didn't mean to say it how he said it.

7 In any event, what I understood from him
8 when I asked the question what actually sort of
9 surprised me a little bit was that I thought I
10 understood him to say that certain assumptions were
11 made about what cleanup is done and the cost of it and
12 the decontamination and the cost of that before you
13 got to figuring out what the consequences in terms of
14 dose were.

15 Did I misunderstand that or is that not
16 correct? Because now what you are talking about
17 sounds as though you are saying you assume a certain
18 amount of -- that the cleanup and the cleanup costs
19 are those associated with reducing the dose down to an
20 acceptable level. And that the dose figures that are
21 the consequences that come out of the SAMA analysis
22 are those that are there before the cleanup occurs.
23 Did that make sense, my question?

24 DR. O'KULA: I think I understand the
25 question.

1 CHAIR YOUNG: Okay.

2 DR. O'KULA: There is a baseline
3 contamination that is used to make before decisions
4 are modeled in the Code.

5 CHAIR YOUNG: Maybe we should just wait
6 until Judge Abramson comes back.

7 (Pause.)

8 CHAIR YOUNG: Okay. So I was asking
9 whether the dose consequences that are produced are
10 the dose that would occur before the cleanup or after
11 the cleanup. And I thought I had understood from what
12 Mr. Lewis was saying earlier is that in arriving at
13 the dose, that took into account certain assumptions
14 about how much cleanup would occur.

15 But now I think I understand you to be
16 saying that the dose figures that come out at the end
17 for the consequences are those doses that would be
18 there -- Well why don't you tell me?

19 Are they the doses that would occur before
20 cleanup, without cleanup? How do those things relate?
21 Because that is what Mr. Lewis said earlier that
22 caused me to ask further clarification questions.

23 DR. O'KULA: Yes. The sequencing in this
24 part of the analysis is that the Code is telling me
25 what I am dealing with as a baseline contamination.

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1 And before any decisions are made whether to condemn,
2 do contamination, I need to know what my baseline
3 radioactivity contamination level is, first of all.

4 So no costs have been accumulated.

5 CHAIR YOUNG: Right.

6 DR. O'KULA: No decontamination has been
7 planned yet.

8 So in a sense, I have a footprint that is
9 laid over my grid and I am looking at one of those
10 sectors right now, one of those land area sectors and
11 I am trying to make a decision. No dose has been in
12 this phase of the work.

13 So then the code is making the decision
14 making, as Mr. Lewis indicated, in terms of can I, if
15 I decontaminate what this baseline radioactivity
16 contamination is now, can I decontaminate to a certain
17 level so that I would meet EPA or whatever the
18 threshold happens to be? And I can do that with a
19 certain --

20 Let's say that that action can be
21 performed. Then the Code makes a very simple
22 assumption about what does it take to decontaminate to
23 that level and the doses accumulated by
24 decontamination workers in this case. There is a
25 certain assumption that goes into the Code.

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1 CHAIR YOUNG: The doses accumulated by
2 decontamination workers.

3 DR. O'KULA: You are saying the
4 contaminated property is at a certain level and that
5 the Code says well if I reduce it by a factor of three
6 or five for argument purposes, okay go ahead and do
7 that because that will bring it under the threshold.
8 But to do that will incur a cost in terms of the
9 workers. So the dose will be counted there.

10 CHAIR YOUNG: The dose to the workers
11 included in that.

12 DR. O'KULA: Yes. That is included. And
13 then the second piece on that is that that activity
14 will require labor of course, and labor intensive.
15 And so a cost is affixed to that activity to bring
16 that contamination level down.

17 So but that adds up in a dollar column.
18 So I will determine yes I can make that sector
19 habitable once again but it will cost this much in
20 terms of dose. So that goes into the dose ledger in
21 the Code calculation. And then I also need to account
22 for the fact that it costs money to do that action.
23 So that will go into the economic part of the ledger.
24 That is included in the costs that are ultimately
25 reflected in the SAMA cost that is being that averted.

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1 CHAIR YOUNG: And that assumes, and I
2 don't know whether I am getting into an area that
3 there is some question about, but that assumes -- It
4 seems like I remember reading about the SAMA analysis,
5 a temporal variability. So that assumes some time
6 aspects to the cleanup or not?

7 DR. O'KULA: Yes, there are -- These
8 activities in terms of being able to do something over
9 what period would it be. Would it be two months, 60-
10 days, roughly, or would it be more on the order of
11 upwards of a year, for instance 120 days to upwards of
12 a year?

13 So there are factors of time involved as
14 well.

15 CHAIR YOUNG: And are those --

16 DR. O'KULA: And so it wouldn't be done
17 instantaneously.

18 CHAIR YOUNG: Okay. And are those -- We
19 talked about conservatisms in the measurement of the
20 plumes. Are those cost figures supposed to be
21 conservative also or is there any -- Is that just the
22 best information that can be obtained from various
23 sources?

24 DR. O'KULA: The best information that can
25 be obtained and also if from the sources that are most

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1 similar to the ones you are dealing with.

2 CHAIR YOUNG: Okay.

3 MR. LEWIS: Judge, for clarification, what
4 I said before was that in this portion of the Code in
5 chronic which models the late phase, first there is a
6 decision on whether you can sufficiently decontaminate
7 property to meet the guidelines and return it to use.
8 That is where the Protective Action Guidelines comes
9 in. You know, what it the standard for whether I can
10 clean it up.

11 If you can, then the code applies the cost
12 of that cleanup and the dose to the workers. The Code
13 then models the dose to the population from the
14 property after cleanup, out through the rest of the
15 modeled period. So the protective action guidelines
16 don't actually determine the dose. They are used in
17 the decision on can I achieve cleanup. And then the
18 model actually calculates, okay, I have achieved
19 cleanup. There are now people who are getting doses
20 from various pathways. What is their actual dose?

21 CHAIR YOUNG: Okay. So the output is the
22 dose after the -- Okay.

23 MR. LEWIS: And that is an additional
24 cost. So there is the cost of cleanup, the cost to
25 workers, and then there is the dose to the population,

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1 which is then monetarized, applied a monetary value at
2 the end.

3 CHAIR YOUNG: And so when we are talking
4 about dose consequences and economic consequences,
5 everything but the ultimate dose would be under
6 economic costs. Right?

7 DR. O'KULA: Could you clarify the
8 ultimate does?

9 CHAIR YOUNG: What I am talking about is
10 the discussion about the SAMA analysis producing
11 offsite, -- Well there is on-site and then there is
12 offsite dose consequences, offsite dose consequences
13 and offsite economic costs, as I understood it.

14 And so I was just asking that all of the,
15 everything except that a dose to the public after the
16 presumed decontamination has occurred, would be under
17 economic costs.

18 DR. O'KULA: Yes. All doses, those to
19 decontamination workers, dose to the public, are a
20 part of the population dose risk.

21 CHAIR YOUNG: Oh.

22 DR. O'KULA: So those are all factored
23 into the offsite population dose that is calculated by
24 the Code.

25 CHAIR YOUNG: So you are saying that the

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1 population dose risk would include the dose to the
2 cleanup workers.

3 DR. O'KULA: Correct.

4 CHAIR YOUNG: Oh, okay.

5 DR. O'KULA: The Code does a good job on
6 bookkeeping, on all the various cohorts or segments of
7 the population that are affected. And so that
8 part of the analysis includes the dose that workers
9 would be receiving, should they undertake an action.

10 CHAIR YOUNG: Okay. So the presumptions
11 include how long it would take and how -- When it
12 would start and how long it would take and so forth.

13 DR. O'KULA: Correct.

14 CHAIR YOUNG: Okay.

15 JUDGE COLE: Ms. Lampert has a question
16 for you or for somebody.

17 MS. LAMPERT: Not necessarily a question
18 but will I have an opportunity to respond? Because
19 what Dr. O'Kula has said has been responded to by his
20 colleague, David Chanin for the State of New York.
21 And so it is on record. It was put in effect February
22 28th, I believe, which gives the history of the Code.
23 And the version is different than you have heard
24 today, somewhat.

25 CHAIR YOUNG: Tell me what document. Is

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1 that in one of the exhibits to the Contention 3?

2 MS. LAMPERT: This is in the New York
3 Attorney General's Adjudication for Indian Point.
4 David Chanin is an expert witness there. He provided
5 a rather lengthy, I don't know what you call it,
6 expert statement regarding the history of the MACC
7 Code, the assumptions that are in the Code, stemming
8 and continuing based on plutonium, which is not
9 relevant for a reactor accident. And he talks about
10 the assumption of hosing buildings, of plowing under
11 fields, of workers assumptions, cost to workers, not
12 being correct because it is based, the assumptions are
13 plutonium. But if you have the gamma, which you do in
14 a reactor accident, you can't go out in a HAZMAT suit
15 with a mask. And you know, you can't go out in what,
16 you know, a water tube or something. And so
17 therefore, it will take a lot longer.

18 But my point is, that what you heard from
19 Dr. O'Kula has another side to it. So therefore, not
20 saying what he had to say was one thing or another,
21 but there is another side and I could send it to you,
22 or you know, the exact citation from New York.

23 JUDGE ABRAMSON: Is it filed here?

24 MS. LAMPERT: Pardon me?

25 JUDGE ABRAMSON: Did you file it here?

1 MS. LAMPERT: No, I didn't because you see
2 there is a debate going whether this is reopening or
3 not. I do not believe that even though David Lewis
4 has said it a thousand and one times that the truth
5 has been created. I believe this is, you know, filing
6 a new contention. Therefore, we did not file --

7 We filed enough.

8 JUDGE COLE: Let me see if I understand.

9 CHAIR YOUNG: Did you mention anything in
10 your filing about that?

11 MS. LAMPERT: You know, frankly, I can't
12 remember. I thought we were just talking about
13 standards. But I am saying if we are getting into
14 this in this detail, not knowing we would be having
15 expert testimony, I am not the expert but I can lead
16 you and provide to you this information from David
17 Chanin because they are equivalent in their
18 competency.

19 CHAIR YOUNG: Okay. Go ahead.

20 MS. JONES: I'm sorry, Judge but I have
21 to, I would like to enter an objection into the record
22 because the discussion that we are having about Mr.
23 Chanin was not supported, was not provided in support
24 of the cleanup contention. So, we would like that to
25 be noted for the record.

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1 MS. LAMPERT: Well, neither was this.

2 CHAIR YOUNG: All right.

3 MR. LEWIS: Judge, I would just for the
4 record, too, --

5 MS. LAMPERT: Well, neither was this.

6 MR. LEWIS: If I may just for a second, if
7 this whole discussion is simply to answer your
8 questions on how the Code works --

9 CHAIR YOUNG: Right.

10 MR. LEWIS: -- from our perspective with
11 to the motion to reopen, none of this is required. It
12 was Pilgrim Watch's obligation in the first place to
13 support its --

14 CHAIR YOUNG: Right.

15 MR. LEWIS: -- contentions by a motion to
16 reopen with declarations of competent expert who
17 understands the facts, makes the demonstration of
18 materiality and significance. It is those standards
19 that determine whether the motion should be granted.
20 And those standards are to be applied strictly and
21 those standards simply have not been met.

22 MS. LAMPERT: Well, I still dispute.

23 CHAIR YOUNG: We understand your arguments
24 on that, I think.

25 Okay, anything -- Let's see. I have one

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1 more question written down. I'm not sure whether it
2 was related to this contention or the cables
3 contentions. But were any of the Blanch affidavits
4 relative to any of the reopening, the new contentions?

5 MS. LAMPERT: Oh, certainly. He is the
6 expert witness on this.

7 CHAIR YOUNG: Okay. Okay, I remember. So
8 did any of what he said relate to the reopening
9 standards of the severity is what I guess is what --

10 MS. LAMPERT: He had a lot to say about
11 the severity.

12 CHAIR YOUNG: Okay, well I will just go
13 back and read it. That's fine. I think that is all
14 I wanted to ask.

15 MS. LAMPERT: Can I just make a final --

16 CHAIR YOUNG: Anything to wrap up on the
17 cleanup contention? Go ahead.

18 MS. LAMPERT: Yes, I just wanted to repeat
19 again that the statement that the EAP standard that is
20 used is two rem and five, 5.5 going for a couple of
21 years, that is one possibility. But it hasn't been
22 decided and that it the core issue here, that there is
23 not an agreed upon standard level of cleanup and that
24 relates directly to what the cost will be. And that
25 is affirmed in the e-mails that were provided in the

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1 investigative report and provided to you all that
2 there is debate of what will in fact be used.

3 So the question then becomes they made a
4 choice. There is no regulation of what to use. Did
5 they use the most conservative, which would seem
6 appropriate or not, number one? And number two, to
7 get at the very basic question, could they in fact
8 have done a reliable analysis if there is no cleanup
9 standard that is agreed upon and if there is no
10 federal agency? Which gets us to a road. Either they
11 shouldn't get their license for another 20 years if
12 these issues haven't been decided or generous soul
13 that I am, I suggested another alternative that
14 perhaps they could be required to go back and do
15 further analysis using the most conservative or
16 demonstrate that they did. They certainly should not
17 have been allowed to do their analyses using the least
18 conservative, particularly we have learned, which is
19 only tangentially relevant, that Price Anderson does
20 not cover cleanup. And so this community, this state,
21 will be left holding the bag.

22 CHAIR YOUNG: Anything further from the
23 staff?

24 MS. JONES: Judge, I didn't identify
25 myself earlier but Andrea Jones from the NRC Staff.

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1 Good morning.

2 I just want to respond to the question you
3 all asked earlier. You wanted us to locate the NUREG
4 guide and we have located it. We are generally in
5 agreement with Mr. O'Kula. We are not familiar with
6 the discussions that took place with regard to where
7 the costs, the presumption of costs.

8 CHAIR YOUNG: Tell me again which NUREG
9 you are talking about.

10 MS. JONES: I will give you the citation
11 because this is where the discussion is actually
12 located. So it is at NUREG/BR-0184.

13 MS. LAMPERT: Zero what?

14 MS. JONES: Zero, one, eight, four.

15 MS. LAMPERT: Okay.

16 MS. JONES: And this is on page 5.25. And
17 you will see a discussion there, I am told, where they
18 discussed the four rem or yes, the four rem standard
19 and then it goes into the half rem standard over the
20 next five years.

21 MS. JONES: Sorry, I have been corrected.

22 JUDGE ABRAMSON: Counsel, that is a NUREG.
23 Right?

24 MS. JONES: Yes, it is.

25 JUDGE ABRAMSON: That is not guidance not

1 law.

2 MS. JONES: It is guidance. And I am
3 sorry, I have just been corrected. It is four rem
4 over five years. And a half a year -- Yes. Two rems
5 in the first year and then a half a rem each year
6 after.

7 JUDGE ABRAMSON: And let me ask Entergy's
8 counsel just a quick question. Do we have any
9 disagreement with the concept that if you chose a
10 different cleanup standard you get a different cost?

11 MR. LEWIS: Certainly, we will get a
12 different cost.

13 JUDGE ABRAMSON: Thank you.

14 MR. LEWIS: I would say that the standard
15 that we used in our analysis is the EPA Protective
16 Action Guidelines specifically for nuclear accidents.
17 It was the one that applied.

18 But Ms. Lampert just asserted again that
19 Price Anderson doesn't apply to environmental cleanup
20 costs. That is just flat wrong.

21 MS. LAMPERT: Flat wrong? I responded --

22 JUDGE ABRAMSON: All right. We have
23 writings on that point so we will deal those. Thank
24 you.

25 MS. LAMPERT: It is a dispute.

1 CHAIR YOUNG: Anything further from
2 Entergy on the cleanup contention just to wrap up?

3 MR. LEWIS: No, I don't think so.

4 MS. JONES: I think I just want to make
5 one statement because I think it is just very
6 important from the Staff. I mean, because we have
7 been quite silent and we have --

8 CHAIR YOUNG: I'm sorry. I didn't mean to
9 cut you off before.

10 MS. JONES: That's okay. That's okay.
11 But I just want to make it clear and I think our brief
12 does a very good job of explaining why we think that
13 these are policy issues. These are really legalese.
14 These are really policy issues that really are better
15 off left for the heads of these agencies to discuss
16 and decide amongst themselves who takes the lead in a
17 radiological incident, identifying sources of funding,
18 what particular cleanup standard is going to apply in
19 the event that that does happen.

20 And we think that doing anything at this
21 point in this proceeding, which we believe would be
22 out of scope to do in a license renewal proceeding
23 would be essentially circumventing their ability to
24 make those decisions.

25 We now believe that those issues are

1 closely related to the issues that we are, that you
2 are inquiring about with regard to cleanup costs. We
3 do believe that the fact that the EPA standard was
4 applied when they were analyzing these issues, we
5 think that that is a reasonable standard under NEPA.
6 And it was considered and we think that that was
7 sufficient.

8 But clearly the issues of sources for
9 funding, what cleanup standard, who is going to take
10 the lead, we really believe that that is better left
11 to the heads of these agencies. And mind you, there
12 are others obviously outside of these agencies that
13 are also involved in these discussions. There are
14 higher ranking government officials. And so I would
15 caution any decision in that regard.

16 Thank you.

17 CHAIR YOUNG: Did you want to say
18 anything, Ms. Jones, about the relationship of when
19 cleanup occurs, how long it would take, the
20 relationship between that and the SAMA analysis and
21 any questions about who would be responsible for
22 whether anyone is responsible? Did you want to say
23 anything further on that?

24 MS. JONES: I think I have said enough.
25 And again, we generally agree with what Mr. O'Kula

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1 explained.

2 CHAIR YOUNG: Okay, thank you.

3 MR. LEWIS: Judge, I do have one point
4 just on further reflection. We cited in our answer an
5 analysis of Price Anderson for the proposition that
6 with respect to extraordinary nuclear occurrences,
7 which are big nuclear incidents, the ones that are
8 associated with this sort of accident, that the Price
9 Anderson policy does indeed continue to cover
10 environmental cleanup costs.

11 I do have a copy of the ANI, the American
12 Nuclear Insurance endorsement, if the Board would like
13 to review it. In fact, this is a letter from ANI when
14 they made this change that provided the policy and
15 provided the explanation of what it was and wasn't
16 doing. I could not find an ADAMS cite because this
17 goes back to 1989, it is pre-ADAMS so I didn't cite it
18 in my answer. But if the Board is curious to read the
19 actual American Nuclear Insurance policy and
20 explanation of it, I do have those documents. I can
21 provide it to the Board and the parties.

22 CHAIR YOUNG: All right.

23 MS. LAMPERT: Yes, thank you. In response
24 to what Ms. Jones said, we just met, that being a
25 policy issue about the responsibility in your world.

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1 I couldn't disagree any more.

2 Clearly a SAMA analysis is required for
3 license renewal, if they haven't done it before. So,
4 it is on the table, number one.

5 Number two, it cannot lie on the fiction
6 shelf. It has to be reliable. There has to be an
7 acceptable estimation of offsite costs so that SAMAs,
8 which could reduce the risk of an accident which there
9 is a dispute whether there is any money to pay to
10 clean it up, and clearly, there is no dispute, there
11 is no agency in charge and clearly there is no dispute
12 that there is not a defined, cleared standard clearly,
13 that is in our world.

14 So because you are responsible and we are
15 dependent upon you to provide us with assurance that
16 what they have said and done in their SAMA analysis is
17 honest, is reliable, reflects reality. Because if it
18 is underestimated, they choose this, that, whatever,
19 based on Jell-O, then we will not get the mitigation
20 protection for the next 20 years. The public will be
21 cheated.

22 So, this business that it is up to
23 somebody else to decide, I'll be long dead, that is
24 for sure, is wrong. The decision is to determine what
25 they have done is appropriate or not. And if it is

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1 not, that there be further analysis, which is in your
2 responsibility.

3 CHAIR YOUNG: Thank you. All right.

4 MR. LEWIS: Judge Young, the letter I
5 referred to.

6 CHAIR YOUNG: That's fine. I guess, --

7 JUDGE ABRAMSON: You can e-mail it to us
8 all.

9 MR. LEWIS: I have a copy of a fax. I'm
10 afraid if I didn't scan it and e-mail it, it maybe --

11 JUDGE COLE: Do you have copies for
12 everybody?

13 MR. LEWIS: Yes, I do.

14 JUDGE COLE: Well, give them out.

15 CHAIR YOUNG: We will just make this an
16 exhibit to today's transcript. And so if you could
17 give a copy to the court reporter also.

18 I guess we could call it Exhibit 1 to
19 today's transcript.

20 (WHEREUPON, THE DOCUMENT REFERRED TO WAS
21 MARKED AS EXHIBIT 1 FOR IDENTIFICATION
22 AND RECEIVED IN EVIDENCE.)

23 CHAIR YOUNG: Okay, moving on to the third
24 table's contention. We have already talked about the
25 reopening standard. So as far as I am concerned the

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1 only the other issue would be the issue of the
2 significance, severity, etcetera.

3 I think there was a reference in the NRC
4 document about the level of severity. Did you find
5 that, Judge Cole?

6 JUDGE COLE: No, I couldn't find it. I
7 have got too many papers up here.

8 The December 2, 2010 information notice
9 referred to significance of the problem with the
10 cables. And I believe it said it was of little
11 significance. And I think that in itself was
12 significant.

13 MS. LAMPERT: What? There was a little
14 significance?

15 CHAIR YOUNG: The statement --

16 JUDGE COLE: That the issue is of little
17 significance. And that was written in the information
18 notice towards the very end. And I can't find my
19 copy. I have got a suitcase full of papers here.

20 MS. LAMPERT: Talk about it.

21 JUDGE ABRAMSON: Maybe counsel for the
22 Staff or Counsel for Entergy has a copy. Or maybe Ms.
23 Lampert has a copy.

24 CHAIR YOUNG: Basically I think that the
25 idea is to give you an opportunity to respond to that.

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1 MS. LAMPERT: I've got a copy of it here.

2 CHAIR YOUNG: Let's see.

3 MS. LAMPERT: Would you like me to read
4 that?

5 JUDGE COLE: It is a long document. You
6 are going to read?

7 MS. LAMPERT: I'm not going to read it
8 all.

9 JUDGE COLE: Okay.

10 MS. LAMPERT: Wait a minute.

11 JUDGE COLE: It is towards the end part.

12 MS. LAMPERT: First, to give a summary of
13 it, what it does say is that this is in fact a
14 significant issue. It does say that it could not
15 simply lead to a single failure, which would not be as
16 significant, but could lead to multiple failures. And
17 it explains why. And it explains also that the cables
18 provide electricity for key safety systems.

19 So to say it is not significant, really
20 makes you question the NRC.

21 MS. UTTAL: Excuse me, Judge Cole. Which
22 particular document were you looking for?

23 JUDGE COLE: This is the information
24 notice of December 2, 2010.

25 MS. LAMPERT: And here are the highlights.

1 Cable failures have a variety of causes. And it goes
2 on listing that wetness and aging are the key ones.

3 JUDGE COLE: Thank you.

4 JUDGE ABRAMSON: Why don't we let Judge
5 Cole find what it is he is thinking of.

6 MS. LAMPERT: Okay.

7 JUDGE ABRAMSON: And then you can respond
8 to that.

9 JUDGE COLE: The comment just peaked my
10 notice, you know, in the information notice.

11 (Pause.)

12 MS. LAMPERT: Pages five and seven are the
13 big ones.

14 JUDGE ABRAMSON: Let me just say I think
15 everybody's pleadings on this point are pretty clear.
16 So, I don't feel the need for any discussion of them.

17 MR. LEWIS: Judge Cole, I think maybe what
18 you may be remembering is not the information notice
19 but the --

20 JUDGE COLE: This doesn't look like the
21 document I was looking for.

22 MS. LAMPERT: I know what you are thinking
23 of. You are thinking of the --

24 MR. LEWIS: The inspection report.

25 MS. LAMPERT: -- inspection that was

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1 written for Pilgrim --

2 MR. LEWIS: Right.

3 MS. LAMPERT: -- in August. That is what
4 you are thinking of, which was, I mean, when you think
5 about it --

6 JUDGE COLE: I stand corrected.

7 MR. LEWIS: In her pleading, in Pilgrim
8 Watch's pleading, it was immediately following an
9 excerpt was right after the information notice but it
10 was not part of the information notice.

11 JUDGE COLE: Oh, okay.

12 MS. LAMPERT: And as I pointed out, Judge
13 -- not Judge. Chair, Chairman Jaczko yesterday
14 pointed it out as an important issue to get after.

15 So if the chairman thinks so --

16 JUDGE ABRAMSON: They are not allowed to
17 influence our decision making.

18 (Laughter.)

19 JUDGE ABRAMSON: Seriously.

20 CHAIR YOUNG: If the chairman has
21 indicated that this is a matter of concern to the
22 Commission and that it is going to be handled and I
23 guess sometimes the term generic is used, in a generic
24 matter for all plants, how does that relate to the
25 issue of the seriousness of it and to the

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1 appropriateness of it --

2 MS. LAMPERT: Yes, it speaks --

3 CHAIR YOUNG: -- as a contention in this
4 particular case?

5 MS. LAMPERT: It speaks two ways. Number
6 one, a lot of things have been considered serious and
7 to deal with and they seemed to be dealt with after
8 the fact. Leaks from buried pipes is an example.

9 However, the point is that it adds some
10 additional substance to the fact that it is a
11 significant issue. However, what we are dealing with
12 is the sufficiency of the Aging Management Program
13 going forward for a very serious safety issue. And we
14 are looking at it in a site-specific manner here, not
15 generically. And therefore, you have to couple what
16 the Aging Management does and does not do and
17 determine is it appropriate for the site-specific
18 circumstances here.

19 And so therefore, that is why it belongs
20 in this adjudication process.

21 JUDGE ABRAMSON: Do I understand correctly
22 that the threshold for you is the decision by the
23 decision by the Commission in December to not address
24 this as a generic issue? That is what makes your
25 pleading time run.

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1 MS. LAMPERT: Correct.

2 JUDGE ABRAMSON: Thank you.

3 MS. LAMPERT: That it was the salt on the
4 wound, the frosting on the cake. And was pointed out,
5 that sometimes, you know, somewhere I found it in the
6 Digest that my source of all legal knowledge, that --

7 JUDGE ABRAMSON: It's a pretty good
8 source.

9 MS. LAMPERT: -- sometimes you have in a
10 late filed contention some things that were old and
11 then some things that are new. And that something can
12 occur that puts the last piece in the puzzle and then
13 triggers it to go forward.

14 And so again, I will say call me naive but
15 I did believe because this is so obviously
16 significant, that the NRC and because of their track
17 record in saying over and over again in information
18 notices how serious this was and what the causes were,
19 that they get off their -- can't say that -- that they
20 would in fact make requirements. But it didn't
21 happen.

22 And so this is our opportunity and that is
23 why it is new.

24 JUDGE COLE: I would like to identify this
25 sentence that peaked my interest. It is in Exhibit 5

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1 of the Pilgrim License Renewal July 29, 2010
2 inspection report. And it is in the last page nine
3 under "Enforcement."

4 "This finding does not involve enforcement
5 action because no regulatory requirement violation was
6 identified because the finding does not involve a
7 violation and has very low safety significance." That
8 is the sentence that I remember, for whatever it is
9 worth.

10 MS. LAMPERT: Yes. Well what it is worth
11 is, and I can provide you with this. The Union of
12 Concerned Scientists a couple of months ago issued a
13 report on how many greens findings are given. And I
14 think that speaks for the overly generous grading
15 system. I wish they graded my SATs. You know what I
16 mean.

17 JUDGE COLE: Thank you.

18 CHAIR YOUNG: Anything else on the cables
19 contentions before we move on?

20 And it is early now for lunch but it might
21 be a good time to take a lunch break and then come
22 back and do Contention 3 after lunch.

23 MR. LEWIS: I would like to respond to one
24 thing that Ms. Lampert said, if I could.

25 CHAIR YOUNG: Go ahead.

1 MR. LEWIS: The suggestion that the
2 Information Notice at the end of 2010 was the last
3 piece of the puzzle and, therefore, it makes its whole
4 contention timely, I think is an incorrect assertion
5 for a couple of reasons.

6 First of all, recently in the Prairie
7 Island license renewal proceeding, the Commission
8 criticized that very type of holding and said with
9 respect to a document that merely summarizes prior
10 information, it is not appropriate to say that is the
11 last piece of the puzzle when that information was all
12 available before.

13 So there is a Commission case that
14 criticizes that concept.

15 More to the point, though, the succession
16 of steps that the staff has taken in addressing this
17 issue has been absolutely consistent, none changing
18 from the beginning.

19 In the generic letter 2007, the 01 summary
20 report, in 2008 the Staff's position was licensees
21 should keep water out of the inaccessible structures
22 by draining manholes and they should have a condition
23 monitoring program by testing cables. That is what
24 the GALL report does. In NUREG/CR-7000, the report
25 that was commissioned again what Brookhaven suggested

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1 is test cable by these monitoring techniques and try
2 and control the environment.

3 In the draft versions of GALL rev 2, the
4 staff's position was with respect to license renewal,
5 drain down water to keep it dry and monitor the
6 condition. Now we have an information notice at the
7 end of the year where the staff says drain down water
8 and do these tests to monitor the condition. There
9 has not been a change at all. It is simply amazing
10 that this is the frosting on the cake.

11 JUDGE ABRAMSON: Counselor, let me just
12 ask you --

13 MS. LAMPERT: Wait a minute!

14 JUDGE ABRAMSON: Let me follow this up,
15 please, Ms. Lampert.

16 I had the impression that Pilgrim Watch
17 asserts that what was issued in December actually said
18 that NRC is not going to do anything anymore, that
19 they ceasing work on this point or that they are not
20 going to create any generic rules or do any
21 rulemaking. Was that in fact part of that December
22 decision?

23 MR. LEWIS: I don't think that the
24 Commission ever said that they were going to do a
25 rulemaking. The Commission, the Staff said that they

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1 are preparing a Regulatory Guide. They announced
2 this. This was actually consistent with what they
3 said in the generic letter 2007-03 summary report.
4 They said we are going to prepare a regulatory guide.
5 We are going to tell existing licensees what they are
6 going to do. It is going to do these things.

7 The staff's position I think is quite
8 clear. The regulations already require what they
9 require. And they require you to take appropriate
10 steps to maintain the condition of equipment that you
11 rely on. And you have to monitor it under the
12 maintenance rule.

13 All the staff has been doing throughout
14 this process is saying here is what we think the
15 appropriate steps are to maintain the environment.
16 And throughout all their activities, what they have
17 said is we think that licensees should drain down
18 water in manholes, if you have important cables that
19 are inaccessible, so that they are not exposed to
20 water unnecessarily. In addition, because it is still
21 possible, you should do these type of tests that are
22 capable of detecting degradation. The staff has not
23 said we are walking away from this issue. In fact,
24 they are continuing to take enforcement action against
25 licensees who aren't draining down their manholes and

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1 aren't adequately monitoring the condition. I don't
2 think the staff has backed off on their position at
3 all.

4 JUDGE ABRAMSON: So you don't think the
5 December issuance says anything to the effect that
6 they are going to walk away. And I think Ms. Lampert,
7 Pilgrim Watch's pleadings say otherwise. Right?

8 MS. LAMPERT: Wait a minute.

9 MR. LEWIS: I could just pull my copy of
10 the information notice. I can't pull it up quickly.
11 But no, I don't think they are abandoning this issue.
12 I think that what Pilgrim Watch is maintaining is that
13 all this cable should be replaced with cable that
14 meets 50.49.

15 The Staff has never throughout this
16 process said we are going to require everybody do
17 install some marine cable. And there is nothing in
18 Information Notice 2010 -- I'm sorry. Judge Cole, you
19 have it. -- 2010-26, which reflects any change in
20 Staff position on that point.

21 JUDGE ABRAMSON: Ms. Uttal?

22 MS. UTTAL: That is correct. The
23 Information Notice does not say that we are stepping
24 away. It says no particular action or response is
25 required. But it does instruct that you should ensure

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1 that the cables that could become submerged are
2 adequately monitored and other such things.

3 JUDGE ABRAMSON: When you say it says no
4 particular action or response is required, what does
5 that mean in Staff-ease?

6 MS. UTTAL: That is typical of Information
7 Notices, --

8 MS. LAMPERT: It's typical.

9 MS. UTTAL: -- which are -- Information
10 Notice is to give the industry information. And what
11 it does is it is just repeating things that are
12 already out there.

13 JUDGE ABRAMSON: So does every Staff
14 notice no particular action or response is required?

15 MS. UTTAL: For the Information Notices,
16 yes, --

17 JUDGE ABRAMSON: Okay.

18 MS. UTTAL: -- because no particular --

19 JUDGE ABRAMSON: Because it is not
20 demanding --

21 MS. UTTAL: It is information.

22 JUDGE ABRAMSON: It is not demanding
23 action or response.

24 MS. UTTAL: That's correct.

25 JUDGE ABRAMSON: Okay, thank you.

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1 MS. LAMPERT: Is it my turn?

2 JUDGE ABRAMSON: Sure.

3 CHAIR YOUNG: I think you wanted to add
4 something.

5 MS. LAMPERT: Oh, go ahead.

6 MS. MIZUNO: Counsel for Staff would like
7 to respond to a few things that Pilgrim Watch has
8 stated. But if you would like Pilgrim Watch to go
9 forward now, we could then respond to all of them at
10 once.

11 CHAIR YOUNG: Okay.

12 MS. MIZUNO: Perhaps that would be the
13 best.

14 CHAIR YOUNG: That's fine. I just thought
15 you might have something to add on this issue.

16 MS. MIZUNO: Thank you.

17 CHAIR YOUNG: Go ahead.

18 MS. LAMPERT: Yes, my point was that they
19 again made no requirements or required any responses
20 from the licensees in the notice. And then they made
21 suggestions such as the NRC expects but it certainly
22 didn't make the requirement that the licensee identify
23 conditions that are adverse to quality for cables,
24 such as long-term submergence in water.

25 Upon the discovery of submerged

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1 conditions, the licensees should, again no
2 requirement, take prompt corrective actions to restore
3 the environment. What are these prompt, corrective
4 actions? And if you read a few paragraphs before, you
5 would see where they said, oh but sometimes as soon as
6 they pump them out, if site conditions are such, those
7 manholes fill right back up. Hmm, tests. There are
8 no proven tests.

9 JUDGE ABRAMSON: Yes, we read your
10 pleadings on the point.

11 MS. LAMPERT: Etcetera, etcetera,
12 etcetera.

13 JUDGE ABRAMSON: Thank you.

14 MS. LAMPERT: So this is nothing of
15 substance. We are looking for something of substance
16 that will provide greater assurance.

17 And if business as usual is so great, then
18 why are they finding degraded cables? Why are they
19 finding trouble which they report in this information
20 notice again and again, reactor after reactor. So
21 that tells business as usual is not sufficient.

22 CHAIR YOUNG: Ms. Mizuno?

23 MS. MIZUNO: If I may. Thank you, Your
24 Honor.

25 There are a couple of points that I think

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1 need to be addressed and one very important unspoken
2 thought that puts the issue in context.

3 When a cable is submerged, that can result
4 in additional degradation and potential cable failure.
5 That is true. But what is also really important to
6 keep in mind is the fact that just because a cable is
7 submerged or just because it is exposed to a moist
8 environment does not mean that it will stop
9 functioning. It means instead that it is vulnerable
10 to potential aging affects that previously had not
11 been discussed. That is why GALL2, Rev. 2 has
12 additional -- changed from GALL1. That is why there
13 are those additional provisions in GALL2 for
14 inspection and for testing.

15 But it is important to understand
16 something that I think all the engineers take for
17 granted so they don't bother to tell the rest of us is
18 that just because a cable is wet, doesn't mean it is
19 going to fail. It doesn't mean it is going to fail.

20 The next point I would like to address is
21 the issue of the number of green findings that the NRC
22 staff produces, rather than say that those green
23 findings are evidence of lax regulation. I think it
24 shows the exact opposite, that the NRC inspectors are
25 doing a very good job. They are finding a lot of

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1 issues. They are finding issues that may not be very
2 big but they are finding them nevertheless and they
3 are documenting them and they are bringing them to the
4 floor. And that is why I think you see a lot of green
5 issues, green findings.

6 Thank you.

7 CHAIR YOUNG: Anything else on the new
8 contentions?

9 MR. LEWIS: One more point, Judge Young.

10 CHAIR YOUNG: All right.

11 MR. LEWIS: I don't know if you are
12 interested. You were curious before about
13 understanding the SAMA model. I actually do have a
14 segment of cable if you would like to see what cable
15 looks like. And this is actually cable that was
16 inaccessible in service exposed to water for almost 40
17 years. If you are at all interested to see what it
18 looks like, I can show you a piece.

19 MS. LAMPERT: I should have brought my
20 cables. The cables -- I actually do have cables.

21 JUDGE ABRAMSON: We are not talking that
22 sort of evidence today.

23 MR. LEWIS: Okay.

24 MS. LAMPERT: The point being to look at
25 a cable that is designed to be in a wet condition and

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1 see how it is constructed in a different manner than
2 cables that are not certified, you could just go to a
3 local hardware store and they will show you that.

4 (Laughter.)

5 JUDGE COLE: Ms. Mizuno, could you for the
6 record define what a green finding is, the
7 significance of green?

8 MS. LAMPERT: Money. It's the same color.

9 MS. MIZUNO: There are -- the -- sorry.
10 The Reactor Oversight Program, the ROP has a number of
11 different findings. A green finding is of little
12 safety significance or very low safety significance.
13 And then there are additional findings; white
14 findings, yellow findings, red findings, and they
15 increase in severity and, you know, potential
16 problems. But the green finding is the lowest safety
17 significance finding --

18 JUDGE COLE: Thank you.

19 MS. MIZUNO: -- that the Reactor
20 Oversight Program has.

21 CHAIR YOUNG: All right. Anything
22 further? All right. Let's see. It is 20 to 12:00.
23 Is everyone going to -- 12:30, 12:45?

24 JUDGE ABRAMSON: I vote for 12:30.

25 CHAIR YOUNG: 12:30?

1 JUDGE ABRAMSON: For those of you who have
2 been in hearings with me, you know I would go to 10:00
3 at night.

4 MS. LAMPERT: It depends on how fast they
5 are in serving. Doesn't it?

6 CHAIR YOUNG: Aim for 12:30 and do your
7 level best to get here at 12:30. If --

8 JUDGE ABRAMSON: I am going to close the
9 door at 12:30. Be here at 12:30.

10 (Laughter.)

11 (Whereupon, at 11:38 a.m. a lunch recess
12 was taken.)

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1 A F T E R N O O N S E S S I O N

2 (12:43 p.m.)

3 CHAIR YOUNG: All right. Starting now on
4 Contention 3 and really mainly clarification
5 questions. And then we will finish by allowing each
6 party a total of ten minutes to do closing.

7 One broad question I will start with and
8 it is just I noticed in Entergy's proposed findings --
9 there you are.

10 MR. LEWIS: Yes, I'm right here.

11 CHAIR YOUNG: In the conclusions of law,
12 I believe that you put the burden on yourself, which
13 is where we put it. And the Staff put the burden on
14 itself. And I assume that the reason for that is
15 because the NEPA, once the EIS is done, and this is
16 really directed at the lawyers, --

17 MR. HARRIS: Yes, Your Honor.

18 CHAIR YOUNG: The NEPA issues, once the
19 EIS is done is really directed at the Staff. Is that
20 why you did that?

21 MR. HARRIS: Yes, Your Honor.

22 CHAIR YOUNG: Okay.

23 MR. HARRIS: This is Brian Harris with the
24 Staff speaking, since I haven't spoken earlier. But
25 the NEPA is directed to the federal agency's action

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1 and its environmental review. Now the burden is on us
2 at that point. Safety issues are of course different
3 in terms of who bears the final burden.

4 CHAIR YOUNG: Okay. So, I just wanted to
5 clear that up and no one has anything further to say
6 on that.

7 I think in general, there is general case
8 law that puts the burden on the Applicant but I assume
9 that that is why you did that. And unless there is
10 any further clarification on that, we can move on to
11 other issues.

12 MS. LAMPERT: Well, Your Honor, I have
13 something to say.

14 CHAIR YOUNG: Oh, okay.

15 MS. LAMPERT: It appeared that the NRC
16 Staff were putting the burden on the Petitioner
17 because they concluded quite a few times in their
18 findings that Pilgrim Watch failed to prove that. And
19 that confused me, thinking that the burden of proof
20 was not, that they assumed was the Petitioners. So
21 thank you for that clarification.

22 CHAIR YOUNG: I think what they were
23 probably saying and how we would take it is that they
24 were saying that the Pilgrim Watch had some burden of
25 going forward and presenting something, to which they

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1 would then respond and have the ultimate burden of
2 persuasion. It is not a huge issue. I just wanted to
3 clarify that for the record.

4 So, did you have something that you wanted
5 to -- We don't have your -- Oh, there it is. Did you
6 want to do that first or I basically --

7 JUDGE ABRAMSON: Yes, I can do that now --

8 CHAIR YOUNG: Okay.

9 JUDGE ABRAMSON: -- because I think it
10 sets the stage for the rest of the discussion.

11 I am going to take you all back to your
12 first algebra class. Now this is something that
13 wasn't plead but I think can be read directly from the
14 pleadings. So let me just express something and see
15 if you are all in agreement with what I want to say
16 about it. And this is the relationship between the
17 damages that would need to be caused by, let's take
18 the sea breeze effect, first, and how big would those
19 damages need --

20 CHAIR YOUNG: Judge Abramson, hold on one
21 -- Are you able to get him? Good. Okay, never mind.

22 JUDGE ABRAMSON: How big would the damages
23 need to be from the sea breeze effect, in order to
24 make the next most costly SAMA cost-effective? And I
25 want to express that in terms of a formula and I have

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1 in mind doing that based on what we see in the facts.

2 So the first fact we would have to find is
3 how many days, what fraction of a year is the sea
4 breeze in effect. Okay? And we have testimony. I am
5 just going to put some hypothetical numbers on this
6 because what I am going to do is convert a word
7 problem into a formula, which you all know how to do,
8 I think.

9 MS. LAMPERT: No.

10 JUDGE ABRAMSON: Well surely you do. It
11 may have been a few years since you and I took
12 beginning algebra but it is where it starts. So let's
13 say it is in effect for 50 days and let's say that
14 each day it runs for eight hours, which would make it
15 a third of a day. So 50 thirds of a day would be the
16 number of days that it would be, that there would be
17 a sea breeze. This is just a hypothetical. These
18 aren't numbers but we could find numbers from the
19 testimony. And if you wanted to figure out what
20 fraction of a year that is, you just divide that by
21 365 days and you get a number that is something like
22 50 over 1000 or about 55 out of a 100. About five
23 percent. Okay?

24 Now let's say we don't know the damages
25 that the sea breeze would have to cause but we can

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1 make it an algebraic unknown, X. That is the damages
2 that the sea breeze would have to cause in order to
3 run the total cost up to twice what we had from the
4 original SAMA analysis. So that is the damages from
5 the sea breeze to cause the next one to be available.

6 And we know what the damages are from the
7 SAMA analysis. Pilgrim Watch has done that SAMA
8 analysis. They have a number. And while they didn't
9 use a number, let's just call that Y. Y is the
10 damages from all the other events, the average, the
11 mean damages, or the average damages which we had a
12 lot of discussion about and was the mean --

13 MS. LAMPERT: Dispute.

14 JUDGE ABRAMSON: Dispute. Okay. Now
15 let's say Y is the average damages that you get from
16 everything but the sea breeze. From everything else.
17 From all other meteorologic conditions is what I would
18 write. All right?

19 Now what is the formula? The formula is
20 five percent of the time you have got X. Ninety-five
21 percent of the time you have got Y. And it has got to
22 add up to twice Y. Right?

23 MS. LAMPERT: As Y the variable.

24 JUDGE ABRAMSON: Yes, just the meteorology
25 and just from the sea breeze.

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1 MS. LAMPERT: Yes.

2 JUDGE ABRAMSON: So $0.05X$ plus $0.95Y$ has
3 to equal $2Y$. Let me finish. Okay? I'm almost done.

4 MS. LAMPERT: Y.

5 JUDGE ABRAMSON: So solving for X , you get
6 $0.05X$ equals $1.05Y$ where X equals $21Y$. In other
7 words, the damages that you get during the sea breeze
8 effect in order to be big enough to bring the next
9 most costly SAMA into play would have to be
10 approximately 21 times the average that you got from
11 all the others. And that is all I wanted to do. I
12 wanted to set the stage. Obviously, 21 isn't the
13 threshold. Five percent isn't the exact number. But
14 I wanted to see if anybody has any difficulty with
15 this kind of an approach to looking at the problem.

16 MS. LAMPERT: I do.

17 JUDGE ABRAMSON: Okay. Which is?

18 MS. LAMPERT: Which is that the sea breeze
19 was not the only meteorological variable --

20 JUDGE ABRAMSON: Okay.

21 MS. LAMPERT: -- that we are talking
22 about.

23 JUDGE ABRAMSON: This is just how you deal
24 with this --

25 MS. LAMPERT: Then you are going to add

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1 them all up. And you also made an assumption, you had
2 to hit twice what they found to have significance and
3 we had a dispute that the way Kevin O'Kula came up
4 with that was using the same models that we found a
5 problem with. How do you get the two times?

6 JUDGE ABRAMSON: This is based on the data
7 we have in front of us. That's all.

8 MS. LAMPERT: Okay. Okay, so the question
9 is, is that valid.

10 JUDGE ABRAMSON: We haven't -- Yes. Yes.

11 MS. LAMPERT: Okay.

12 JUDGE ABRAMSON: I understand that.

13 MS. LAMPERT: Okay, we are together.

14 JUDGE ABRAMSON: Okay.

15 MR. LEWIS: One thing I would add, Judge
16 Abramson, --

17 JUDGE ABRAMSON: This is a linear
18 approximation, by the way, for some scientists in the
19 room.

20 MR. LEWIS: Is the Y average damages that
21 we felt was in the MACCS2 for the SAMA already include
22 sea breezes.

23 JUDGE ABRAMSON: I understand that.

24 MR. LEWIS: Okay.

25 JUDGE ABRAMSON: And there is a lot of

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1 parameters here. This assumes that the average, there
2 are a lot of things in this but it gives you an idea.
3 In fact, if you actually get the percentage, you will
4 probably find it is less than five percent from what
5 we have on data.

6 If you properly compute the formula within
7 that 0.95, you have 0.95 times Y with some adjustments
8 for other conditions, other mean conditions. And then
9 you put another variable for the other wind
10 conditions.

11 But it is the idea of translating the
12 question before us, which is how big does the effect
13 have to be for it to cause the next SAMA to become
14 important.

15 MS. LAMPERT: But isn't the question of
16 what is the proper model, a segmented straight line or
17 a variable model such as CALMET? And as you suggested
18 --

19 JUDGE ABRAMSON: That is the underlying
20 problem, yes.

21 MS. LAMPERT: Yes, the teleconference was
22 hey, we are on a boat and they didn't accept the
23 burden of proof and do that. That is the problem.

24 JUDGE ABRAMSON: That I understand but the
25 underlying problem is how accurate is the model. And

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1 what I am doing is saying we could also think of that
2 coming in the other door, which is how big does the
3 error in the model have to be before it can affect the
4 results of the SAMA analysis.

5 MR. LEWIS: And I would just add is the
6 issue is not whether there might be a better model or
7 a more accurate model, I mean, the Commission is very
8 clear in its remand in the March order and I am
9 quoting from CLI 10-11,37, "We conclude by emphasizing
10 that the issue here is whether the Pilgrim SAMA
11 analysis resulted in erroneous conclusions on the
12 SAMAs found to be cost beneficial. The question is
13 not whether there are plainly better atmospheric
14 dispersion model or whether the SAMA analysis can be
15 further refined. There is no NEPA requirement to use
16 the best scientific methodology."

17 And so Your Honors picked that up in how
18 you phrased this issue. Okay, the issue is whether or
19 not taking into account the concerns expressed by
20 Pilgrim Watch could make another SAMA cost-beneficial.

21 JUDGE ABRAMSON: And you are okay with
22 this as a formulaic way of addressing it.

23 MR. LEWIS: That is one way to address it.

24 JUDGE ABRAMSON: Okay.

25 MS. LAMPERT: Wait a minute. About this

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1 NEPA interpretation, the reality is that this is a
2 category 2 issue. You are required to do an
3 appropriate site-specific study. If bottom line, to
4 get back to basics, that a variable plume model is the
5 appropriate model for this particular site, it is not
6 like some fancy dancy thing that isn't out there and
7 is asking Entergy to go far beyond what would be
8 required. It is simply asking Entergy to do a model
9 that is appropriate for this site. That it is
10 available and you can do it.

11 You have had notice since 2006 for cripes'
12 sakes that this was a central issue. You could have
13 run a variable model to then compare and answer the
14 question, instead of all this maybe maybe.

15 MR. LEWIS: Two things --

16 JUDGE ABRAMSON: We understand that issue.
17 So I don't think we need to belabor it. I think Judge
18 Young probably has some more specific questions about
19 things, rather than having you two pander the issue.

20 MS. LAMPERT: He really is a nice guy.

21 JUDGE ABRAMSON: After the issue, --

22 CHAIR YOUNG: Really what I have done is
23 write questions as I have read the proposed findings
24 to get clarification. And some of these issues may be
25 relatively minor. Some may not. So I am just going

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1 to go through them. And the only rhyme or reason to
2 the order of them is that I am just there simply where
3 they come.

4 So one thing that I was just wanting
5 clarification on was I believe that Pilgrim Watch
6 raised some challenges about the distance that was
7 analyzed and the 50-mile radius was used in the SAMA
8 analysis and I was wondering if you could clarify for
9 me what the source of the 50-mile cutoff for the
10 distance analyzed, where that comes from.

11 MR. LEWIS: The source of that comes from
12 NRC precedent and practice that shows that the
13 consequences, basically, they drop off afterwards.

14 CHAIR YOUNG: I mean, is there a document?
15 In the same manner that I was asking, what is the
16 source of various inputs? Rather than saying it is
17 NRC practice, I am wondering is there a particular
18 document? Is there a particular rule, policy,
19 guidance document?

20 MR. LEWIS: Well, I will have Dr. O'Kula
21 address that.

22 CHAIR YOUNG: Okay.

23 MR. LEWIS: There is a guidance document
24 and he can address that.

25 CHAIR YOUNG: Okay.

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1 DR. O'KULA: Judge Young, the reference
2 that seems to have the most bearing on this would be
3 NUREG/BR-0058, revision 4, in terms of --

4 CHAIR YOUNG: Double 058 revision 4.
5 Okay.

6 MS. LAMPERT: And may I just underscore
7 practice? Practice. Practice, practice, practice.

8 CHAIR YOUNG: Well, let's let him finish
9 and then -- Okay. Go ahead.

10 DR. O'KULA: That specifies from a cost-
11 benefit decision making perspective which the SAMA, of
12 course, is the tool to decide that the SAMA analysis
13 is the appropriate tool to decide this. The 50-mile
14 distance is the radius that is applied.

15 CHAIR YOUNG: I know that in making
16 standing decisions there is this proximity presumption
17 that the lawyers will be probably more familiar with
18 that anyone who lives within a 50-mile radius of a
19 plant is presumed to have standing. And I am assuming
20 that maybe that comes from the same source or related
21 source. And I was just, frankly, wondering where
22 those came from, given that Pilgrim Watch had raised
23 some questions about the distance.

24 MR. HARRIS: I don't think that those
25 really come from the same source. I mean, it is not

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1 totally coincidence that they are the same number but
2 there is a long history of that proximity presumption,
3 in terms of a sliding scale for a while and then it
4 finally sort of settled on if you live within 50
5 miles, then you are presumed to have standing. And a
6 lot of that is that you are not -- The consequences
7 fall off rapidly the further away you get. And so
8 after that point, you need to show judicial standing
9 --

10 CHAIR YOUNG: Right.

11 MR. HARRIS: -- and injury-in-fact and
12 reducibility as opposed to it. So, it is I think more
13 coincidence that you have the same numbers.

14 CHAIR YOUNG: But the --

15 MR. HARRIS: Go ahead.

16 CHAIR YOUNG: Go ahead.

17 MR. HARRIS: Go ahead.

18 CHAIR YOUNG: Well the question is, what
19 is the source of the conclusion that consequences fall
20 off after the 50-mile because that has been stated as
21 the basis for both of them. So that is what I was
22 wondering. Is there --

23 MR. HARRIS: Well, I mean, the further
24 you travel, --

25 CHAIR YOUNG: Right but there seems to be

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1 a boundary line where someone sometime drew a
2 conclusion that after 50 miles, consequences fall off
3 significantly or to an extent that they are no longer
4 as significant.

5 MR. HARRIS: I mean and that goes back to
6 sort of that originally if you looked at the proximity
7 presumption, it was more of a sliding scale. So the
8 closer you were, you know, the more consequences. And
9 as you get a hundred miles, though, it could be you
10 could show some injury-in-fact. And you know, under
11 certain conditions that might be true in a real
12 accident, that you would see something travel that
13 far. But you have decay and things falling out so the
14 further you get, the less that can travel there.

15 CHAIR YOUNG: Right.

16 MR. HARRIS: So I mean, --

17 CHAIR YOUNG: No, I understand the
18 principle.

19 MR. HARRIS: -- I am not sure I am
20 answering your question.

21 CHAIR YOUNG: I understand the principle.
22 What I am just simply asking is, and you answered it
23 for the SAMA analysis, if any of the experts have any
24 other enlightenment on that, I would appreciate the
25 clarification from where it came from.

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1 I understand the principle. It is where
2 that was spoken to and you have given me the NUREG.
3 Is there anything else besides that?

4 DR. O'KULA: The other precedent for that
5 50-mile distance, again, it may be coincidental but in
6 case of long-term effects, the 50-mile distance is
7 also the ingestion planning zone region that is used
8 to interdict food stuffs, should they be contaminated,
9 to restrict dairy products. And that is typically the
10 distance that is applied to the ingestion planning
11 zone.

12 CHAIR YOUNG: Now where would that be
13 discussed or addressed, if you know?

14 MS. LAMPERT: You know where I go 654?
15 Number one. It is in the Emergency Planning Guidance.

16 CHAIR YOUNG: Do you agree?

17 DR. O'KULA: Yes.

18 CHAIR YOUNG: Okay.

19 MS. LAMPERT: Yes, but let me add to that,
20 let's add a little common sense in here. There is a
21 consistency of no real basis. And we can look at
22 Chernobyl. Now granted, that was a fire but the point
23 being that there was restriction and there remains a
24 restriction in the sheep in Wales.

25 CHAIR YOUNG: I really would -- Let's try

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1 to focus. I am really just asking simply
2 clarification questions, not to open up argument on
3 these things.

4 MS. LAMPERT: No, I am not trying to argue
5 but there is no regulation. And if you dig really
6 deeply, you don't get an answer of the lead shield is
7 at 10 miles for emergency planning, why the lead
8 shield is at 50 miles. Obviously the meteorologists
9 here and I wish Dr. Egan were here, could say, hey the
10 meteorology, how the winds blow, etcetera, etcetera,
11 and the terrain will make a difference on the
12 concentration of long-lived and dangerous
13 contaminants. But there is no lead shield.

14 CHAIR YOUNG: Okay, let's see. Each
15 accident in the SAMA analysis, I am assuming that it
16 includes a sort of duration. Getting back to another
17 aspect of this time question. It has a lot of
18 different characteristics, the most significant of
19 which appear to be the amount of what is contained in
20 any release. But I am assuming it would also have
21 some durations that are input into it. Is that right?
22 I'm looking at you but anybody else can answer.

23 DR. O'KULA: Yes, Judge Young, that is
24 correct. There is a finite duration of the release
25 and the source terms or the accident scenarios that

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1 are used in the SAMA analysis in this case come from
2 the Entergy work that was done for their PSA study,
3 their Probabilistic Safety Assessment study in
4 defining various --

5 CHAIR YOUNG: Is that similarly related to
6 the level one or no?

7 DR. O'KULA: The full PRA would be a level
8 one, two three-type PRA study and --

9 CHAIR YOUNG: And what is --

10 DR. O'KULA: -- accounts for initiating
11 events, the level one core melt frequency assessment
12 and then the containment response or the accident
13 progressions, assuming that you have different type of
14 initiating events leading to various breaches in from
15 the pressure vessel and then through the primary
16 cooling system into the containment and then,
17 ultimately, was released into the atmosphere.

18 CHAIR YOUNG: And the PSA comes where in
19 that? Or how is it related?

20 DR. O'KULA: The whole PSA study that was
21 performed for Pilgrim addresses from start to finish
22 initiating events, core melt progression, containment
23 response, and then release into the environment. And
24 the level three PRA, when all the first two phases
25 have been performed, accounts for the doses and the

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1 economic costs that result from those accidents that
2 are in the study, at the starting point in the PSA.

3 CHAIR YOUNG: Okay.

4 MS. LAMPERT: Could I ask a question?
5 Duration would also consider resuspension. And there
6 was a question on whether the code modeled
7 resuspension and also this ties a little bit back
8 before lunch that if the assumption before cleanup is
9 hosing down buildings and plowing under fields, which
10 is what it is, then the duration of the accident
11 considering that mode of cleanup really would be
12 forever. Wouldn't it? Because that is not cleaning
13 up. That is moving it. Just an interesting thought.

14 MR. LEWIS: Dr. O'Kula can describe how
15 resuspension is taking --

16 CHAIR YOUNG: Okay.

17 DR. O'KULA: Yes, so the duration of the
18 accident is only, at least the way I first responded
19 to it is how long does the release take place from the
20 plant. And of course, then we are modeling with the
21 ATMOS module in MACCS2. The plume behavior as it
22 moves away from the plant over that 50-mile grid. And
23 so the radioactive contaminants that have been
24 released from this under the accident scenario are
25 traveling in a plume with respect to the weather that

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1 is assumed concurrent with the release and traveling
2 downwind across the 50-mile grid.

3 And in modeling that behavior of the
4 plume, features of the plume phenomenology are taken
5 into account with respect to is it the wind speed, the
6 stability condition of the atmosphere, whether it is
7 light, neutral stability or various stable-type
8 conditions or highly unstable, the wind speed.

9 And so particulate matter in a plume is
10 suspended in a Code -- I'm sorry -- suspended in the
11 plume but then will fall out or deposit with distance.
12 And once it is on the ground, however, during plume
13 passage, it is allowed to be resuspended in the air or
14 modeled as that.

15 So yes, some of the particulates that are
16 characteristic of these accident scenarios, such as
17 cesium and strontium, they have finite mass and they
18 are essentially particulate matter. They are subject
19 to gravitation and interaction with the environment.
20 And they would deposit out as a function of plume
21 travel but again, if they are on the ground, they are
22 also exposed to ambient wind conditions. And so they
23 are able to be resuspended and put back up into the
24 plume so that the plume goes downwind until it gets
25 off the grid.

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1 And then as modeled by the analysis that
2 was done by Entergy, there is then a seven-day period
3 of time where what has been deposited on the ground is
4 allowed to be resuspended into the air and subject
5 exposed populations to additional dose.

6 MS. LAMPERT: The seven days is the key.

7 DR. O'KULA: And that is the early phase.

8 And now then we could talk about the long
9 aftermath with the parts of the accident timeline that
10 goes into cleanup and decontamination and that sort of
11 thing but that is after plume passage, once the plume
12 has passed over the grid.

13 CHAIR YOUNG: Back to the PSA for a
14 minute. Tell me how does the PSA relate to the SAMA
15 analysis?

16 DR. O'KULA: The guidance for what you
17 start with with a SAMA analysis in terms of the
18 accident scenarios indicate several sources. But the
19 most similar type or the most appropriate source of
20 accident scenarios to begin with are those severe
21 accidents that have been modeled in the sites plant-
22 specific PRA or PSA as often as caused the
23 Probabilistic Risk Assessment or probabilistic --
24 sometimes it is referred to as the probabilistic
25 safety assessment. But they are one and two --

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1 CHAIR YOUNG: And so I am sure if I go
2 back and read I could find this but I am trying to --
3 I think you just used the terms interchangeably, PRA
4 and PSA?

5 DR. O'KULA: And I should be consistent.
6 It is referred as the PSA in our documentation but it
7 is a probabilistic assessment of severe accidents; how
8 frequently they would occur and what their effects
9 would be should they occur.

10 CHAIR YOUNG: So it is overall.

11 DR. O'KULA: Yes.

12 CHAIR YOUNG: Okay.

13 MR. LEWIS: I would just add that in the
14 industry, PRA and PSA are used interchangeably.

15 CHAIR YOUNG: Okay.

16 MR. LEWIS: So it is really talking about
17 the same type of analysis.

18 CHAIR YOUNG: Okay, thanks.

19 MS. LAMPERT: And could you talk about
20 resuspension of material from on-site?

21 MR. LEWIS: Your Honor, we object to Ms.
22 Lampert asking questions.

23 MS. LAMPERT: Okay, I will -- What are
24 the rules?

25 CHAIR YOUNG: All right. Good point.

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1 When I ask a question, feel free to speak up. What I
2 would like you to do is, since you don't have your
3 expert here, is to the extent that you could actually
4 point to part of the expert, Dr. Egan's two statements
5 or any of the others, --

6 MS. LAMPERT: Okay.

7 CHAIR YOUNG: -- that would be helpful.

8 MS. LAMPERT: My reference with the
9 guidance MACCS2 Code, user code that says --

10 CHAIR YOUNG: And that is one of your
11 exhibits.

12 MS. LAMPERT: -- the resuspension of
13 material is not modeled. This, you know, goes way
14 back that it is not modeled from on-site. I was just
15 making a clarification. We are trying to find out
16 what the deal is, what proper answers to these
17 questions.

18 CHAIR YOUNG: Now, on-site. You say on-
19 site. And I understand from what I have read that on-
20 site is on the plant site, basically.

21 MS. LAMPERT: Yes, it is.

22 CHAIR YOUNG: And offsite is beyond.

23 MS. LAMPERT: Exactly.

24 CHAIR YOUNG: So you are saying because it
25 is not modeled on-site, it doesn't take into account

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1 --

2 MS. LAMPERT: Well if the wind blows,
3 let's be real. It is going to blow offsite.

4 CHAIR YOUNG: Okay.

5 MS. LAMPERT: And so the contamination, if
6 they are talking about you get a big bang close to
7 where it occurred, so you are going to have a lot of
8 contamination on-site. So the question is, is it --
9 When the wind blows, it is going to go offsite. Is
10 that accounted for? The Code says no.

11 CHAIR YOUNG: Is that accounted for and if
12 so, how?

13 DR. O'KULA: The Code addresses release
14 from the reactor site at the elevation that is
15 specified and then all the attributes of the
16 atmosphere in terms of transporting and dispersing the
17 plume are taken into effect.

18 The note about dispersion close to the
19 point of release was added to the guide to note that
20 in the near field, in the close-up part of the
21 calculation, there may be building effects that come
22 into play. And so any of the numbers or the
23 attributes of the Gaussian model very close to this
24 point of release could be affected in the precision of
25 the answer by if the analysis correctly accounts for

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1 auxiliary building, reactor building, shapes, any kind
2 of wake effects or the wind passing around and over
3 and structures that may be part of the site premises
4 where the accidental release is first occurring.

5 CHAIR YOUNG: So --

6 DR. O'KULA: So, it is just the statement
7 written in the guide for DOE applications was that if
8 you are using this analysis for downwind dose
9 calculations to an individual, again, must different
10 from a SAMA-type analysis, that the analysis close in
11 to the point of release may be less accurate than once
12 the plume is well-formed at 100 meters or roughly
13 between 100 meters and 500 meters and then going
14 across the full range of the grid.

15 Having said that, all attributes of the
16 atmosphere and the plume characteristics are present
17 in the model from the start of the release. And so
18 they will be accounted for close in, as well as in the
19 30, 40, 50-mile region.

20 CHAIR YOUNG: Let me see if I understand.

21 You are saying that basically all of the
22 release is assumed to go offsite. Is that what you
23 are getting at?

24 DR. O'KULA: Yes, it does. It does go
25 offsite.

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1 CHAIR YOUNG: Okay, so you are saying that
2 therefore the issue of resuspension of anything on-
3 site wouldn't add to it because you have already
4 assumed that all of it has gone offsite. Is that what
5 basically you are saying?

6 DR. O'KULA: In terms of resuspension,
7 once the plume has passed from the time it touches
8 down if it is released at some elevation and then has
9 broadened with the atmosphere and has broadened and
10 eventually touches ground, at that point, there is
11 deposition from particulate behavior material, as well
12 as other things are being transported in a plume like
13 the noble gases and things that don't have particulate
14 nature to them. But all of that is accounted for from
15 the instant the plume is released.

16 JUDGE ABRAMSON: Dr. O'Kula, let me follow
17 this up for just a second.

18 CHAIR YOUNG: Just let me see if I
19 understand.

20 MS. LAMPERT: This is ridiculous.

21 CHAIR YOUNG: So in other words, there is
22 nothing in the model that is used in the SAMA
23 analysis, since it is all presumed to go offsite,
24 there is nothing that remains on-site that could be
25 taken into account in the argument that it could be

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1 resuspended. Does that make sense? Is that what you
2 are saying? Am I understanding that right?

3 DR. O'KULA: No, I am not saying it --

4 CHAIR YOUNG: I know you are not saying it
5 like that --

6 DR. O'KULA: Clearly.

7 CHAIR YOUNG: -- but does that get to it?

8 DR. O'KULA: But if some of the plume is
9 depositing as early as 50 meters, 60 meters, 100
10 meters and it is on the ground, it is still able to be
11 resuspended and put back into the plume, as a function
12 of the time remaining before the seven days is over.

13 So yes, it is subject to the same physical
14 mechanisms at 100 meters as if the same mechanisms
15 that are present at one mile, 20 miles, 50 miles.

16 CHAIR YOUNG: What I am trying to
17 understand is, I thought you said that in all the
18 accidents, the complete release is presumed to go
19 offsite, for purposes of the analysis.

20 DR. O'KULA: Correct.

21 CHAIR YOUNG: Not that that is what really
22 would happen but for purposes of the SAMA analysis, it
23 is presumed to go offsite.

24 DR. O'KULA: Yes. Mass is conserved.

25 CHAIR YOUNG: Okay.

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1 JUDGE ABRAMSON: So does that mean that
2 there is no permanent deposition inside the site
3 boundary or just that if it hit inside the site
4 boundary it could be resuspended? I mean, that is
5 what I think we are asking.

6 MS. LAMPERT: Exactly.

7 DR. O'KULA: Okay, it is a time window.
8 So some of it would definitely stay there over a
9 period of time.

10 JUDGE ABRAMSON: Inside the site boundary.

11 DR. O'KULA: Inside the site boundary.

12 JUDGE ABRAMSON: Okay, thank you. That is
13 what I think was being questioned.

14 CHAIR YOUNG: Okay.

15 DR. O'KULA: And subject to resuspension.
16 The longer I keep my stopwatch on for that time
17 period, it would be subject to resuspension but it is
18 only a fraction of what is deposited.

19 CHAIR YOUNG: Okay, I am really probably
20 --

21 DR. O'KULA: So some would still stay
22 there. Some would still stay there.

23 CHAIR YOUNG: I am probably at a level
24 really below everybody else here on this. But when
25 you say the entire release is presumed to go offsite,

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1 --

2 MR. LEWIS: No, he didn't say that.

3 CHAIR YOUNG: I thought you said that.

4 DR. O'KULA: The entire release leaves the
5 reactor boundary.

6 CHAIR YOUNG: Okay. So when I said the
7 entire release is presumed to go offsite, I was saying
8 that to ask is that a conservatism that is built-in?
9 In other words, rather than assume that some of the
10 release will deposit inside the plant boundary, not
11 just the containment but the plant boundary, I was
12 asking is it presumed that the entire release goes
13 offsite. That means totally away so that there would
14 be nothing left on-site?

15 MS. LAMPERT: Of course there would. I
16 mean, you don't have to clean up after an accident --

17 CHAIR YOUNG: Okay, I am just trying to
18 understand. I am not trying to open up an argument.
19 I am trying to understand what the SAMA analysis
20 presumes about any deposition on the site of the plant
21 and I am not understanding. I am hearing two
22 different things.

23 So I am just trying to understand what the
24 SAMA analysis presumes in terms of whether any of the
25 release, whether any of the things released stay on

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1 the plant site, on-site. And if so, whether as Ms.
2 Lampert is arguing, it then does not take account, the
3 analysis does not take into account any resuspension
4 of anything that is left on-site.

5 DR. O'KULA: I think I understand now.

6 CHAIR YOUNG: Okay. Does that make --

7 DR. O'KULA: A fraction, perhaps one or
8 two percent, may deposit on the plant site.

9 CHAIR YOUNG: Okay.

10 JUDGE ABRAMSON: And some of that may be
11 picked up.

12 DR. O'KULA: Some of that may be picked up
13 and re-transported under resuspension.

14 CHAIR YOUNG: And so what you are saying
15 is, the SAMA analysis does not take that into account
16 but it is such a small fraction that it would not make
17 any difference. Is that what you are saying?

18 DR. O'KULA: It turns out to be a very
19 small fraction, given the site, the way the site
20 boundary is about a third of a mile. But it is a tiny
21 fraction and it is still subject to resuspension over
22 time.

23 And it does take into account
24 resuspension.

25 CHAIR YOUNG: Okay, so you are saying the

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1 SAMA analysis does take into account resuspension of
2 deposition on-site.

3 DR. O'KULA: Correctly stated.

4 MS. LAMPERT: For seven days or how many
5 days?

6 DR. O'KULA: For that seven day period.

7 CHAIR YOUNG: For seven days. And so what

8 --

9 MS. LAMPERT: The wind better not blow in
10 eight days.

11 CHAIR YOUNG: What you are challenging is
12 the fact that it does not take that into account after
13 the seven days.

14 MS. LAMPERT: Yes.

15 CHAIR YOUNG: Okay. Not to open argument.

16 MS. LAMPERT: No.

17 CHAIR YOUNG: I am just trying to
18 understand now.

19 MR. HARRIS: Judge Young, --

20 CHAIR YOUNG: Yes?

21 MR. HARRIS: -- at least from my
22 understanding, it also takes into account resuspension
23 from that seven days through that 30 years. So,
24 subject to --

25 CHAIR YOUNG: Resuspension within the

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1 site?

2 MR. HARRIS: Within the site.

3 CHAIR YOUNG: Okay, which is it? Can you
4 get clarification?

5 MR. HARRIS: It is both.

6 DR. O'KULA: Correct. Both the acute
7 phase and the long-term phase.

8 CHAIR YOUNG: Okay. So, the SAMA analysis
9 does take into account resuspension in the initial
10 seven days and thereafter in the long-term CHRONC-
11 type, C-H-R-O-N-C, part of the analysis.

12 DR. O'KULA: Correct.

13 CHAIR YOUNG: Okay. So --

14 JUDGE ABRAMSON: That is an interesting
15 question. What meteorology do you assume for the
16 long-term phase?

17 MS. LAMPERT: I was just going to ask
18 that.

19 JUDGE ABRAMSON: That's okay. I am
20 allowed to ask. You are not.

21 (Laughter.)

22 JUDGE ABRAMSON: What meteorology is
23 assumed, Dr. O'Kula?

24 DR. O'KULA: Dr. Abramson, in the long-
25 term phase, it is purely a scaling of multiplying

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1 factors. There is no meteorology. It is in the
2 region that we were talking about this morning, the
3 sector. If that has been contaminated by
4 radioactivity, then it is just a time-weighted factor.

5 JUDGE ABRAMSON: Do you make some
6 assumption about what would be added to the deposition
7 over time?

8 DR. O'KULA: Just over a period of time,
9 without any meteorology assumed but just a general
10 level of resuspended activity from ambient conditions,
11 ambient wind conditions --

12 CHAIR YOUNG: That could add to the --

13 JUDGE ABRAMSON: But there is some
14 scientific basis for that assumption for the numbers
15 you used?

16 DR. O'KULA: Yes.

17 JUDGE ABRAMSON: Okay.

18 MR. HARRIS: Judge Abramson, Dr. Bixler
19 may be able to add a little bit.

20 CHAIR YOUNG: Let me just clarify one
21 thing. So you are saying that for each segment you
22 assume that there could be resuspension from elsewhere
23 that could add to the amount for that segment and it
24 that it could -- that doesn't necessarily account from
25 another segment, but that the total, in effect, could

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1 be increased as a result of that.

2 MR. HARRIS: Dr. Bixler could respond to
3 that directly.

4 CHAIR YOUNG: Okay.

5 DR. O'KULA: My understanding is that it
6 is only from, in the long-term phase, in the CHRONC
7 phase, it would only be from that sector itself.

8 CHAIR YOUNG: Oh, from the sector. Okay.

9 JUDGE ABRAMSON: Dr. Bixler, let's hear
10 it.

11 DR. BIXLER: Okay. The model is a simple
12 empirical one that is based on some data from the
13 Nevada test site. And in that sense, it tends to be
14 pretty conservative because, as you can imagine, it is
15 a very dry, dusty kind of area where resuspension
16 occurs more readily than it would in a more moist area
17 like the east coast.

18 But the model does continue on for the
19 entire 30 years as was already stated. And it is a
20 local model where whatever is deposited on the ground,
21 that much is assumed to be suspended in the atmosphere
22 or a fraction of what is on the ground is assumed to
23 be suspended in the atmosphere, based on an empirical
24 model.

25 JUDGE ABRAMSON: And re-transported to

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1 somewhere else?

2 DR. BIXLER: No.

3 JUDGE ABRAMSON: What happens to it?

4 DR. BIXLER: It is local. It stays local.

5 JUDGE ABRAMSON: So it goes up and is in
6 the air but it never gets back down on the ground?

7 DR. BIXLER: It would come back down on
8 the ground but it wouldn't move across the space.

9 JUDGE ABRAMSON: So basically the
10 aggregate amount of radioactive byproduct in a
11 particular sector stays constant. It is just a
12 question of whether it is on the ground or in the air.

13 DR. BIXLER: Yes, that's right. It
14 potentially could decay but it doesn't move to another
15 place.

16 JUDGE ABRAMSON: All right. I understand
17 the model. That's all I want to understand.

18 MS. LAMPERT: Okay, may I make a comment
19 on that?

20 CHAIR YOUNG: Okay, hold on.

21 MS. LAMPERT: It is an important one.

22 CHAIR YOUNG: Hold on. Hold on, Ms.
23 Lampert.

24 Okay, so I am trying to clarify this
25 issue. And the issue is whether anything that was

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1 deposited on the plant site is taken into account in
2 the manner of it being resuspended and then deposited
3 somewhere, transported and deposited into an offsite
4 segment.

5 And I think I hear you saying at this
6 point no, that is not done.

7 JUDGE ABRAMSON: Not after seven days.
8 Right?

9 DR. BIXLER: No, it is not done. It is a
10 local model and as Dr. O'Kula said, what deposits on
11 the site, it may be a trivial or a very small fraction
12 of the overall release anyway. But --

13 CHAIR YOUNG: So that is the basic answer
14 to the concern is that it is a trivial amount.

15 MS. LAMPERT: Okay.

16 DR. BIXLER: Okay, did I fully answer your
17 question on that?

18 CHAIR YOUNG: I think I understand at this
19 point. I think what the challenge is is that the
20 model doesn't take into account resuspension of
21 deposits on-site moving offsite and being deposited.
22 And I think you are saying that is correct --

23 DR. BIXLER: That is correct.

24 CHAIR YOUNG: -- but the amount is a small
25 fraction that would not be significant. Do you have

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1 any percentage amount?

2 DR. BIXLER: It would depend on the
3 specific incidents and how high the plume is lofted.
4 The larger releases tend to have more energy and so
5 they would be lofted, usually hundreds of meters into
6 the atmosphere. And so in those cases, the larger
7 releases would tend to have very little deposition on-
8 site. The very small ones would tend to have a larger
9 fraction on-site.

10 CHAIR YOUNG: Do you have a range? I
11 mean, just a ballpark figure?

12 DR. BIXLER: No, that is not something I
13 have ever specifically looked at.

14 JUDGE ABRAMSON: Would you say the larger
15 releases dominate the damages?

16 DR. BIXLER: Yes, I would say that. And
17 it would depend, the answer to your question would
18 depend on how far away the site boundary is from the
19 actual point of release. It would depend on the
20 amount of energy in the release. Those two things
21 would be essential to be able to answer the question.

22 CHAIR YOUNG: Okay.

23 JUDGE COLE: Does this require any
24 knowledge of the settlement characteristics of density
25 and size of the particles involved?

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1 DR. BIXLER: Yes, that would also play a
2 role. Yes, you are right about that, yes.

3 JUDGE COLE: So how important is that in
4 making these transport in making these transport and
5 deposition decisions?

6 DR. BIXLER: The density -- What actually
7 goes into the model is a deposition velocity. And --

8 JUDGE COLE: So you have to know something
9 about the radionuclides in the incident and what their
10 settlement characteristics are and size.

11 DR. BIXLER: That's right.

12 JUDGE COLE: And depending on the kind of
13 accident, you might get more deposition closer or
14 further out or the size of the accident?

15 DR. BIXLER: 3 Yes, the aerosol sizes tend
16 to be fairly similar from one accident to another. It
17 is more the quantity of things that are released that
18 are variant from one accident to another than the
19 size.

20 JUDGE COLE: All right. Thank you.

21 DR. O'KULA: As a maximum case, we did a
22 sensitivity study to figure that, just what at best in
23 a worst-case scenario in terms of the characteristics
24 of the release, how much would deposit on-site. And
25 at the most, we saw two percent.

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1 CHAIR YOUNG: Okay, thank you.

2 MS. LAMPERT: Can I just add a comment?
3 Dr. Bixler was talking about that it was conservative
4 based upon doing a test out in the desert. Why would
5 that be conservative for here? Because in a desert,
6 as you saw in the Molenkamp reference, the winds are
7 more likely to blow in a straight line, unlike what
8 would happen here. So it would be a different
9 situation. And I am referencing, I would reference
10 the conservatism to Dr. Egan's statement.

11 CHAIR YOUNG: Okay. Yes, let's try to
12 keep it to that because we are going to give you a
13 chance to do closing arguments. And right now, we are
14 just trying to clarify things.

15 MS. LAMPERT: I'm just trying to be
16 helpful.

17 CHAIR YOUNG: Okay, thank you.

18 The PSA, that is where you determined the
19 accident scenarios and I assume that that is also
20 where the frequency of occurrence would come from.
21 And that is based on information on the probability
22 that is obtained from where?

23 DR. O'KULA: Okay. Again, that is a
24 question or that it reference back to the PSA
25 discussion, which looks at what type of internal

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1 events could occur; what type of internal severe
2 accidents could occur; what their frequency is. So,
3 this is in the realm of doing the fault tree and other
4 type of --

5 CHAIR YOUNG: So it goes all the way down
6 to pieces of equipment and equipment failure at the
7 smallest level.

8 DR. O'KULA: Combining not only the
9 initiating event but when the engineering safety
10 features are challenged by the severe accidents, do
11 they fail, do they work. You know, how likely are
12 they to be able to run or operate? So all that is
13 factored into the level one and level two PRA -- PSA
14 work.

15 CHAIR YOUNG: Okay, thanks.

16 Dr. Hanna, you did the analyses using the
17 CALMET and I think there has been a challenge to
18 whether that adequately provides the same kind of
19 information that other models that Pilgrim Watch has
20 brought up would provide.

21 Are you familiar enough with Pilgrim
22 Watch's challenges that you can sort of explain the
23 differences between what you did and what could be
24 provided by the other models?

25 Now I do understand that one of the main

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1 issues is that a lot of the models that Pilgrim Watch
2 and its experts have suggested are, Entergy is saying
3 and I think the staff is saying, that those models are
4 very useful for immediate emergency planning and
5 planning for environmental purposes but that the SAMA
6 analysis, because it looks at cost benefit, doesn't
7 require that level of specificity. And the accuracy
8 is equaled by using the segmented process.

9 But I wanted to get just a little bit more
10 from what all the parties have to offer on the
11 differences and whether, as Pilgrim Watch is
12 suggesting, using a more refined model could actually
13 make a difference in the ultimate cost-benefit
14 analysis. I think that you and Dr. O'Kula both said
15 it was highly unlikely that it would make any
16 difference, if I am remembering that right.

17 Does my question make sense? It was sort
18 of long.

19 DR. HANNA: Yes, Judge Young, I believe I
20 can follow it. There have been a number of models
21 that have been suggested and I tend to call a
22 meteorological model one that just gives you the wind
23 fields and stabilities and so on. Then they are
24 linked with a transport and dispersion model that
25 gives you the concentrations and depositions. I

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1 believe you are talking about both of those types of
2 models.

3 CHAIR YOUNG: Yes, and I didn't really
4 specify between them. Right. I guess to the extent
5 that you can, what I am looking for is a little bit
6 greater understanding of why it is highly unlikely
7 that using a more nuanced model that takes into
8 account changes in wind direction and so forth, would
9 not produce differences in the ultimate outcome.

10 DR. HANNA: Yes, I see. Well, the major
11 question that I addressed in my report on analysis of
12 wind rose and CALMET trajectories was the question of
13 the wind variability and whether if you did account
14 for all the local observations for a whole year, for
15 every hour, whether you would get a significantly
16 different result in the trajectories of plumes, as
17 they are being moved around the domain. So there was
18 the purpose of that. Because the current SAMA
19 analysis is using the Pilgrim wind information from
20 the 33-foot level and then assuming that for all the
21 various hours of the year.

22 So, it looked to me like one of the major
23 question is what would happen if you did use all of
24 these additional wind observations. So that is what
25 we did. And we looked around for various capabilities

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1 that different agencies had for determining the wind
2 fields. And every agency has two or three different
3 models, although they are similar to each other for
4 addressing this.

5 CHAIR YOUNG: Can I interrupt you for one
6 second? For determining the wind fields, just a
7 simple explanation of is the wind field the whole area
8 where a particular, where it could go, instead of
9 going straight, it could go in one or more different
10 directions. The wind field is --

11 DR. HANNA: Yes, I guess I am sort of, I
12 should have been more clear on that. What we are
13 trying to do is for each hour, and that is the time
14 period that the observations are available for several
15 stations around there for each hour, then you
16 determine a wind field which varies in distance across
17 the whole 50-mile radius domain and also varies in
18 height.

19 JUDGE ABRAMSON: By that you mean a
20 velocity and a direction for every point in this grid
21 that occupies the 50-mile?

22 DR. HANNA: That's correct.

23 JUDGE ABRAMSON: Thank you.

24 DR. HANNA: A speed and a direction for
25 ever point within this three-dimensional grid. And it

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1 varies hour-by-hour for the year. And we used 2001
2 because that is the year that was used for the SAMA
3 analysis.

4 So in order to address that, when I first
5 checked around different agencies about the existing
6 wind field models, as I described. And we also needed
7 a capability to calculate trajectories in order to
8 follow these hypothetical plumes around. So for
9 example, you would assume a parcel of air was released
10 at the Pilgrim station on a certain hour and then it
11 would move in a certain direction. And the next hour,
12 you would have the parcel of air would be out here
13 some other place and would be influenced by whatever
14 the winds were at that place at that time and so on.
15 So we need to follow it around, just like you are
16 following a balloon moving through the wind field and
17 determine where it passed over different distances, 10
18 kilometer, 20 kilometer, and out to 50 kilometer arcs.

19 CHAIR YOUNG: Art?

20 DR. HANNA: Well circles.

21 CHAIR YOUNG: Arc, A-R-C.

22 DR. HANNA: A-R-C, yes.

23 CHAIR YOUNG: Okay, thanks.

24 DR. HANNA: So one of the candidates was
25 the National Oceanic and Atmospheric Administration's

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1 HYSPLIT model.

2 CHAIR YOUNG: Ice?

3 DR. HANNA: H-Y-S-P-L-I-T. And that is
4 the group in Silver Spring with the Air Resources Lab.
5 This trajectory model is widely used but
6 unfortunately, it doesn't lend itself to calculating
7 the wind fields every hour on an easy basis.

8 So we then looked at the CALMET model,
9 which is the wind field model that the EPA has that it
10 uses to provide wind speeds and directions to its
11 CALPUFF dispersion model and I talked with the people
12 who had developed that and they said well it doesn't
13 really calculate trajectories for a whole year on an
14 easy basis.

15 So we decided to write our own software to
16 calculate the trajectories because it is pretty
17 straightforward. You just follow the parcel around
18 and that is how we ended up with this CALMET model.
19 And what that uses is the available surface wind
20 stations in the area. You know, like Taunton,
21 Plymouth Municipal Airport, all the small and large
22 airport sites. And to be useful, they have to have
23 data for most hours of the year so that it restricts
24 it. I think there was about 26 total and it included
25 some over water buoys data that are available.

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1 And you also need the vertical wind
2 structure in order to extrapolate from the surface
3 upward. And from that, you use balloons, radiosonde
4 balloons that are set up twice a day at Chatham,
5 Massachusetts is the nearest one. And the next
6 nearest one after that is Gray, Maine. So we have got
7 both of those vertical balloon data and then the
8 surface data and just followed standard procedures for
9 building these wind speed and direction fields for
10 every hour.

11 Then we calculated trajectories of each of
12 these hypothetical parcels released every hour. And
13 sometimes it took the parcel a few hours to make it
14 out to the 50-mile boundary radius. And wherever the
15 parcels crossed, one of these 20, 30, 40, 50-mile
16 circles, we noted what direction it passed. You know,
17 did it pass along the north sector, the northeast
18 sector or whatever?

19 And after we got done with that, for every
20 hour of the year we just tallied up the fraction of
21 time the trajectories passed over the different
22 locations. And if there was some persistent
23 significant curvature effect going on, this would show
24 up, supposing the winds, most them would go off shore
25 and then curl around and come back and go over to the

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1 Boston area. Or the opposite thing, they might curl
2 away from it. So that is what this addresses is the
3 question that was brought up by Pilgrim Watch about
4 the variable winds and possible curvatures of the
5 trajectories.

6 And we then looked at the annual winds.
7 And the reason we looked at annual is because the SAMA
8 deals with the total annual period, not just hour-by-
9 hour.

10 CHAIR YOUNG: Let me just interject there.
11 If you can't answer it and somebody else has to, we
12 can just move on. But another challenge has been
13 raised to using one year instead of five years. Do
14 you know anything about why the one year was used as
15 opposed to five years, for example?

16 CHAIR YOUNG: If you don't, just say that.

17 DR. HANNA: Well I believe the one year is
18 the standard but Dr. O'Kula and --

19 CHAIR YOUNG: We can come back to that.

20 DR. HANNA: -- Dr. Bixler could answer
21 that.

22 CHAIR YOUNG: We can come back to that.

23 DR. HANNA: Yes, so what we then compared
24 was the wind rose that is used at the Pilgrim site and
25 it is like a petal-shaped rose, it is in the report,

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1 and tells you the fraction of time the wind is blowing
2 and the different sectors. We compared that from the
3 33-foot level at the Pilgrim station to the trajectory
4 calculated rose in order to see if there was any major
5 differences. And as it turned out, there were a few
6 minor differences, you know, two percent different
7 here or there, different sectors. But in general they
8 were about the same and, therefore, there was not a
9 significant effect on an annual basis of accounting
10 for the observed winds and how they vary in time and
11 space.

12 CHAIR YOUNG: So if you know this answer;
13 if you don't, don't. Did this lead you to any
14 conclusions about the amount of deposition that would
15 end up or be in the different segments of the wind
16 rose or the whole picture? And one of the arguments
17 is that by not taking into account some of these
18 variations, it could under estimate the amount of
19 deposition that could end up in more populated areas,
20 for example. Is that part of the analysis you did,
21 whether it would affect that or was yours limited to
22 just the wind and the deposition is a separate matter?

23 DR. HANNA: Well the analysis I have
24 described was limited to the wind analysis. However,
25 from my experience in looking at concentration and

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1 deposition patterns, they tend to follow the wind
2 rose. And it is, I guess, common sense that the
3 direction where the wind blows most often is where you
4 have the highest concentrations, and vice versa. So
5 it tends to follow the wind rose patterns.

6 JUDGE ABRAMSON: And from your studies,
7 did you find material differences from what was
8 computed in the SAMA Gaussian models?

9 DR. HANNA: Well we did a further
10 analyses, looking at the weighting by the population
11 and that is, Dr. O'Kula did that aspect of it. We
12 took the wind rose and then waited it by the
13 population and you get differences of two or three
14 percent in different sectors. And there is not a --

15 JUDGE ABRAMSON: Differences between what
16 was computed using the Gaussian Plume Model that is in
17 SAMA and what was computed using the detailed data?
18 Is that what you --

19 DR. HANNA: We did not go all the way to
20 doing the model calculation with the different wind
21 information.

22 JUDGE ABRAMSON: So what can we conclude
23 from your examination of using a variety, a number of
24 sources of data, rather than the one source of data?
25 What is the conclusion? How big is the area or is

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1 there none?

2 DR. HANNA: We can conclude, well I don't
3 know whether it is an error or not.

4 JUDGE ABRAMSON: Okay, how big is the
5 difference?

6 DR. HANNA: The difference is on the order
7 of a few percent.

8 JUDGE ABRAMSON: Okay, thank you. That to
9 me is the meat of it.

10 MS. LAMPERT: My one comment and the
11 reference would be Dr. Egan's two statements, and also
12 Dr. Spengler's. So those are the three and DOE is
13 fourth.

14 There seems like the major difference
15 between the CALMET and the CALPUFF-type model is that
16 the CALMET does not change direction. And that was
17 Dr. Egan's major problem. That here because of its
18 coastal location, because of the topography not being
19 a flat, plain area like Kansas, that it was
20 inappropriate.

21 And the information that Entergy asked of
22 their expert did not address properly the core
23 question.

24 CHAIR YOUNG: Did the CALMET not address
25 the --

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1 MS. LAMPERT: -- change in direction.

2 CHAIR YOUNG: -- wind changes? The
3 changes in direction.

4 DR. HANNA: It did address the changes in
5 direction.

6 CHAIR YOUNG: That's what I thought.

7 DR. HANNA: It is following the
8 trajectory. So whatever the local wind is, the
9 trajectory is going to blow that way.

10 JUDGE ABRAMSON: You took the wind pattern
11 hour-by-hour, moved the particles for the hour, looked
12 to see what the wind was in the next spot, moved it in
13 the direction of that and at that speed, and moved it
14 around like a particle and cell process. Is that
15 right?

16 MS. LAMPERT: I would direct you to the
17 findings of fact that go specifically to the testimony
18 provided, which says specifically that the model,
19 segmented plume model, I forgot what page it was, does
20 not change direction.

21 JUDGE ABRAMSON: We will look.

22 CHAIR YOUNG: I think that --

23 MS. LAMPERT: Okay? So that is the point.
24 And as Dr. Egan pointed out and I wish he had been
25 paid to come here today, I didn't understand that you

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1 were going to be here, and you guys are friends anyway

2 --

3 MR. LEWIS: Your Honor?

4 MS. LAMPERT: -- that he would say very
5 specifically that this did not model appropriately
6 what was done and it is in the statement.

7 JUDGE ABRAMSON: We understand your
8 position.

9 MS. LAMPERT: Okay, that is the point.

10 MR. LEWIS: Your Honor, I just want to
11 make clear she is talking about MACCS2. The claims
12 that are pretty interesting about MACCS2 and the
13 CALMET trajectory directly addresses those claims and
14 the CALMET model is the model used by EPA. It is the
15 three-dimensional wind field model that is used to
16 generate the wind fields that CALPUFF uses.

17 MS. LAMPERT: You don't take the second
18 step.

19 MR. LEWIS: And it takes into account all
20 the variation in winds. And that is all in Dr.
21 Hanna's report.

22 CHAIR YOUNG: Well and we will --

23 MS. LAMPERT: It's not.

24 JUDGE ABRAMSON: We will look at the
25 expert reports.

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1 CHAIR YOUNG: We will look at it.

2 Another area of clarification that I would
3 like to ask a couple of questions about and that has
4 to do with two things and I don't know how much they
5 are related. But one is the precipitation and one is
6 the air mass, ozone layer mass or pollution air mass.

7 I believe that there was discussion of
8 precipitation in terms of rain and drizzle or fog. I
9 didn't know whether snow was covered. And I will just
10 ask all of my questions at once. So whoever knows the
11 answer can respond.

12 And then on the ozone air mass, I know
13 there was testimony about that behaves differently
14 than wind carrying sources of radiation. But I used
15 to live in Nashville, Tennessee and it sort of a bowl.
16 And you can see coming in from outside Nashville,
17 which I used to do every morning, the bowl would sort
18 of collect a big collection of smog.

19 So the question is, in these wind
20 trajectories or wind, can the plume of radiation or
21 whatever it carries that produces radiation, ever get
22 caught up in one of those air masses?

23 I understand that the testimony is that
24 they behave differently. Is there any -- Can they
25 ever interact? And to what extent and to what effect,

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1 I guess is the question.

2 DR. HANNA: Well both types of plumes are
3 disbursing in the same atmosphere. So the winds are
4 the same. The stabilities are the same and so on. So
5 they are affected by the same basic atmosphere.

6 But the difference is, to think of your
7 discussion on Nashville, is that it is a broad air
8 mass that is filled with a lot of pollution coming
9 from traffic --

10 CHAIR YOUNG: Right.

11 DR. HANNA: -- and power plants and
12 industries, and so on. So it is a combined plume and
13 that is what the ozone plume is that was studied by
14 Angevine and his colleagues in eastern Massachusetts.
15 It forms over large distances and long periods of
16 time. It comes up there is emissions all the way from
17 Richmond up through Boston. So by the time it is
18 here, it is several hundred miles wide and spilling up
19 the mixed layer. And it has a concentration or a
20 fairly uniform across, you know, 50 to 100 parts per
21 billion, maybe. So that is already a big, broad
22 plume.

23 But from the Pilgrim plant stack, it
24 starts out as a little relatively small stack plume
25 which is then dispersing in the atmosphere. So while

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1 they are both in the same atmosphere, they are
2 behaving differently in terms of the way the
3 concentration varies. The stack plume is rapidly
4 disbursing due to entrainment of the ambient air. So
5 you have rapid decrease and concentration of the plume
6 as it proceeds wherever it is going.

7 CHAIR YOUNG: Right. What I was wondering
8 is, how do they interact? If there were a release
9 while that ozone mass were there, what effect would
10 that have? And I guess maybe they are not related but
11 in my mind I was also relating that to the issue of
12 precipitation and snow. How do those things interact?

13 DR. HANNA: Yes, well the ozone plume
14 consists of chemicals like nitrogen oxides and
15 nitrates and sulfates and ozone.

16 CHAIR YOUNG: Right.

17 DR. HANNA: And then you would put the
18 radioactive pollutants in that. And I don't know
19 about the reaction.

20 JUDGE ABRAMSON: Has that been studied in
21 these studies?

22 DR. HANNA: I'm sure it has been studied.

23 JUDGE ABRAMSON: No. Has it been studied
24 in this context, in the is particular analysis?

25 DR. HANNA: Not in our analysis.

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1 JUDGE ABRAMSON: Okay, that is all I need
2 to know. Thank you. It hasn't been looked at.
3 Right?

4 CHAIR YOUNG: The reason I was asking is
5 because in response to Pilgrim Watch information about
6 the Angevine thing, about the ozone air mass with all
7 the nitrous oxide and all the whatever pollutants in
8 it, that the kind of plume we are talking about from
9 a release that is analyzed in the SAMA analysis, those
10 are different.

11 And so what I am trying to understand is
12 how far does that argument go? Are they still
13 different, if the release happens in one of those air
14 masses? That is what I'm trying to get some
15 clarification about; the extent to which the argument
16 that they are different, how that would work in that
17 situation.

18 DR. HANNA: Yes, well I have not studied
19 the reactions of nitrates with the radioactive. I'm
20 sure the literature is full of that type of studies.
21 I would expect there wasn't a very strong reaction.
22 But the key aspect of what I was writing in my report
23 about the difference between the ozone study by
24 Angevine and the Pilgrim scenario is that he and his
25 group, his NOAA group, were focusing on a few days in

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1 the summer when ozone has its highest concentration.
2 And those tend to be days with high temperatures and
3 relatively light winds and strong high pressure. And
4 those are conditions with the hot air and the
5 southwest winds that you are going to have stability
6 over the water.

7 So he makes some statements in his report
8 that says the air is always stable over the water.
9 But what he really meant is that in the five days that
10 he studied in the summer, the air was stable. And as
11 I tried to point out in my analysis, that even in the
12 summer, it is not always stable. But when you look at
13 the entire year as you have to in the SAMA analysis,
14 the water, for example, this time of year you can have
15 the opposite happening. You can have great
16 instabilities over the water.

17 CHAIR YOUNG: Okay. Do you want to just
18 finish up your sentence and then we will take a short
19 break?

20 DR. HANNA: I finished.

21 CHAIR YOUNG: Okay.

22 MS. LAMPERT: Can I just make a comment to
23 that?

24 CHAIR YOUNG: Ms. Lampert, go ahead.

25 MS. LAMPERT: It will be quick. That the

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1 point in referring to Dr. Angevine, etcetera studies
2 was not the interaction between smog, etcetera. It
3 was the principle of the thing, the behavior of a
4 plume, irrespective of what it was, over water tending
5 to remain more concentrated.

6 Now we had heard that that particular
7 study referenced it only occurred over a five day
8 period. He did not mention, nor is there,
9 qualification in it that this will only happen with
10 weather conditions precisely during those five days.
11 That there have been other studies but they aren't on
12 the record, that Angevine has done with Sam Miller
13 that indicate the principle is holding.

14 Obviously, if you have a hurricane and
15 tidal waves, it is going to be a different thing, but
16 how often does that happen?

17 So that is my point.

18 DR. HANNA: Well, I would disagree with
19 that.

20 MS. LAMPERT: Well, that happens. Doesn't
21 it?

22 DR. HANNA: As I said, during the winter,
23 and I live about a quarter of a mile from the sea in
24 Maine and so I get to see. And there are observations
25 over water, many research studies that show these

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1 extreme instabilities that occur over the water when
2 you have the warm ocean water, say in January and cold
3 air blowing over it after a front and you have as
4 strong instabilities as you have in the worst deserts
5 in the world. It is very unstable in those
6 conditions.

7 So yes sometimes in the year it is more
8 stable over the water. Other times of the year, it is
9 unstable. It is less -- well unstable means well
10 mixed.

11 And so since the SAMA applies for the
12 entire year, then I am saying that the pluses and the
13 minuses are canceling themselves out, approximately.

14 CHAIR YOUNG: Okay, let's take a five
15 minute break and we will be back.

16 (Whereupon, the foregoing proceeding went
17 off the record at 2:01 p.m. and went back
18 on the record at 2:12 p.m.)

19 CHAIR YOUNG: Okay, back on the record.

20 MR. LEWIS: With respect to your question
21 on the 50 miles, I think your questions kind of could
22 have Dr. O'Kula could talk about the regulatory basis.

23 CHAIR YOUNG: Okay.

24 MR. LEWIS: I would like to ask a couple
25 of clarifying questions with respect to studies.

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1 Okay?

2 CHAIR YOUNG: With respect to?

3 MR. LEWIS: With respect to the existence
4 of studies that look at consequences --

5 CHAIR YOUNG: Oh.

6 MR. LEWIS: -- beyond 50 miles, which I
7 think would address some of the questions Your Honor
8 was asking.

9 CHAIR YOUNG: Well, go ahead. Just say
10 whatever you want.

11 MR. LEWIS: Okay. Well Dr. O'Kula, would
12 you please address any studies on consequences beyond
13 50 miles that were relevant to Judge Young's questions
14 concerning the effect after 50 miles.

15 DR. O'KULA: The one study that could be
16 pointed out that has had quite a bit of reading to it
17 and review has been the NUREG-1150 study, again, that
18 we cited previously published in 1990.

19 In the assessment of the five plants,
20 again, the PSAs were site-specific and used regional
21 data appropriate for those five plants, the analyses
22 published summary documentation for the five plants
23 and gave various indices of risk reported. And these
24 included population dose risk for the 50-mile region,
25 which was applied for NUREG-1150. But they also

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1 extended the population dose risk curves for the
2 plants, each of the plants, to also look at how this
3 would change with extending that 50 miles to a
4 thousand miles, what they call a regional basis.

5 Now what the additional distance did
6 seemed to increase the population dose that was
7 reported but the increase varied from plant to plant
8 but it was on the order of ten to 30 percent of the
9 mean curve that would be increased by --

10 CHAIR YOUNG: The 50 to 1000 mile --

11 DR. O'KULA: Yes, --

12 CHAIR YOUNG: -- distance was --

13 DR. O'KULA: -- by adding that.

14 So again as Mr. Harris, I believe said, it
15 does drop off precipitously and the plume would
16 dissipate the distance. But even if you added that
17 additional population dose, assuming that the plume is
18 headed in a certain direction, that the incremental
19 increase would be on the order, and again, it was
20 plant variable but it was on the order of ten to
21 thirty percent.

22 JUDGE COLE: For another 950 miles?

23 DR. O'KULA: Yes.

24 JUDGE COLE: Did they say what it was for
25 the next ten miles?

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1 DR. O'KULA: No, I can't give you that.

2 MS. LAMPERT: What is interesting about
3 that in the paper, in the statement from David Chanin
4 that is New York that I referred you to was his point
5 that all of these referenced studies use the same
6 methodology that he says is flawed. The same flawed
7 assumptions. The same meteorological model. The same
8 code. The same assumptions in the input and they are
9 all not worth the paper they are written on. So I
10 think that is just an interesting point.

11 So when one is citing 1150 or if you are
12 going back to WASH-1400 or what have you, are you
13 doing the same old thing over and over again? And
14 does that make it any more truthful?

15 CHAIR YOUNG: Does Dr. Chanin address --

16 MS. LAMPERT: He is not a doctor.

17 CHAIR YOUNG: Mr. Chanin?

18 MS. LAMPERT: He is David Chanin.

19 CHAIR YOUNG: It seems like I recall
20 something to the effect that his, what he said was
21 mainly to do with the cost issues and not with the
22 plume so much?

23 MS. LAMPERT: Well the cost issues are
24 effective. With the plume, what does the Plume Model
25 do? It defines the area of impact and the potential

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1 deposition within that area. Then you start getting
2 into your dollars.

3 CHAIR YOUNG: Right. But what I was
4 asking is does he address -- To what extent does he
5 address the plume?

6 MS. LAMPERT: Not very much.

7 CHAIR YOUNG: Okay. By the way, maybe
8 this is a good time to ask this now. I think you have
9 said, and I know that other parties have quoted you as
10 saying that the plume, changing the plume analysis,
11 wouldn't really make any difference.

12 MS. LAMPERT: No, I didn't say that.

13 CHAIR YOUNG: Okay. Why don't you clarify
14 what you did say because I know that --

15 MS. LAMPERT: What I did clarify -- What
16 I did state is this. That the plume model that is
17 used will show what likely areas there are that will
18 be impacted and the deposition within that area. That
19 is what it shows. You know, there aren't dollar signs
20 there, etcetera.

21 So then the question becomes your economic
22 analysis and the validity of the assumptions for the
23 area, now that it is defined to be of interest. That
24 is what I said. Does that make any sense to you?

25 CHAIR YOUNG: With regard to the

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1 limitation of the issue to whether just changing
2 things about how the plume analysis is done would make
3 a difference in the ultimate cost-benefit analysis.

4 MS. LAMPERT: That is why I understood it
5 was bifurcated.

6 CHAIR YOUNG: Okay. So --

7 MS. LAMPERT: So you have to go to the
8 next step.

9 CHAIR YOUNG: But what I am asking is --

10 MS. LAMPERT: God help me.

11 CHAIR YOUNG: -- are you saying that --

12 JUDGE ABRAMSON: And the rest of us.

13 (Laughter.)

14 CHAIR YOUNG: Are you saying that -- With
15 regard to the issue of whether changing only the plume
16 analysis, only the ATMOS part of the SAMA analysis,
17 did you say at one point that that on its own wouldn't
18 make a significant difference in the --

19 MS. LAMPERT: It would --

20 CHAIR YOUNG: -- ultimate cost-benefits?

21 MS. LAMPERT: The ultimate cost, if you
22 take everything else away that is wrong, okay, in
23 determining costs, then you are unlikely to show a
24 significant difference. But then you haven't
25 addressed the fundamental question that was brought

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1 forward because --

2 CHAIR YOUNG: Okay.

3 MS. LAMPERT: -- common sense would tell
4 you if a larger area, a particular area is impacted,
5 particularly if there can be an impact -- the model
6 and to show an impact in more highly populated areas
7 and it is likely to make a difference. How large a
8 difference will it make is A) something that they
9 haven't bothered showing, number one; but you would
10 really need if you wanted to get this whole analysis
11 off the fiction shelf, you would have to consider also
12 how the economics are figured to minimize consequence.
13 But that is for another day.

14 CHAIR YOUNG: Okay. And I guess -- I
15 don't know. I will probably repeat this from time to
16 time but maybe it is a good time to repeat it again.
17 And that is, that obviously the issues before us that
18 we have any authority to decide are limited. And we
19 are bound by the rule of law to base our decisions
20 only on what the law provides and what is before us
21 and the Commission's decisions are precedent that
22 define what our jurisdiction is, basically.

23 And the fact that we do limit our
24 decisions and are required to limit our decisions to
25 the issues before us, the law, and the facts related

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1 to those issues, also protects you because that
2 assures that we won't go in a different direction when
3 another party asks us to go outside the legal issues
4 that are before us.

5 So, --

6 MS. LAMPERT: So fundamental is what is
7 the size of the area likely to be impacted; therefore,
8 what type of meteorological plume model do you have to
9 use? Do you use one that is appropriate for here or
10 not?

11 If as we said of the area likely to be
12 impacted if they used a variable plume model that took
13 account of the conditions here and what is
14 appropriate, it is likely a larger area would be
15 impacted and the deposition within that area would be
16 larger.

17 How much larger? I don't know. And you
18 know what? They don't know either.

19 CHAIR YOUNG: Okay. We are going to come
20 back to closing arguments in a minute. I want to just
21 finish some clarification questions.

22 On the issue of precipitation, which is
23 another issue that has been raised, and I think I
24 mentioned it before that I saw references to rain and
25 maybe drizzle or fog. Does the SAMA analysis take

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1 into account snow and does anything behave differently
2 in snow than it would in rain or fog or drizzle?

3 DR. HANNA: I don't know about snow. Do
4 you? Oh, fog is part of it? Yes.

5 CHAIR YOUNG: I think in Entergy's --

6 DR. HANNA: Yes, I can talk about general
7 precipitation and somebody else can address the snow.
8 But --

9 CHAIR YOUNG: Well really all I am asking
10 about is the snow because I think the pleadings say
11 that the SAMA analysis does address rain and fog.

12 MS. LAMPERT: Does it address fog? Where
13 was that mentioned? In Plymouth? Was it fog?

14 CHAIR YOUNG: Mr. Lewis or Mr. --

15 DR. HANNA: It addresses fog to the extent
16 that the measurement at the Pilgrim site on the tower
17 is, for example, the temperature difference between
18 the 220 and 33 foot level would be affected by the
19 fog. I don't believe there is any algorithm in the
20 model itself that says this is fog. If it is thick
21 enough fog and there is some drizzle, then it is
22 reflected in the Plymouth Municipal Airport. It would
23 be reported as a trace of rain and that would then go
24 into the SAMA analysis.

25 CHAIR YOUNG: Okay.

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1 DR. HANNA: Well fogs tend to be not
2 stable because, I mean stable temperature gradient,
3 they tend to be more of a well-mixed temperature
4 gradient. So it is not really a worst-case condition.

5 MR. LEWIS: And the fog is addressed in
6 the rebuttal testimony that we filed, the last
7 question and answer in the rebuttal testimony.

8 CHAIR YOUNG: Okay, I thought I remembered
9 it from one of those.

10 MR. HARRIS: Judge Young, Dr. Bixler may
11 be able to address the question on the snow.

12 CHAIR YOUNG: Okay.

13 DR. BIXLER: Snow is addressed as
14 precipitation in the same fashion as rain is. So, you
15 measure how much is falling and striking an area on
16 the ground or near the ground. Measure that and then
17 it is treated exactly the same way.

18 CHAIR YOUNG: Okay, thank you.

19 MS. LAMPERT: What about the question of
20 the effect of fog increasing effect? In other words,
21 holding the contamination, bringing the contamination
22 down closer and holding it? I think that is a factor
23 that Spangler talked about and also Dr. Land talked
24 about it after Pilgrim blew their filters in '82.

25 DR. HANNA: Well, I can't really see that

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1 as a legitimate scientific explanation. I am not
2 familiar with how that would happen. As I just
3 explained, fog is generally is generally not a stable
4 atmosphere. It is more of a well-mixed atmosphere.
5 And the fog is tiny little droplets that don't really
6 settle significantly. And so it is not like they are
7 settling out on the ground. So I don't see how either
8 of those affects --

9 MS. LAMPERT: Well it would be the
10 effectively raising.

11 MR. LEWIS: Judge Young, the question
12 should be directed to you and then if you want to ask
13 Dr. Hanna a question, that would be entirely
14 appropriately.

15 CHAIR YOUNG: We are giving a little
16 leeway for everybody to one extent or another here.
17 But I think it is a good thing to move on.

18 Let's see. In the testimony of Mr. Bixler
19 or Dr. Bixler and Ms. Ghosh -- Is that right?

20 MR. HARRIS: It is doctor.

21 CHAIR YOUNG: And is Ghosh the right
22 pronunciation?

23 MS. GHOSH: Yes.

24 CHAIR YOUNG: Okay. On page 22, your
25 answer 38, you mentioned the largest observed

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1 deviation between mean results produced by MACCS2 and
2 LODI was 58 percent; and between RASCAL and LODI was
3 61 percent. Is the significance of those is that they
4 are less than 100 percent? I just wasn't clear on --

5 DR. BIXLER: No. The point there, I
6 think, was that when you average over the course of a
7 year, the errors of the two types of codes, the
8 Gaussian puff code and the Gaussian plume code or the
9 Gaussian Plume Segment Code, as MACCS2 is, is roughly
10 equal. It is -- The point is --

11 CHAIR YOUNG: Okay. So you have the 58 to
12 the 61 is what you are saying.

13 DR. BIXLER: Yes.

14 CHAIR YOUNG: Okay.

15 DR. BIXLER: The two are almost the same.
16 One is not a lot better than the other.

17 CHAIR YOUNG: Okay.

18 JUDGE ABRAMSON: So from that can we find
19 as a fact that the meteorological computations from
20 the Gaussian plume model cannot be reasonably expected
21 to vary from those of the more detailed by more than
22 a factor of two or something like that?

23 DR. BIXLER: Yes, that is the main point
24 there is that we were using LODI as a surrogate for
25 what would really happen. Because it is the state of

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1 the art, for the whole country, it is the state of the
2 art code for doing dispersion. So it is intended to
3 be very accurate.

4 And we were comparing other, lower
5 fidelity models with it and finding that in the worst
6 case, in the very worst case, we were a little bit
7 more than a factor of two but in nearly all cases, we
8 were within a factor of two, even upon a grid element
9 specific basis. Where you are looking at a direction
10 and distance, the answers were less than a factor of
11 two.

12 JUDGE ABRAMSON: Not approaching a factor
13 of 20?

14 DR. BIXLER: Nothing close to that.

15 JUDGE ABRAMSON: Thank you.

16 CHAIR YOUNG: Is Mr. or Dr. Ramsdell here?

17 MR. HARRIS: Mr. Ramsdell is not here. So

18 --

19 CHAIR YOUNG: Okay. Again, I am having a
20 hard time reading things.

21 JUDGE COLE: Need a flashlight?

22 JUDGE ABRAMSON: We could use a spotlight.

23 MS. LAMPERT: Couldn't they bring a lamp
24 in? You know, they have plugs.

25 CHAIR YOUNG: It's okay.

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1 JUDGE ABRAMSON: We didn't know about
2 plugs.

3 (Laughter.)

4 MS. LAMPERT: I thought you were into
5 electricity up there.

6 JUDGE ABRAMSON: I'm just electric.

7 MS. LAMPERT: Atomic.

8 (Pause.)

9 CHAIR YOUNG: Ms. Lampert, to the extent
10 that you can point us to specific testimony of your
11 experts, can you address -- It may already be
12 addressed to the extent that you can. The issue of
13 some of the models that your experts were
14 recommending, not taking into account the radiological
15 content and dispersion. I think Dr. Egan said that it
16 wouldn't be as difficult as Entergy said it would be
17 to fit those issues into the other models.

18 MS. LAMPERT: That is correct. Dr. Egan
19 talked about that in the sections dealing with NEPA.
20 He disagreed with Entergy's experts that it would take
21 like seven years to get it up to speed. He talked
22 about the fact that the basic research for a variable
23 plume model such as CALPUFF had essentially been done,
24 that it satisfied all the points brought forward by
25 the NRC Commissioners, I think it was the one that

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1 came out in June what was it 1015 or something? I
2 don't know what it was. That they were talking about
3 NEPA on page 30 of the Commission document. Was it
4 reliable? Was it applicable? Etcetera, etcetera.

5 And Dr. Egan addressed each of those
6 saying yes, it is perfectly doable. It should have
7 been done. EPA has been using these advanced codes
8 over and over for years. Dr. Egan himself testified
9 that he had used a CALPUFF with MM5 for a study for
10 the Mass Department of Public Health on contamination
11 coming to Cape Cod. He said, this is perfectly
12 doable.

13 And in Entergy's testimony, they seemed to
14 try to blow it all off by having a distinction that,
15 oh, emergency planning or EPA's tracking of plume
16 models is totally different.

17 And on the last page of Dr. Egan's second
18 statement, he said no, and also on the first page,
19 that no, there isn't a difference. This is a false
20 statement. In all those circumstances, you want to
21 base the decision, and particularly if you are
22 deciding on a nuclear accident, on a reliable model.
23 That they are out there. It is possible to do it.
24 Probably what they spent on their experts fighting
25 about this for almost six years, they could have done

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1 it, when they knew it was an issue in 2006.

2 And the idea that oh it is not possible
3 because of the averaging over a year's time, he said
4 that was baloney, that EPA uses these models and they
5 can give an estimate, an average estimate over a
6 year's time. So you see they are all red herrings as
7 far as he was concerned and it is in that last
8 statement.

9 And they are summarized and pointed to
10 10,000 times in my findings of fact and there is an
11 index to that. We tried.

12 CHAIR YOUNG: Thank you.

13 MS. LAMPERT: Does that answer your
14 question?

15 CHAIR YOUNG: Yes. When I go back, I will
16 --

17 MS. LAMPERT: Okay. Those are the pages.
18 I can see it in my mind. It was the first page and it
19 went over to the top of the second and then he went
20 through it again.

21 CHAIR YOUNG: Okay. Let's see. I have
22 one sort of collection of questions I want to sort of
23 conclude my part with but I just want to make sure
24 there is nothing else first.

25 On the issue -- And I will direct this to

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1 Entergy and the Staff. On the issue of the ability or
2 how difficult it would be to adapt one of the more
3 detailed models to the radiation aspect and the cost
4 aspect, one of the points that has been raised is that
5 with today's computers, things are much easier than
6 they used to be. I think maybe there was some
7 discussion somewhere that you don't need to bin things
8 anymore because the computers can now address all the
9 many different parts and much more quickly.

10 Can you respond to that argument on this?
11 Because and this is directed to counsel, you have made
12 the argument that you have included in your proposed
13 findings on how difficult it would be to adapt it.
14 And so I am trying to get a sense and understanding
15 some clarification on exactly how difficult that would
16 be.

17 MR. LEWIS: I think what we emphasized in
18 our testimony and Dr. O'Kula can elaborate on that and
19 Dr. Hanna can, is that MACCS is a code that takes
20 output from ATMOS and transfers it to EARLY and
21 CHRONC. And so basically, you got to -- and number
22 one. And number two, also ATMOS does the radioactive
23 decay, which other models don't necessarily do.

24 CHAIR YOUNG: Right.

25 MR. LEWIS: Anyway, it takes the output

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1 from ATMOS and takes it to EARLY to calculate damages
2 in the early phase and takes it to CHRONC to calculate
3 damages in the long-term phase. And to do that, you
4 would have to integrate, which would be substantial
5 work, to integrate the different modules, to integrate
6 either CALPUFF into MACCS or to take those features of
7 MACCS and integrate them into CALPUFF. So it is
8 something that is not available. It is not there,
9 okay, right now.

10 And so the point was that we made is that
11 would be a very substantial cost and effort. And the
12 NRC staff witnesses, both Dr. Bixler and Mr. Ramsdell
13 echoed the same point in their testimony.

14 JUDGE ABRAMSON: Would it take different
15 input to use a code such as CALPUFF or one of the more
16 detailed codes? Would you need wind field data to be
17 able to get started with those computations?

18 MR. LEWIS: Well the wind field data would
19 be the same type. CALMET is the wind field
20 meteorological model that is used by CALPUFF. So what
21 we did in CALMET is the same type of wind field that
22 would be produced or CALPUFF.

23 JUDGE ABRAMSON: And that is what you
24 would have to put in in place of ATMOS.

25 MR. LEWIS: Yes.

1 JUDGE ABRAMSON: So you need that data to
2 do that.

3 MR. LEWIS: From all the different weather
4 stations in the region and things of that sort, yes.

5 JUDGE ABRAMSON: Correct. So it is not as
6 simple an input preparation.

7 MS. LAMPERT: I was just wondering whether
8 our simplicity is the point.

9 JUDGE ABRAMSON: No. I'm just trying to
10 find out -- The assertion is that it takes time to get
11 it ready.

12 MS. LAMPERT: Right.

13 JUDGE ABRAMSON: So the question is what
14 is involved.

15 MS. LAMPERT: We are going on six years.
16 And so you know, they could do it. They have
17 computers. I know you could ask Dr. O'Kula I know
18 David Chanin took ten years' worth of weather data in
19 studying a DOE site in Colorado. And with a fast
20 computer, it wasn't a deal.

21 MR. HARRIS: This is Brian Harris. In Mr.
22 Ramsdell's testimony, it does talk about the time
23 that went into prep RASCAL and RATCHET and ADAPT and
24 LODI and the different amount of effort than what was
25 required for doing MACCS and doing that same kind of

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1 analysis in answer 32.

2 MS. LAMPERT: Again, you could ask a
3 question if the research has been done on --

4 JUDGE ABRAMSON: I think, Ms. Lampert,
5 nobody has any question it could be done. It is just
6 a question of whether it needs to be done.

7 MS. LAMPERT: Exactly. Do they need to do
8 a site-specific reliable study or not? That is the
9 point. Are we doing to get justify some mitigation or
10 not? That is the point. I guess money is the point.

11 MR. LEWIS: I would just add actually one
12 point. She keeps talking about site-specific study.
13 The MACCS2 code that we ran is a site-specific study.
14 It took into account the year's worth of
15 meteorological data for the site. It took into
16 account all the different weather conditions for the
17 site. And what it does, it takes the probability of
18 those different weather conditions and that is what
19 your average is. But it takes into account all the
20 observed weather conditions and takes into account the
21 weight of probabilities of the consequences during
22 those different weather conditions.

23 JUDGE ABRAMSON: If I were to ask you, Dr.
24 O'Kula -- I will ask you. Where would you say the
25 most, the largest uncertainties are in the SAMA

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1 analysis? Are they, for example, in defining the
2 source term and its probabilities? Where do they lie?

3 DR. O'KULA: I believe a number of Ph.D.
4 theses have been written on sources of uncertainty
5 with severe accidents and what is really the bottom
6 line. And so this will be my opinion. Yes, the
7 source term is a significant source of the uncertainty
8 to begin with right away. And keep in mind, we are
9 talking about extremely low probability events that
10 are much lower addressed than the safety analysis
11 report. So this is in the realm of catastrophic --

12 JUDGE ABRAMSON: Ten to the minus six to
13 begin with, right, for the highest? Right?

14 DR. O'KULA: So yes, and that is the
15 traditional cutoff in terms of frequency of these
16 things that you see maybe somewhere, you know, ten to
17 the minus five but most of them are in the low ten to
18 the minus seven, ten to the minus six, ten to the
19 minus eight frequency.

20 So a tremendous amount of uncertainty
21 there. And we have good understanding, we have much
22 better understanding than we did 20 years ago about
23 the progression of accidents; how they would unfold in
24 the plant. So there is uncertainty about what happens
25 inside the containment. These computer codes are

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1 linking up test data that has been developed over the
2 last 20 years in trying to simulate in an integral way
3 the overall outcome of an accident. But a tremendous
4 amount of uncertainty there.

5 JUDGE ABRAMSON: What would you say the
6 order of that and the size of that uncertainty
7 compares to the kind of uncertainties we are worrying
8 about today with meteorology?

9 DR. O'KULA: On the front end, on the
10 frequency and the initiating events, and then into the
11 progression of accidents, easily an order of magnitude
12 up and down.

13 JUDGE ABRAMSON: Whereas, we are hearing
14 I think from Dr. Bixler that on the meteorological
15 side we are talking about a maximum of around a factor
16 of two. Is that correct?

17 DR. BIXLER: Yes, that is correct.

18 JUDGE ABRAMSON: Okay, so we are talking
19 about the real uncertainty in the SAMA analysis is on
20 the front end, plus or minus in order of magnitude and
21 here we are worrying about a factor of two. And
22 bearing in mind this is a NEPA study, NEPA-related
23 analysis.

24 Thanks.

25 CHAIR YOUNG: Okay, my last question or

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1 series of questions, collection of questions has to do
2 in some sense -- Well let me start by saying the issue
3 of the mean consequence values has been ruled not to
4 be part of this. However, there is some of the
5 testimony and some things in the proposed findings of
6 fact I would like to get a little clarification on.
7 And so let me give you sort of the factors that I
8 would like for anyone to address.

9 On page 41 of Entergy's proposed findings
10 at paragraph, the end of paragraph 24, you state,
11 "Taking into account a multitude of wind patterns on
12 a statistical basis and probabilistically sampling
13 from a full year of hourly conditions as done by ATMOS
14 produces a reasonable estimate of the mean
15 consequences, one that is sufficient for the SAMA
16 application."

17 Now that I re-read that, the one that is
18 sufficient for the SAMA application, you may not be
19 referring to the mean consequences. You may be
20 referring to the use of MACCS code there.

21 But taking the extent to which that might
22 be viewed as looking at the mean consequences, an
23 argument is made in Pilgrim Watch's proposed findings
24 as page 75, paragraph 196, that and I think there is
25 some other place, too, the basic idea that I am

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1 recalling is that without being able to know what the
2 95th percentile is, you don't know the significance of
3 the figure. It is harder to determine the
4 significance of the figures that are arrived at. And
5 then from a nontechnical standpoint, obviously if you
6 take the average of two and four would be three; one
7 and nine-nine would be fifty. How much it varies on
8 either side of the mean might have some significance.
9 I am not sure what it would have here. I am just
10 asking.

11 And the third thing is that Dr. Lyman in
12 I think it is one of the exhibits, Pilgrim Watch --
13 right -- with regard to the Indian Point hearing. He
14 talks about, he says that applying the 95th percentile
15 would result in quite a large differences, I believe
16 he says. Let me find that.

17 So I guess what I am asking is with regard
18 to all these things, if I could get a little bit of a
19 clarification as to those questions of significance
20 and to the degree that that would clarify anything
21 such that if there were any reversal, there would be
22 no need for a remand. I would like to get just
23 whatever clarification any of you can offer on this.

24 And I don't want to turn this into
25 argument. I just want to get clarification on what,

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1 to the extent you know, them, the facts would be on
2 that sort of collection of issues.

3 Did what I say make sense? Do you
4 understand what I am asking?

5 JUDGE ABRAMSON: You're asking if they
6 addressed whether mean consequences were appropriate?

7 CHAIR YOUNG: No. How much does it affect
8 -- How does significance come into play? And I
9 suppose how much of a difference would it make, to the
10 extent you know, if you know, would it approach some
11 of the figures that Dr. Lyman talks about.

12 If Ms. Lampert wants to point us to some
13 of those figures, you are free to.

14 MS. LAMPERT: I wish I could. I did not
15 understand we were having witnesses here. I thought
16 we were just doing a ten minute statement.

17 I cannot remember. There was a
18 significant factor.

19 The one comment to start it off was an
20 example of the sea breeze effect, which is an effect
21 here which Entergy's expert said could go 30 miles
22 inland. Even though that was less likely, it could.
23 The sea breeze occurred perhaps 12 percent of the
24 time. So therefore by using a mean over the whole
25 year, it is washed out to be totally insignificant.

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1 However, if you used a 95th percentile
2 from the cumulative distribution function that is
3 provided, then something that is an important
4 meteorological phenomenon here in recognizing, you
5 know, you could have an accident at that time, that
6 would be a more realistic way to approach it.

7 What Lyman did was hold everything
8 constant.

9 JUDGE ABRAMSON: Are you giving your
10 summary statement?

11 MS. LAMPERT: No, I was just having a
12 conversation.

13 (Laughter.)

14 CHAIR YOUNG: Let's hold off. Hold that
15 for your closing argument.

16 On page 11 of Exhibit 12 of Pilgrim Watch
17 --

18 MS. LAMPERT: Thank you.

19 CHAIR YOUNG: -- Dr. Lyman says for the
20 95th percentile, the present dollar value --

21 JUDGE ABRAMSON: What page?

22 CHAIR YOUNG: Page 11 of Pilgrim Watch
23 Exhibit 12, at the top of that page.

24 For the 95th percentile, the present
25 dollar value offsite economic cost for the early high

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1 release alone is over 72 times Entergy's mean estimate
2 for the same release and over 12 times Entergy's mean
3 estimate for all costs off and on-site and all release
4 categories of 1.34 million.

5 And then down, about two-thirds of the way
6 down, the first paragraph after the table, if we were
7 -- at the end of that paragraph. If we were to
8 extrapolate our result for the 95th percentile,
9 offsite costs of the early high release to all release
10 categories leading to a nearly 20-fold increase in
11 total economic costs compared to Entergy's estimate,
12 even the most costly SAMA's such as the Phase II SAMA
13 number 15, could well become cost-effective.

14 Now obviously, he is talking about a
15 different plant.

16 JUDGE ABRAMSON: He is also talking about
17 overall consequences from particular scenarios.
18 Right? He is not talking about meteorology.

19 MR. GAUKLER: And for a particular source.

20 CHAIR YOUNG: Okay. Listen. Listen. I
21 am not opening up argument. I am asking for
22 clarification. So don't assume that I have a point of
23 view. I am asking for clarification.

24 Taking all those things into account,
25 primarily the significance and explaining what you

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1 were just about to explain, to the extent that you
2 can, clarify for me what difference it would make with
3 regard not just to numbers but to this significance
4 question.

5 MR. GAUKLER: We could ask Dr. O'Kula to
6 confirm. But if you are simply looking at the current
7 modeling, holding everything the same but asking if we
8 had outputted the results at the 95th percent
9 confidence level instead of the mean, the change in
10 results would be more on the order of three to five
11 not 70 or 20 or whatever the results are.

12 Dr. Lyman's statements are very, a lot of
13 different parameters, including what is the source
14 term that is being assumed. You know, what is the
15 particular accident scenario and applying 95. So he
16 is compounding a number of different worst case
17 assumptions to say how much variation could you get.
18 But if you simply wanted to know what would be the
19 difference between using 95th percentile results and
20 mean, I think it is three to four or three to five or
21 in that range. I think Dr. O'Kula could, I don't
22 think we have a precise number but I think we could
23 tell you that is the order of magnitude.

24 CHAIR YOUNG: Just to the extent that you
25 can, and I guess and again speaking as a non-technical

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1 person, the argument as I think I understand it that
2 Pilgrim Watch makes with regard to the usefulness of
3 knowing the 95th percentile so as to determine how
4 statistically significant or how much confidence you
5 can have in the mean being an accurate representation.

6 Am I anywhere near in the ballpark on
7 that? Do you understand what I am saying? Do you
8 know what I am referring to, the argument that I am
9 referring to?

10 DR. O'KULA: I believe so.

11 CHAIR YOUNG: Okay.

12 DR. O'KULA: The MACCS2 Code does provide
13 an indication of the result in terms of the
14 probability of weather. So the average result, which
15 is reported in the SAMA studies is not the average
16 weather condition result but it is the average of the
17 results that were calculated.

18 CHAIR YOUNG: Right.

19 DR. O'KULA: So there are, in the analysis
20 that was done for any given accident scenario, there
21 was on the order of 2300 results that are weighted on
22 how likely would that weather condition result.

23 So the number that is reported as the mean
24 is truly the arithmetic mean. And it would include
25 the very high consequence, low frequency conditions

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1 that would lead to large dose but they would occur on
2 average one or two hours per year. So that is
3 included in that mean.

4 And so but what other parts of the
5 statistics that are reported for any given accident
6 scenario, would also be things like the median. How
7 many doses for argument sake, population doses were
8 smaller than the median or larger than that value?
9 Fifty percent smaller; fifty percent higher.

10 CHAIR YOUNG: Are they clustered really
11 close to the middle or are they spread out all over
12 the place?

13 DR. O'KULA: It varies from plant to plant
14 but as Mr. Lewis indicated, when we look at a 95th
15 percentile result compared to the mean, based on our
16 knowledge on these runs that were done, we see a span
17 of about a factor of three to five.

18 JUDGE ABRAMSON: This is for a particular
19 accident scenario.

20 DR. O'KULA: Overall.

21 JUDGE ABRAMSON: A particular accident
22 scenario --

23 DR. O'KULA: Overall. Overall.

24 JUDGE ABRAMSON: -- but looking at a
25 variety of winds, a variety of meteorology?

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1 CHAIR YOUNG: You add up all the means for
2 each accident.

3 JUDGE ABRAMSON: That is what I am trying
4 to find out.

5 DR. O'KULA: This is for a scenario.

6 JUDGE ABRAMSON: A individual accident
7 scenario.

8 DR. O'KULA: Scenario. And so that is why
9 --

10 JUDGE ABRAMSON: So vary the meteorology.

11 DR. O'KULA: -- there is a little
12 flexibility there, in terms of the three to five
13 number. So in some cases it is about a factor of
14 three. In some cases, it is closer to five.

15 But for these individual accident
16 scenarios, the mean is roughly three times smaller
17 than the 95th percentile. But the code is also giving
18 you the worst case and so you could trace down the
19 weather sequence that gives to the various, the
20 highest numerical value that was calculated.

21 So you do have statistics that can be
22 reported, that can be understood. And so you could
23 say well that source term is one that is slowly
24 developing or has significant quantities of these
25 types of radioisotopes. And I can see what my worst

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1 case would be or my 95th percentile. So I can make
2 some judgment about what I need to address in the
3 plant.

4 So those numbers are part of a PRA, PSA
5 study. And we take for the SAMA analysis, we tend to
6 use the means but we are not throwing away the other
7 information.

8 CHAIR YOUNG: But does it provide -- Do
9 you look into -- and I wish I could find -- I'm not
10 sure this is the right -- This is one of the places
11 that we are. Dr. Egan says -- This is the place I
12 mentioned before on page 75 of paragraph 196 of
13 Pilgrim Watch's proposed findings.

14 He says, "Therefore sea breeze has no
15 impact if a mean average is used. However, its
16 significance would be apparent if the 95th percentile
17 were used." And again, I apologize and I appreciate
18 everyone's indulgence of my --

19 MS. LAMPERT: We appreciate your concern.

20 CHAIR YOUNG: -- basic level questions.
21 But what does the MACCS2 do with regard to analyzing
22 the -- Once you come up with the mean consequence
23 values and add all those up, is there some measure
24 taken to ascertain how significant or how much
25 confidence you can have in that figure and how much

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1 variation there is one way or the other? Or is there
2 -- I sort of think that is what he is getting to and
3 I may not be using the right words to say that. But
4 do you get the idea that I am trying to get to or do
5 you get the idea that he was trying to get to, I
6 guess?

7 DR. O'KULA: One way that I believe Dr.
8 Egan may have misunderstood the results is that we do
9 not use a mean condition that may or may not include
10 sea breeze, for example.

11 CHAIR YOUNG: It comes later in the
12 analysis.

13 DR. O'KULA: The mean reflects many like
14 -- Many conditions that would occur in a given space
15 of a year; sea breeze conditions, land breeze
16 conditions, all types of information. So all of that
17 is going into the production of these individual
18 results for a given accident scenario.

19 We don't start in a MACCS2 calculation
20 with the average weather condition, which possibly
21 would not include sea breeze affects and make the
22 average population dose and offsite economic costs
23 based on that number. The sea breeze affect is
24 included in the multiple data points that we have for
25 that specific dose that we are looking for.

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1 CHAIR YOUNG: So you think in this
2 sentence Dr. Egan is saying -- Well actually it is not
3 part of the quoted sentence but I think it is meant to
4 encompass what he said that that is taking what
5 happens to be doing the averaging at the point at
6 which the sea breeze is first considered, rather than
7 at the end of the analysis.

8 MS. LAMPERT: No, that isn't what he
9 meant.

10 CHAIR YOUNG: Okay.

11 JUDGE ABRAMSON: Well but since he is not
12 here, we are all speculating. But let me ask Dr.
13 O'Kula a question.

14 Dr. O'Kula, if I understand this
15 correctly, the way the computation is done and we
16 shouldn't be talking about this now and I guess it is
17 open, when you do the MACCS2 computation, you take a
18 particular accident, a particular scenario which is a
19 release over a period of time, and then you calculate
20 the consequences for a thousand or more different wind
21 conditions. All right? Is that correct?

22 DR. O'KULA: Wind stability, rainfall,
23 possibility of rainfall, based on --

24 JUDGE ABRAMSON: Your whole set of
25 meteorologic conditions.

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1 DR. O'KULA: -- the Plymouth dataset.

2 JUDGE ABRAMSON: Okay. Now do you happen
3 to know -- What I read into what I am hearing is that
4 if you looked at the case for the sea breeze type
5 meteorologic conditions, you would find something very
6 far from the mean. Do you happen to know if that is
7 the case? You have looked at the distribution
8 function of these consequences. Are the consequences,
9 as computed for one particular scenario for sea breeze
10 conditions, far from the mean of those computed for
11 the whole thousands of meteorologic conditions you
12 looked at? Do you know the answer to that?

13 DR. O'KULA: I don't know specifically the
14 answer to where in the 15 mile population dose, for
15 instance, where I could find points that could be
16 attributed to the combination of meteorological data
17 that would be traced to a sea breeze effect, if indeed
18 that occurrence led to high dose. We don't --

19 JUDGE ABRAMSON: You don't have the
20 ability to track that.

21 DR. O'KULA: We can't track that
22 specifically but by and large if it is part of the
23 8760 hours of weather data that is calculated and
24 sorted through and sampled in the analysis, then it is
25 included in the overall result.

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1 JUDGE ABRAMSON: Yes, I understand that.
2 Let me see if I can pursue this for just one more
3 second.

4 Do you know if the sea breeze conditions,
5 meteorologic conditions associated with sea breeze,
6 vary materially from the norm of meteorologic
7 conditions at the plant? Do they vary? Are they way
8 away from the center or are they close to average?

9 DR. O'KULA: Defer to Dr. Hanna.

10 DR. HANNA: Well they would be just close
11 the average. The wind speeds are about the
12 same. In fact, I have been trying to think about the
13 statistical implications of these discussions here and
14 I think we are sort of getting off the track.

15 Because the standard way that you do risk
16 analysis is using the average. We are talking about
17 a whole year and we are determining the effects over
18 that whole year. And that is the average of all the
19 conditions that might occur during the year. So if
20 you start talking about the sea breeze or any
21 condition which might lead to a higher concentration
22 and saying you should include that as an upper range,
23 you are almost saying that that condition is going to
24 occur every hour of the year.

25 JUDGE ABRAMSON: Well no, I understand

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1 that and I don't think anybody is going down that
2 path. But there does seem to be an assertion or an
3 underlying question as to whether had you looked at
4 sea breeze, you would have found 50 times the average
5 for the damages, as opposed to something close to the
6 average for the damages. And that is really the
7 question I am asking.

8 If the meteorologic conditions from the
9 sea breeze are more or less like the average
10 meteorologic conditions at the site, then what would
11 lead us to expect to get damages that are very far
12 from the average? And that is why --

13 DR. HANNA: Well I wouldn't expect it to
14 get much different from the average.

15 MS. LAMPERT: Can I say something? I
16 mean, just can I ask you to say something? All right,
17 consider something. As I know I am not talking to
18 them.

19 JUDGE ABRAMSON: Go ahead. Go ahead.

20 MS. LAMPERT: My point is, you know, I
21 have talked to David Chanin about this and because he
22 said one of his many reasons for saying the code was
23 nothing to use was particularly the use, the practice
24 of the mean, which was meaningless. Now those were
25 his words.

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1 And so I said I really don't understand
2 why it is meaningless. And his explanation was, okay
3 let me put it for you in a simple way. He said, let's
4 say I wanted to know how much you spent a year. I
5 said you sound like my husband. And he said, okay but
6 we are going to do it every second and we are going to
7 put that information of what you spend every second
8 into a computer over the year's time. Then we are
9 going to take a mean, you will see, your husband will
10 be happy because he will see you really don't spend
11 anything all year. But the reality is you do.

12 And his point was, if you put, as they do,
13 so much data into the code, then you use a mean, it is
14 all going to be washed away.

15 And I thought that was a pretty
16 understandable explanation --

17 JUDGE ABRAMSON: Yes, let me just --

18 MS. LAMPERT: -- as opposed to taking
19 another average. No one is complaining about an
20 average. It is what average. And as you, Judge
21 Young, were going at, it reminded of the famous book
22 *How to Lie with Statistics*, that how representative --
23 What are those other little numbers that tell how
24 representative the mean actually was of the material
25 put in?

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1 That was just another conversation with
2 you, Dr. Abramson.

3 JUDGE ABRAMSON: I recognized that. Thank
4 you.

5 JUDGE COLE: Dr. O'Kula, you wind up with
6 a distribution of thousands of consequences and you
7 have a distribution of that. And we select the mean
8 value of those consequences. What do we know about
9 the curve of all the consequences? Is it a bell-
10 shaped curve like we commonly see in standard
11 statistics or is it a skewed curve? And what is the
12 standard deviation of the curve on average? I think
13 you already gave us the answer to that.

14 CHAIR YOUNG: That is a good way to ask
15 what I was trying to ask. Thank you.

16 DR. O'KULA: Certainly Dr. Bixler can
17 augment my answer but typically the data look very
18 much bell-shaped, log-normally distributed. Because
19 as you might think about it, you have --

20 CHAIR YOUNG: Did you say -- Bell-shaped
21 what normally?

22 DR. O'KULA: Log-normally.

23 CHAIR YOUNG: Log-normally.

24 DR. O'KULA: So it is normally distributed
25 but when you have wide ranges of values, you take the

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1 log of the values. So you have very small, again,
2 population doses and it is a bell-shaped curve. And
3 mother nature is very erratic so it is not precisely
4 bell-shaped but it is, by and large. You can look at
5 it. We see a lot of histogram effects and a lot of
6 dips and valleys but by and large, it looks log-
7 normally distributed, bell-shaped.

8 And so a lot of times people talk about an
9 error factor in statistics with a log-normal
10 distribution and reflect on the 95th percentile
11 compared to the median. Okay? A little bit less than
12 the average.

13 And in this case, we said that the range
14 of 95th percentile to the mean was a factor of about
15 three to five from what we recall having looked at
16 these results.

17 And so the mean tends to be numerically
18 somewhat higher than the median. It is just because
19 some of the larger dose, population dose numbers when
20 weighted, you know, those are very large numbers
21 compared to, again, several orders of magnitude over
22 range from very unlikely conditions to very likely and
23 average conditions then to very unlikely conditions in
24 your 95th percentile.

25 So it is a wide distribution and if you

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1 can do the statistical math, then you can get the
2 spread on how it looks. But is basically, Dr. Cole,
3 a log-normal distributed set of results with that
4 spread of possibly two to three orders of magnitude
5 from the very low doses to the high doses.

6 JUDGE COLE: Thank you. That is very
7 helpful.

8 MR. HARRIS: Dr. Cole, can Dr. Bixler add
9 something?

10 JUDGE COLE: Oh, sure.

11 DR. BIXLER: Yes, maybe to add a little
12 perspective. This is just to supplement what Dr.
13 O'Kula said because I agree with what he just said.

14 But typically what I have found, and I
15 haven't looked at this specifically for the Pilgrim
16 analysis, but typically the mean is somewhere between
17 the 75th and the 85th percentile, maybe even
18 approaching the 90th percentile. And that is true
19 because of the skewed nature of the distribution
20 function that we are talking about here. So that is
21 one aspect of it.

22 I know one particular case, again not for
23 Pilgrim, but one case the mean came out to be the 87th
24 percentile of the distribution. So --

25 JUDGE ABRAMSON: Meaning that is a higher

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1 consequence --

2 DR. BIXLER: Yes. Let me explain a little
3 bit more precisely what that terminology means. I
4 think we all know what the mean is but the median
5 means that half the time you would get a smaller
6 answer, half the time you would get a larger answer.

7 Okay. So when I say 75th percentile, I
8 mean 75 percent of the time you would get a smaller
9 number and only 25 percent of the time you would get
10 a larger one. So if you are at the 85th percentile,
11 as an example, 85 percent of the time you get a
12 smaller answer and only 15 percent of the time a
13 larger one.

14 So an 85th percentile is probably not a
15 bad estimate for where the mean actually might fall in
16 this case but again, I don't know for sure.

17 CHAIR YOUNG: Eighty-five you said?
18 Eighty-fifth?

19 DR. BIXLER: Yes, it is probably something
20 like that. Maybe 80th, maybe 85th. So that gives you
21 a little bit better perspective on what the mean
22 really represents in terms of the distribution.

23 Another thing to consider is that when
24 Entergy did the SAMA analysis, they multiplied by a
25 factor of six. They took their mean results, I

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1 believe and multiplied by a factor of six to account
2 for uncertainty. That would put you, if you were only
3 looking at uncertainty in the weather, in the
4 meteorology, in the effect that that would have on the
5 results, that would put you above the 95th percentile
6 anyway.

7 MS. LAMPERT: That is -- May I just ask --
8 suggest something?

9 What we asked for was further analysis.
10 Right? So they are talking about I don't know where
11 the heck those plants were that you are coming up with
12 what difference it made.

13 The question is, were they totally
14 analogous to here? Is it applicable? Why not have
15 them show the difference of what it would made here,
16 if this ever comes, gets back on the table after an
17 appeal.

18 CHAIR YOUNG: Okay, in a moment we will do
19 closing arguments.

20 Dr. O'Kula did you agree with what Dr.
21 Bixler said?

22 DR. O'KULA: I agree with Dr. Bixler.

23 CHAIR YOUNG: Along with the 85 percentile
24 being where the median would be?

25 DR. O'KULA: That was for an example.

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1 CHAIR YOUNG: Oh, I thought you got that
2 for this --

3 MS. LAMPERT: No.

4 DR. BIXLER: I'm just guessing what it
5 might be. And a range of values would be 75th
6 percentile to maybe as high as 90th, probably a little
7 lower than that.

8 CHAIR YOUNG: For the Pilgrim plant.

9 DR. BIXLER: For the Pilgrim plant.

10 CHAIR YOUNG: Okay.

11 DR. BIXLER: Probably somewhere in that
12 range.

13 CHAIR YOUNG: Does that make sense?

14 DR. O'KULA: I would concur.

15 CHAIR YOUNG: Okay, thank you.

16 I appreciate this. And thank you for your
17 help on my question as well because that was sort of
18 what I was trying to get at.

19 Any other questions from you?

20 JUDGE COLE: No.

21 MS. LAMPERT: Do you have data on that or
22 are you just opining? Are they just opining or do
23 they have data to say that the range would be 75 to 80
24 whatever it was?

25 JUDGE COLE: I guess we can ask him what

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1 his basis for that answer is. Upon what do you base
2 your answer, sir, Dr. Bixler?

3 DR. BIXLER: Just an analyses. I have
4 done a lot of consequence analyses myself of various
5 kinds and that is one of the things that you kind of
6 wonder about as you look at the results. So that is
7 just my experience over a number of years of doing
8 these kinds of calculations.

9 JUDGE COLE: Thank you.

10 CHAIR YOUNG: And Dr. O'Kula, would your
11 answer be -- What would your answer be in terms of --
12 What did you base your answer that you agreed with Dr.
13 Bixler that that was a good estimate?

14 DR. O'KULA: On the shape of the
15 distributions.

16 JUDGE ABRAMSON: Yes, on where the mean
17 is, vis-a-vis --

18 CHAIR YOUNG: So the curve would be over
19 to one side.

20 DR. O'KULA: Right. From a number of PRA
21 studies for even in DOE complex and from several
22 commercial plants, and also with Pilgrim, of course.
23 Just looking at a lot of these indices of risk. So
24 that --

25 JUDGE COLE: So your experience.

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1 DR. O'KULA: Yes.

2 CHAIR YOUNG: Is there anything in any of
3 the documents that shows this or reflects this? Just
4 since it has been asked?

5 What about in the EIS?

6 MS. LAMPERT: I can't help you. I didn't
7 see anything.

8 MR. HARRIS: Some of that information was
9 addressed when we were discussing mean consequence
10 values and where that mean fell. So it was part of
11 there but I don't believe it was part of any of the
12 exhibits that were --

13 MS. LAMPERT: And it wasn't discussed
14 there.

15 CHAIR YOUNG: All right. Do you need a
16 break before we have closing arguments?

17 MS. LAMPERT: Yes.

18 CHAIR YOUNG: All right. Let's take ten
19 minutes and come back for closing arguments. Thank
20 you all.

21 (Whereupon, the foregoing matter went off
22 the record at 3:18 p.m. and went back on
23 the record at 3:34 p.m.)

24 CHAIR YOUNG: Okay, before we move to
25 closing arguments, I think the Staff has one

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1 correction you wanted to make.

2 MR. HARRIS: Yes, Your Honor. It is just
3 referring --

4 CHAIR YOUNG: Yes, we are on the record
5 now.

6 MR. HARRIS: Just referring to the
7 uncertainty answer that Dr. Bixler gave earlier and I
8 will let him talk.

9 CHAIR YOUNG: Okay.

10 DR. BIXLER: All right. Yes, it was
11 pointed out during the break that there were two parts
12 to the factor that was used by Entergy. One part of
13 it was to add external events and then there was a
14 second part that was to account for uncertainty. The
15 uncertainty factor really is only 1.62. And I believe
16 I said six earlier. So that -- I would like to --

17 JUDGE COLE: One point what?

18 DR. BIXLER: One point six two is the
19 actual number.

20 JUDGE COLE: Okay.

21 CHAIR YOUNG: All right. The closing
22 arguments. Shall we start with Entergy and then move
23 to -- When would the Staff like to go? Would you
24 like to wrap up or go after Entergy?

25 MR. HARRIS: We can wrap up.

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1 MS. UTTAL: We would like to wrap up.

2 CHAIR YOUNG: Since you have -- Well
3 actually you are putting the burden on yourself. So
4 I think really you probably ought to go after Entergy.
5 And then if any of you want to save any of your time
6 for the end, you can. And then we will move to
7 Pilgrim Watch, and Duxbury, and Plymouth.

8 JUDGE ABRAMSON: And let's keep this to
9 ten minutes or less, please, per. I wouldn't mind any
10 aggregates.

11 MR. LEWIS: Thank you, Your Honor. I will
12 try to keep it within ten minutes, hopefully less
13 than.

14 JUDGE ABRAMSON: Yes, our law clerk will
15 give you a ten minute flag. You had better be done.

16 MR. LEWIS: Okay. I wanted to say very
17 quickly that Your Honors have appropriately identified
18 the scope of the hearing to be whether the SAMA is
19 reasonable and whether accounting for meteorological
20 conditions would lead to any additional SAMAs. That
21 directly follows from the Commission's statement and
22 the remand that I quoted to you earlier.

23 We have extensive testimony from the staff
24 and Entergy showing that the meteorological modeling
25 that we have done is adequate for a SAMA analysis, in

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1 terms of determining the averages. And we have also
2 shown that accounting for the differences of the
3 patterns that Pilgrim Watch claims he can be accounted
4 for, would make little difference. And specifically,
5 I am referring to the CALMET trajectory analysis.

6 The CALMET trajectory analysis takes into
7 account the variably spatially different winds. So it
8 take into account winds at different locations exactly
9 as Pilgrim Watch said it should. And in this respect,
10 the CALMET is the three-dimensional model that is used
11 by EPA for determining wind fields for its CALPUFF
12 dispersion model.

13 So we are using terms of evaluating the
14 spatially variable winds with CALMET. We are doing
15 the same thing that would be done as a first step to
16 a CALPUFF calculation. So we are doing the
17 meteorological aspect of the same thing that would be
18 done for CALPUFF.

19 And in that respect, we looked at 26
20 surface stations in the area. We got data from two
21 high-leveled balloon locations. And as all this data
22 went into the CALMET trajectory analysis, just as
23 described by Dr. Hanna today, to generate these three-
24 dimensional wind fields. And you can take a look at
25 an example of the three-dimensional wind field in

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1 Figure A, I believe, of his report, which shows the
2 wind being in different directions on a particular
3 hour.

4 So we use that to calculate the
5 distribution of winds used in this spatially variable
6 wind field would actually cross an arc sector. Okay?
7 And we then, as Dr. Hanna said, we computed trajectory
8 roses and we show that the trajectory roses for the
9 actual direction the plume would travel, looking at
10 the three-dimensional wind field, we feel that those
11 trajectory roses were very similar to those used in
12 the Pilgrim SAMA analysis, which is the Pilgrim 2001
13 data.

14 And in fact, Dr. O'Kula did a calculation
15 using the exposure index, where he felt the population
16 of each segment by the probability that the wind would
17 go through there using the CALMET trajectory analysis
18 and compare that with the same calculation that we did
19 in the SAMA analysis, in terms of population times the
20 Pilgrim data wind rows and we have showed it for the
21 most representative height of 500 meters. There is
22 about a four percent difference.

23 So basically, we have shown that
24 accounting for spatially variable wind fields would
25 lead to insignificant difference in the SAMA analysis.

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1 Now importantly, this analysis takes into
2 account many of the different issues that Pilgrim
3 Watch has raised. The CALMET trajectory analysis
4 includes the terrain. One of the inputs for the
5 analysis is the terrain and topography of the area.
6 And that is described in Dr. Hanna's report. So to
7 the extent that terrain has an effect on wind
8 direction, wind variability, that is taken into
9 account in the CALMET analysis.

10 The same extent, to the extent that you
11 have a sea breeze at any particular hour at any
12 particular location, that is taken into account in the
13 CALMET trajectory analysis. That is one of the hours
14 of data for that particular location that would say
15 whether the sea breeze blew it in there.

16 And if you look at Figure 8, you will see
17 some of the effects of a sea breeze where the wind
18 pattern changes. And so you have this type of wind
19 pattern for each hour and so it takes into the account
20 whatever the wind field was in the entire domain for
21 that one hour. And evaluating the analysis using the
22 CALMET trajectory analysis shows insignificant effect.

23 Pilgrim Watch basically does not make any
24 attempt to address the CALMET trajectory analysis.
25 And in fact, it doesn't appear at all in Dr. Egan's

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1 generally through his statement. Nowhere in his
2 analysis does he address the CALMET trajectory
3 analysis or the wind rose comparisons that Dr. Hanna
4 did in his report. And so therefore, you can only
5 presume that he essentially agrees with them.

6 Moreover, Pilgrim Watch in her findings
7 makes outlandish claims with respect to these various
8 analyses. But again, since Dr. Egan didn't address
9 them, there is no evidential support for that.

10 And also Pilgrim Watch has acknowledged in
11 the initial statement of position at pages 2-3, it has
12 indeed acknowledged that it is not possible for
13 Pilgrim Watch or anyone else to show that meteorology
14 in and of itself would result in a significant
15 different SAMA analysis. But that is the direction
16 that the Commission gave us to look at; accounting for
17 meteorology that result in additional SAMAs becoming
18 cost-beneficial.

19 The CALMET trajectory analysis that we
20 have done shows it would not. And Pilgrim Watch
21 itself admits that it would not. And so at least it
22 has not met its burden of going forward.

23 Well it is reduced to arguing. If you
24 look at what they argue in their findings of fact,
25 they say well a different methodology would provide a

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1 more accurate analysis. And also you see Dr. Egan say
2 well there might be a more reliable analysis if you
3 took more data. But again, that is not the issue for
4 this Board. The issue is whether or not there are any
5 additional SAMAs that would be cost-beneficial.

6 I have already alluded to the fact that
7 Pilgrim Watch appears to misunderstand the SAMA
8 analysis. She claims repeatedly throughout her
9 findings of fact that averaging the effects of the
10 SAMA, averaging ignores site-specific conditions. And
11 as you heard Dr. O'Kula explain, it does not ignore
12 any site-specific conditions. It does not ignore any
13 accident scenarios.

14 And in this respect, the statement made by
15 Dr. Egan that the SAMA analysis loses the effect of
16 different accident scenarios entirely. He makes this
17 statement on page eight. It is just not right because
18 the SAMA analysis takes into account all of the
19 accident conditions and weights them by their
20 appropriate probability to come up with the average.

21 So it takes into account all the site-
22 specific conditions. It takes into account all the
23 accidents and it appropriately weights them. So it
24 takes everything into account. There is a site-
25 specific analysis that takes into account the weather

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1 and the accident conditions.

2 Now Pilgrim Watch conveniently overlooks
3 and ignores our testimony on points that is adverse to
4 it. For example, Dr. Hanna explained in our rebuttal
5 testimony how the wind variability and topography for
6 the Molenkamp study is basically the same as that in
7 the Pilgrim region. And it is perfectly appropriate
8 to use the results of the Molenkamp study with respect
9 to the Pilgrim SAMA analysis, take that into account.
10 Nowhere does she acknowledge that rebuttal testimony
11 in her findings.

12 By the same token, you have heard Dr.
13 Hanna explain how Angevine is not on point here. He
14 explained that in his rebuttal testimony. And again,
15 that is nowhere acknowledged.

16 And finally, I would urge you to read with
17 caution the findings made by Pilgrim Watch,
18 particularly we are at various points where it
19 ascribes something to what Dr. Hanna said or Dr.
20 O'Kula said. On many times she characterizes Dr.
21 Hanna's or Dr. O'Kula's testimony and it just plainly
22 is wrong. They did not say what she claims they said.
23 Okay, you can look back at the testimony and find that
24 out.

25 And one other thing she points out to a

1 table on page 15 that she claims came from the WSMS
2 report. That table did not come from the WSMS report.
3 That is a table of her own creation. The second table
4 that appears at pages 14-15. So please read them very
5 carefully.

6 In the final analysis what the SAMA
7 analysis does it takes into account all of the
8 conditions as the statistically based analysis that
9 appropriately takes into account the consequences that
10 would result under different weather conditions,
11 different accident conditions. And therefore, it is
12 appropriate for a SAMA analysis and it gives perfectly
13 appropriate and adequate results.

14 JUDGE ABRAMSON: Under ten minutes. He
15 didn't get a call, did he?

16 CHAIR YOUNG: All right. Who is doing for
17 the Staff?

18 MR. HARRIS: I am, Your Honor.

19 CHAIR YOUNG: Go ahead, Mr. Harris.

20 MR. HARRIS: I think it is important to
21 step back from some of the details that we have been
22 discussing today that have put the SAMA analysis into
23 the context of the legal requirements that we are
24 actually discussing here. We are conducting the SAMA
25 analysis as part of our National Environmental Policy

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1 Act obligations. And the SAMA analysis is a systemic
2 way to identify mitigation measures for very complex
3 accident scenarios. And so it lends itself to this
4 talking about the very small details but not looking
5 at what the Commission has really charged us to do.

6 The Commission when they remanded it, they
7 were very clear about the requirements of the SAMA
8 analysis under NEPA and remanding just a limited
9 portion of Contention 3. The Commission stated that
10 there is no NEPA requirement to use the best
11 scientific methodologies, as has been said earlier
12 here today. And the reason that we are really
13 remanding this is to identify whether or not the SAMA
14 analysis that was done failed to identify a
15 potentially cost-beneficial mitigation measure. And
16 as long as the SAMA analysis adequately identified the
17 mitigation measures for Pilgrim, there is nothing more
18 that we need to do here.

19 As Mr. Gaukler had mentioned earlier is
20 that Pilgrim Watch in their own initial statement had
21 basically conceded this particular issue. And forgive
22 me for -- I want to read the quote from it. Pilgrim
23 Watch basically states "it is not possible for either
24 Pilgrim Watch or anyone else to show, as Mr. Gaukler
25 said . . ." But then it goes on even a little a few

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1 paragraphs later, "but on its own using a variable
2 plume model would not identify another cost-beneficial
3 SAMA."

4 And so that is really what -- That
5 encompasses everything that we have to do here is that
6 we are trying to do determine whether or not different
7 meteorological models and the conditions and some of
8 these meteorological conditions would result in the
9 identification of a new cost-beneficial SAMA. And I
10 think it is clear from Pilgrim Watch's own pleadings
11 that that is not the case here.

12 Even though the Board really need not go
13 any further than that, there has been a lot of
14 testimony that has been submitted by experts in this,
15 in terms of how this meteorological modeling would
16 affect the SAMA analysis. When you are looking at how
17 the SAMA analysis is done, you need to look at what it
18 is trying to calculate. Here we are trying to
19 calculate the expected value of this particular
20 accident. What would occur which we have been talking
21 about as the mean, the mean consequences.

22 And so just because we make small changes
23 to the meteorology or to some other particular aspect
24 of the SAMA, it needs to be able to actually move the
25 mean. And I have to thank Dr. Abramson for a little

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1 bit for putting the map on the board to sort of show
2 that in the basic form that it is. That is really
3 what we are trying to determine is, with these
4 changes, move the mean enough that a new SAMA would
5 become cost-beneficial.

6 You know, the staff experts, when
7 discussing ATMOS referring to the Molenkamp study,
8 which the Staff tends to actually refer to it as the
9 Lawrence Livermore study so you will that difference
10 in our pleadings, is it showed that ATMOS, in
11 comparison to models like CALPUFF actually was of a
12 similar performance for the purposes of a SAMA as what
13 is considered sort of the gold standard of arranging
14 particle code of law is that there is very little
15 difference between those results as they were
16 calculating the meteorology. And the staff's expert,
17 Dr. Bixler and Mr. Ramsdell who is not here but in his
18 testimony that was pre-filed, said that that study was
19 applicable to Pilgrim. And Dr. Bixler was one of the
20 authors for that study.

21 So of the people who should know whether
22 or not it would be applicable to the Pilgrim site, he
23 is clearly one of those people.

24 To get back to the sea breeze effect and
25 the Staff, what Mr. Gaukler and Dr. Hanna did with the

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1 CALMET study clearly does show that there really is no
2 difference on the wind rose that is being produced.
3 But Mr. Ramsdell went a little further in looking at
4 the sea breeze effect, and you will see that in his
5 testimony, is that he actually calculated how often
6 the sea breeze effect would occur and whether or not,
7 if you applied ATMOS to the sea breeze effect, when it
8 would overestimate the consequences and when it would
9 underestimate the consequences.

10 And the results of that is that there is
11 a small underestimating of the consequences and those,
12 about 1.4 percent, you know, the difference between
13 the overestimate and the underestimate, which is just
14 insignificant to result in a new cost-beneficial SAMA
15 being applicable here.

16 And again, he went in and did exactly the
17 same thing for hot spots, in terms of what effect that
18 would actually have on the SAMA analysis and it was a
19 very small effect and nothing to challenge the sort of
20 the factor of two that we are discussing here.

21 So in conclusion, I would simply ask the
22 Board to find that this SAMA analysis has been done in
23 an adequate manner to satisfy the requirements of
24 NEPA. Thank you.

25 CHAIR YOUNG: Thank you. Ms. Lampert?

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1 MS. LAMPERT: Yes. Ten minutes. I am
2 borrowing few from her. She has only got two. And I
3 don't think Senator Vitters would complain --

4 JUDGE ABRAMSON: But I will.

5 MS. LAMPERT: -- if I took two more
6 minutes.

7 The issue now before the Board is straight
8 forward. Has Entergy demonstrated what the Board's
9 order of the 23rd of September asked, that
10 meteorological modeling in the SAMA analysis is
11 adequate and reasonable to satisfy NEPA and that
12 counting for the meteorological issues that we brought
13 forward could not credibly alter the SAMA analysis
14 conclusions, as said in the admitted contention that
15 no further analysis is required. So that is the
16 issue.

17 The important points to consider. First,
18 Entergy is the one that is seeking a 20-year extension
19 and, therefore, they have the burden of proof to prove
20 by a preponderance of the evidence that the extension
21 should be granted.

22 Contention 3, as written, at most requires
23 Pilgrim Watch to show why further analysis is
24 required. We are not required or expected to do that
25 further analysis, nor to show its results. That would

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1 be impossible.

2 In seeking to prove that 20-year extension
3 is granted, Entergy is required to perform a site-
4 specific analysis, which means picking an available,
5 a meteorological model, amongst other things, that is
6 appropriate for this site. They didn't.

7 In short, the Board's order is whether
8 Entergy has met its burden and we are arguing that no,
9 they haven't met their burden in answering the
10 questions before them.

11 We said no one could prove or disprove
12 that simply changing the meteorological model would
13 make a significant difference. We said that. That
14 means we couldn't, they couldn't, and they haven't.
15 So they have not satisfied their burden of proof and
16 we could explain why.

17 In our conclusions of law, we make it very
18 explicit -- findings of facts and conclusions of law,
19 that Entergy in fact has the burden of proof. It
20 seemed that NRC staff thought otherwise, because they
21 said often in their findings Pilgrim Watch has not
22 shown that a Pilgrim SAMA analysis is inadequate. To
23 my mind, they have it backwards. They are shifting
24 the proof to us.

25 The issue is, what have they shown,

1 Energy, and does it require further analysis. We
2 have shown there are significant deficiencies in the
3 model used by Entergy. And because of this, their
4 original SAMA analysis and all subsequent sensitivity
5 analysis, including the analyses that Dr. Hanna and
6 Ramsdell, Hanna was requested to do using CALMET alone
7 not in combination with CALPUFF.

8 And so let's just look at the expert
9 testimony that both sides provided. Both sides hired
10 experts of equal qualifications. For example, Dr.
11 Egan and Entergy's Dr. Hanna have very similar
12 backgrounds. They respect each other. They work
13 together.

14 Dr. David Chanin, our expert, and Dr.
15 O'Kula have consulted together. Dr. O'Kula uses the
16 code frequently, the code written by David Chanin, the
17 Fortran written by David Chanin.

18 There are, however, two important
19 differences between our experts and theirs. First,
20 Entergy has a lot more money than we do to pay their
21 experts to produce a lot of paper. The second and
22 most important is what questions were the experts
23 asked. We asked Dr. Egan and Mr. Chanin whether
24 Entergy's segmented straight line Gaussian plume model
25 and the CALMET would itself answer the Board's

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1 questions. Was the meteorological modeling used by
2 Entergy and Pilgrim SAMA analysis adequate and
3 reasonable to satisfy NEPA? Dr. Egan responded
4 definitively that no, the models they used were not
5 adequate and using a CALPUFF model would satisfy all
6 the requirements of NEPA.

7 Could using a different meteorological
8 model result in a different SAMA analysis? And was
9 further analysis defined as comparing what is under
10 dispute, the use of a segment model, what that would
11 show, versus a variable model, such as endorsed and
12 used by EPA in these types of studies, which would be
13 one that models a change of direction such as CALPUFF.

14 Entergy, on the other hand, asked its
15 experts to run and re-run a lot of the Gaussian plume
16 model simulations. They never asked them to run what
17 they should have asked, an advanced variable model to
18 see how the results were different. The differences
19 between these two questions is the crux of the matter.
20 Fundamentally, Entergy's responsibility was to prove
21 that their use of the Gaussian model, Gaussian
22 segmented model, correctly and conservatively
23 estimated offsite consequences. But they didn't do
24 that.

25 So Entergy used the segmented straight

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1 line model to determine the likely area that would be
2 impacted in a deposition in that area. That model
3 assumes, and you can go right to their testimony, that
4 a plume will travel like a flashlight beam. It will
5 not vary direction as it moves off their site.
6 Entergy's expert said that their segmented straight
7 line model and the CALMET differed in some ways from
8 what they called the standard straight line model.
9 But one way in which the two were exactly the same is
10 that both assumed that there would be no changes in
11 wind direction once offsite. Dr. Egan makes that
12 point.

13 The key point in why Entergy's model is
14 not appropriate for the Pilgrim site is that it
15 incorrectly assumes that direction the wind and plume
16 travels always remains the same and it does not
17 capture wind variability that occurs at this site and,
18 thereby, limits the area of likely impact. Their
19 model also assumes that radioactive contaminants will
20 disperse rather rapidly along the pie-shaped wedge, as
21 the plume moves away from the site.

22 We showed that coastal storm strong winds
23 that occur here throughout the year moved the plume
24 more quickly over an area and to more densely
25 populated areas. Higher concentrations of deposition

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1 can be expected at greater distances because there is
2 the shorter time frame for radioactive decay to occur.

3 Further because of the complexity of the
4 site, contaminants will often remain far more
5 concentrated than in a straight line model would
6 predict. For example, a straight line model misses
7 the plume's reversal during a sea breeze. Sea breezes
8 increase dose to the population. That remains a
9 dispute.

10 Entergy's Gaussian plume model assumed
11 plumes moving out to sea will not have any impact. We
12 showed that a plume over water, rather than being
13 rapidly dispersed remained more tightly concentrated,
14 due to the lack of turbulence and will impact areas at
15 a greater distance. That still remains a he said/she
16 said, a dispute.

17 Beyond these defects in the Gaussian plume
18 model itself, Entergy's input into the model was
19 deficient. Entergy made two important assumptions.
20 First, they assumed the data from one year, 2001, was
21 sufficient to predict whether likely throughout the
22 20-year period. And more important, Entergy assumed
23 that it was not necessary to take wind data from any
24 place other than the single on-site tower. We showed
25 by reference to expert opinion in government

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1 documents, that neither assumption was correct.
2 Entergy study showing for example that the winds blow
3 in the same direction from a variety of Massachusetts
4 weather stations, is just an example, as those at
5 Pilgrim's meteorological tower were essentially
6 irrelevant because those analyses didn't show what
7 happened once the wind left that particular tower,
8 whether it was Logan Airport or Chatham or whatever.

9 How for example, if they all were pointing
10 north-northeast, fine at that time period. But what
11 happened was there a change in direction soon after it
12 left one or the other sites?

13 We also showed that what Entergy did was
14 not conservative. Even the NRC admits that the study,
15 such as the Molenkamp that Entergy relied on to
16 "prove" its model's conservatism are not applicable to
17 Pilgrim's site. Our topography is not like that on
18 the Kansas plains. And simply conducting, as Dr.
19 O'Kula did, more and more and more sensitivity studies
20 using the same flawed model doesn't make the model or
21 the results any better.

22 We also show that its advanced and site-
23 appropriate model and input data as opposed to
24 Entergy's was readily available and reliable. This
25 addresses the NEPA question used --

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1 CHAIR YOUNG: Can you wrap up?

2 MS. LAMPERT: I'm getting there. I'm
3 getting there. Remember we didn't have an expert
4 here, you know, to chat.

5 Applicable to Pilgrim's coastal location
6 and topography, unlike Entergy's, and we do not
7 understand why Entergy failed to make the comparison
8 using both models.

9 To speak very quickly to the issue that is
10 in the papers recently that the politicians are
11 complaining on how long this is taking, I just want to
12 make two points. One point is, don't blame us. They
13 NRC Commission took two years before making a
14 decision. And next and most important, beginning in
15 2007, Pilgrim Watch explained and said to Entergy, we
16 will settle and it will cost you a lot less than this
17 litigation. We will settle and you offered to appoint
18 a settlement judge for two things. One was more
19 monitoring wells on-site, placed according to standard
20 accepted design and off-site real-time monitors to
21 measure radiation emitted into our communities, all
22 both linked to Mass Department of Public Health and to
23 MEMA for emergency planning purposes.

24 That was our offer. They know the offer
25 stands today. It stood last year and the year before.

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1 The fact they will not do this, and this is a
2 statement for the public, the fact they won't accept
3 this tells us they have something to hide. And that
4 should be very disturbing to the public, to the
5 politicians, and quite honestly to yourselves.

6 CHAIR YOUNG: All right. Ms. Chin?

7 MS. CHIN: Thank you. Actually the
8 comments I have pertain to what we did this morning,
9 the cleanup and the cables. Is it all right to read
10 those today at this point?

11 CHAIR YOUNG: Go ahead.

12 MS. CHIN: The Town of Duxbury annually
13 has their town meeting and it is this Saturday.
14 However, the Board of Selectmen have already
15 unanimously approved the article that is going before
16 the town. It is in four parts. Only two parts
17 pertain today is the cleanup and the cables. So I
18 will read just those two parts.

19 The Pilgrim Nuclear Power Station should
20 not be licensed to extend operations another 20 years
21 until and unless some third party assumes
22 responsibility for cleanup after a severe nuclear
23 reactor accident to pre-accident conditions, sets a
24 cleanup standard, and identifies a funding source.

25 And the second part is Entergy either

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1 replaces all submerged electrical cables, splices, and
2 connectors not designed or qualified for submerged or
3 moist environments or develops a comprehensive Aging
4 Management Program to preclude moisture and adequately
5 tests all cables that have been exposed to an
6 environment for which it was not designed for.

7 And I expect the town meeting will
8 unanimously approve this article. We have had one in
9 the past on the Gaussian straight line plume and if I
10 had realized, I would have brought that here today.

11 But thank you very much for your time.

12 CHAIR YOUNG: Thank you. Ms. Hollis?

13 MS. HOLLIS: Yes. First thank you to the
14 panel for its interest, concern, and contribution to
15 this effort and to the parties and the staff of the
16 NRC for their contribution seeking to enlighten the
17 record in this complex and lengthy proceeding.

18 As a host community to the Pilgrim plant,
19 this proceeding is of vital importance to the town and
20 its citizens, and its businesses and the culture of
21 the town itself.

22 The Town of Plymouth wishes to make the
23 following closing statement. The Town is an historic
24 and unique community, central to American culture and
25 politics. And as such, it expects the highest level

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1 of concern, environmental concern, concern about
2 safety and security, to be delivered completely by
3 Entergy at the Pilgrim plant.

4 Compliance with all appropriate legal and
5 regulatory requisites are essential to the Town. The
6 citizens of Plymouth, the economy of Plymouth, the
7 visitors to Plymouth and the neighbors of Plymouth
8 deserve and are entitled to total care, respect and
9 consideration by Entergy and the operation of the
10 Pilgrim plant.

11 Likewise, we look to the technical
12 expertise and the dedication to mission of the ASLB
13 and the NRC itself to oversee this relicensing process
14 to its conclusion and beyond, all in the public
15 interest.

16 Thank you for your consideration and
17 listening to this closing statement. Thank you.

18 CHAIR YOUNG: Thank you. And we will be
19 issue rulings on the new contentions and on the issue
20 before us in Contention 3 as soon as is reasonably
21 possible and we will get that out to you in the near
22 future.

23 MS. LAMPERT: May I make a request that
24 you appreciate for the two new contentions and to
25 this, the dead time, I mean, God I would hope it won't

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1 be that, the time we agreed upon when I am in Cuba.

2 CHAIR YOUNG: We are not expecting to
3 receive any more filings from any of the parties.

4 MS. LAMPERT: No but to require a response
5 back, let's say, on the new contentions the day I get
6 back from Cuba would be, you know --

7 CHAIR YOUNG: What?

8 MS. LAMPERT: Well would there be any
9 filing? I don't know that.

10 CHAIR YOUNG: We don't expect that there
11 would be any further filings --

12 MS. LAMPERT: Okay, I just wanted to be
13 sure of that --

14 CHAIR YOUNG: -- at this point.

15 MS. LAMPERT: -- because I will be out of
16 touch.

17 JUDGE COLE: The appeal to the Commission.

18 CHAIR YOUNG: Right. I mean, there would
19 be a provision for an appeal to the Commission. But
20 no, --

21 MS. LAMPERT: All right. That is what I
22 wanted to be sure of.

23 CHAIR YOUNG: I think we have attempted to
24 raise all our questions. I have attempted to try to
25 get everything clarified today, rather than having to

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1 submit any further written questions. So, we are
2 going to go back and work on getting out decisions on
3 these matters as soon as we can.

4 MS. LAMPERT: Okay, great.

5 CHAIR YOUNG: And we appreciate all of you
6 being present and adding to the process. Thank you
7 all. And that would close this session.

8 And I think the court reporter may have
9 some questions for some people on spellings and so
10 forth.

11 Thank you very much, all of you.

12 (Whereupon, at 4:10 p.m., the foregoing
13 proceeding was adjourned.)

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